

REPORT

Winning the Localization Game

How Multinational Automotive OEMs and Suppliers
Are Realizing the Strategic Potential of China and India



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Are Realizing the Strategic Potential of China and India

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Note to the Reader

The ideas presented in this report are based on The Boston Consulting Group's extensive work with the world's leading automotive OEMs and suppliers, as well as on our detailed analysis of the challenges that automotive players face when they localize steps in their value chains to China and India. The report also includes insights gleaned from close to 100 interviews we conducted with senior executives of more than 40 European, Japanese, and North American automotive OEMs and suppliers during the first half of 2007. The executives we interviewed work at 8 of the world's top 10 automotive OEMs and at 15 of the top 20 automotive suppliers. Although our analysis focused primarily on the automotive industry, many of the lessons that emerged can be applied to other industries as well, such as consumer goods and industrial goods, and to other emerging markets.

In our view, the ability to design and implement the right localization strategy in growing markets such as China and India will play a decisive role in determining automotive companies' competitiveness not only in those markets but globally. We hope that *Winning the Localization Game* helps our readers master the challenges that so many companies are now confronting.

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Preface

Automotive markets in China and India are growing at breakneck speed. From 2001 through 2007, markets for passenger cars and light commercial vehicles achieved compound annual growth rates (CAGRs) of 25 percent in China and 15 percent in India, delivering 2007 sales of 8.1 million and 1.7 million vehicles, respectively. By 2015 these two countries are expected to represent a combined market of about 19 million vehicles—slightly more than the 17 million vehicles that will be sold in all of Western Europe. Clearly, China and India will play a key role in shaping the future of the automotive industry.

Little wonder, then, that these countries have attracted virtually all the world's leading automotive OEMs and suppliers. Major players from Japan, North America, and Western Europe have been racing to move products, assets, and people to China and India—not only to sell cars in these rapidly developing economies (RDEs) but also to conduct one or more of the four basic steps in their value chains there: research and development (R&D), sourcing, manufacturing, and sales.

Despite all this activity, it is not clear whether—or to what extent—these international OEMs and suppliers have actually *arrived* in China and India. How effectively are they managing their localized operations, and how fully are they realizing the potential for value creation that these two countries offer?

Our recent analysis yielded the following observations about OEMs and suppliers seeking to localize steps in their value chains:

R&D. Offshoring R&D activities to China or India presents real opportunities because these countries are home to large pools of engineering graduates. In most cases, however, the local R&D centers that automotive OEMs and suppliers establish in China or India remain small and have very limited autonomy.

Sourcing. The substantial savings available by sourcing from China and India have lured dozens of multinational OEMs and suppliers to establish sourcing offices in these countries. However, on average, China and India still represent less than 5 percent—a tiny fraction—of those companies' overall sourcing volumes.

Manufacturing. Although a large number of established multinational OEMs and suppliers have launched manufacturing operations in China or India, building more than 150 factories in the two countries since the mid-1990s, cost savings have been disappointing. Nearly two-thirds of the companies we studied are manufacturing in China or India at similar or *even higher* unit costs than in their home countries, because of diseconomies of scale, overengineered production processes, and the additional cost of ensuring product quality.

Sales. For foreign OEMs operating in China or India, selling cars to a larger share of local customers is a strategic imperative. Yet most foreign OEMs serve these markets with European or U.S. models that are only partially adapted to local requirements. In contrast, local OEMs such as Chery in China and Tata in India focus on their local customers' needs, providing, for example, smaller engines, larger trunk space, and rear seating with more comfort features—at relatively low prices.

Clearly, the automotive industry is still on its “long march” to establishing effective operations in China and India. Notably, some players are pioneering new approaches in various functions. For instance, some have set up smart models for cooperation; one example is international development teams that operate 24-7, linking Chinese, U.S., and German R&D centers. In addition, a number of companies are employing production-related

practices that contribute to competitive advantage, such as setting up factories for flexible manufacturing, replacing robots with manual labor, stringently using local equipment, and conducting international quality exchanges among employees. But these localization champions are rare. Companies working toward true localization in the local—and global—markets of the future still have a long way to go.



Rethinking Localization Strategies for Success in China and India

The automotive markets of Japan, North America, and Western Europe—known as the Triad—are saturated. Except in certain niches, such as SUVs (sport utility vehicles) and sports cars, sales are flat; annual growth rates of 0 to 1 percent have become a consistent pattern over the past few years, and we foresee no major change in this trend. It's no surprise, then, that OEMs are searching the globe for new growth opportunities. They have been particularly attracted to China and India, where from 2001 through 2007 car sales soared at dazzling CAGRs of 25 percent and 15 percent, respectively. Together these two markets are expected to represent more than 20 percent of the global car market in 2015.

Despite this breakneck sales growth, the history of foreign automotive operations in the two countries is fairly young. It began only as recently as the 1980s, when Volkswagen Group became the pioneering foreign automotive company in China and Suzuki became the first foreign OEM to launch an automotive joint venture in India. Today, just two decades later, virtually all OEMs based in Triad markets are active in these markets. In 2007, 8.1 million passenger cars and light commercial vehicles were sold in China, and 1.7 million were sold in India.

Many foreign suppliers have followed foreign OEMs to the region, establishing industry clusters similar to those in their home markets. In China there are now four principal automotive manufacturing clusters: Beijing, Changchun, Guangzhou, and Shanghai. In India there are currently three: Bangalore, Delhi, and Pune. These clusters are the centers of the Chinese and Indian automotive in-

dustries, just as Detroit is the center of the industry in North America.

In the first wave of globalization, foreign players extended their operations to China and India primarily to serve local demand. In the second wave, which is currently under way, OEMs and suppliers are seeking to embed and expand their value chains in the local environment. Their goal is to benefit as much as possible from the resources in China and India and to realize the full potential of these markets.

During the first wave, many automakers established local sites to assemble completely knocked down (CKD) vehicles. In CKD assembly, all the components needed to make up a vehicle are packed into kits in the OEM's home market, shipped, and assembled at their destinations.

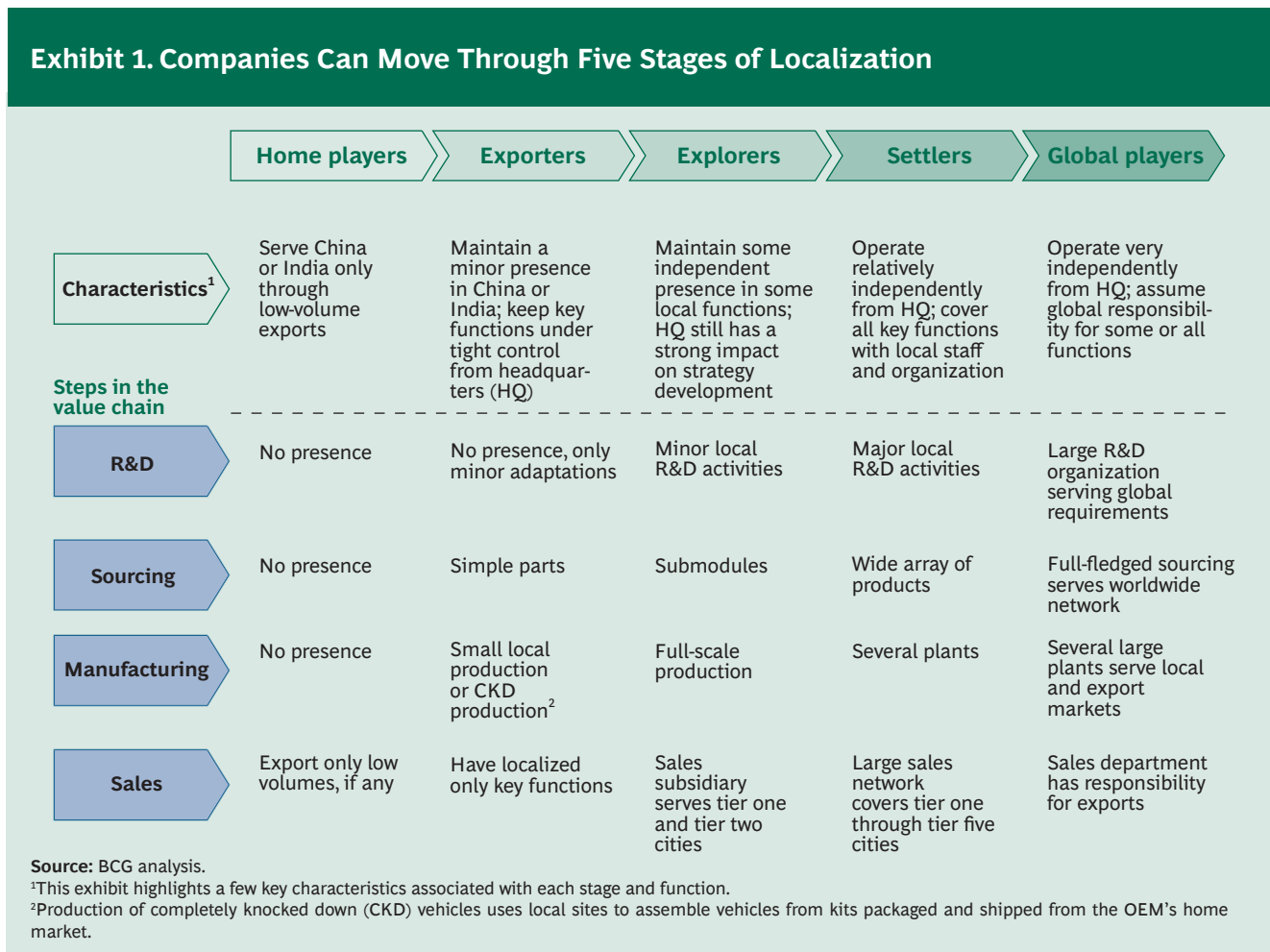
The CKD approach remains a viable option in the two countries, as evidenced by BMW's opening of a CKD facility in India in 2007 to assemble its 3 Series and 5 Series vehicles. This approach allows OEMs to penetrate distant markets with small volumes in a tax-optimized manner. For its 5 Series vehicles, for example, BMW pays duty of around 35 percent on the CKD units—less than one-third of the 120 percent import tax that would be paid on completely built units. However, many OEMs—including BMW in India—will look to gradually increase local-content levels.

Today, in the second wave of globalization, OEMs and suppliers are embedding and expanding their operations in China and India not only to capture opportunities in those fast-growing markets but also to bolster their glob-

al competitiveness. As a senior executive of a North American supplier put it, “We have to localize further in China because otherwise we risk losing our customers even in our home markets.” Hyundai, for example, is currently developing its Indian operations further to create a comprehensive hub that will produce small cars for global markets. The hub will include an R&D center, extensive local sourcing activities, and manufacturing operations. Clearly, localization in China and India is not just another trend but a key element in automotive companies’ long-term strategy.

OEMs and suppliers are achieving various degrees of localization in RDEs. To capture the full spectrum and the process of localization, BCG developed a five-stage model. (See Exhibit 1.) In this model, companies can be described as belonging to one of five categories:

- ◇ *Home players*, which serve China or India only by exporting low volumes from their home bases
- ◇ *Exporters*, which have a minor local presence but keep key functions under tight control from headquarters
- ◇ *Explorers*, which have some independent functions in China or India but whose headquarters still have a strong impact on overall strategy for these markets
- ◇ *Settlers*, which act relatively independently from headquarters and have local staff perform many key functions
- ◇ *Global players*, which give local operations strong autonomy from headquarters and global responsibility for specific functions or products



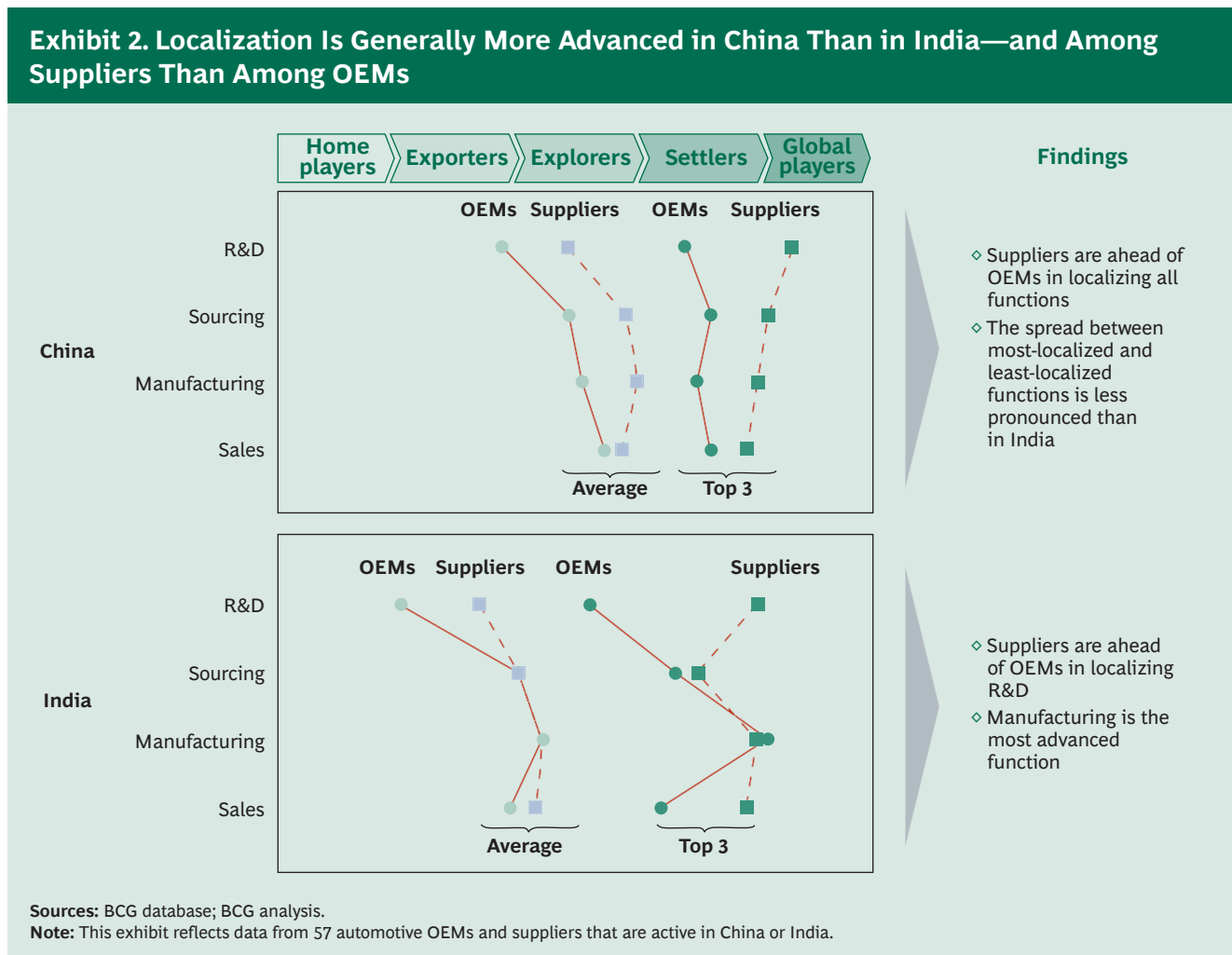
Companies typically progress from the “home player” stage through successively more embedded operations and higher levels of autonomy. At present, very few companies are fully global players, while many are explorers or settlers.

The localization of automotive OEMs and suppliers in China and India varies considerably on a number of dimensions. Two basic patterns are prevalent at this point: first, localization in China is more advanced than localization in India; second, suppliers have progressed further in the localization process than OEMs have. (See Exhibit 2.)

It makes sense that China has attracted more foreign automotive companies than India: China offers the larger,

richer, and faster-growing market. In general, automotive companies that are active today in China have already set up some local R&D activities, are sourcing several groups of commodities locally, and are engaged in full-scale production activities in the country. Foreign OEMs focus their sales activities mainly in China’s larger cities, while foreign suppliers are selling primarily to international OEMs.

In India, by contrast, automotive players have generally attained a much lower degree of localization. Their R&D activities concentrate on making small adaptations to existing products, their local sourcing is commonly limited to simple parts, and their local manufacturing tends to take the form of CKD assembly or small-scale local production. The foreign OEMs that are active in India have



localized only limited sales functions there; foreign suppliers tend to focus on only a few international clients.

In both China and India, suppliers are more advanced in their localization than OEMs mainly because continuous price pressure from the OEMs has pushed many suppliers to these low-cost countries. Moreover, because the supplier business tends to be less complex than the OEM business, suppliers found it feasible to shift more of their operations to China and India, and to do so earlier, than OEMs did.

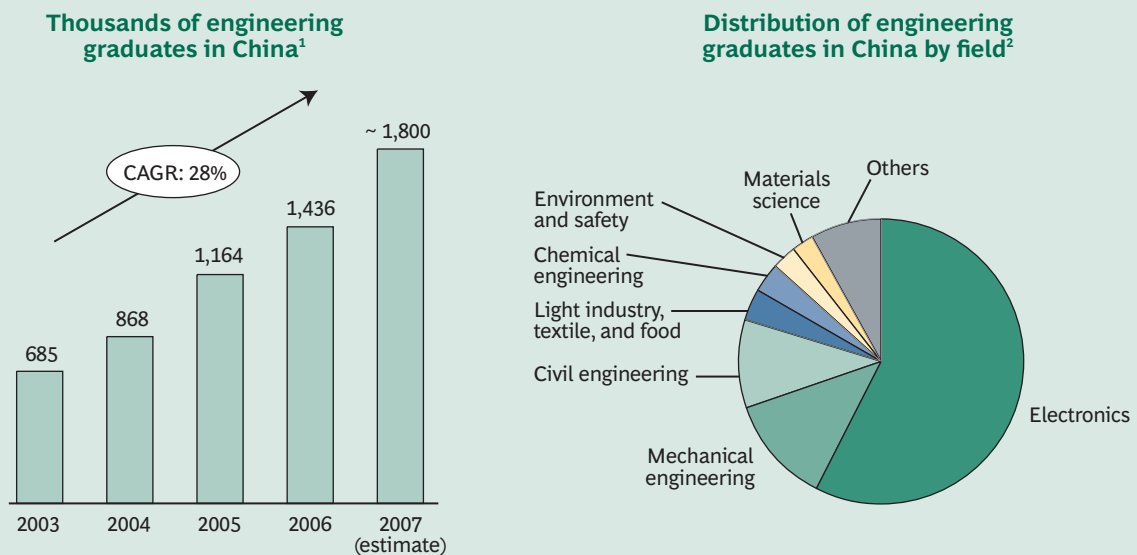
No matter the region or type of company, successful localization depends on making the right strategic decisions along the value chain. In the following sections we explore the challenges that companies are facing in their localization efforts, as well as the lessons they are learning and the best practices they are developing in five areas: leveraging R&D capabilities, sourcing from the local supply base, managing manufacturing operations, driving sales (for OEMs and for suppliers), and orchestrating the value chain.

Leveraging R&D Capabilities

Fueling the growing offshoring of R&D activities to China and India are those countries' apparently endless pools of low-cost engineering resources. In 2007 China alone graduated some 1.8 million trained engineers, while India graduated about 450,000—and these numbers are expected to continue to increase at compound annual growth rates in the double digits. (See Exhibits 3 and 4.)

Although most of these engineering graduates still require considerable on-the-job training, their sheer numbers create an opportunity for foreign automotive companies to conduct local R&D activities in China or India. For example, recognizing this opportunity, Toyota entered into a cooperative agreement with Tsinghua University in 2005 that established the Center of Industrial Development and Environmental Governance. The company an-

Exhibit 3. China Graduated About 1.8 Million Engineers in 2007



Sources: China Statistical Yearbook, 2006; Educational Statistics Yearbook, 2006; BCG analysis.

Note: CAGR = compound annual growth rate.

¹For the purposes of calculating the number of graduates, engineering graduates are defined as students graduating from postgraduate, undergraduate, and junior college programs in engineering; data for 2007 are extrapolated from 2003–2006 data.

²For the purposes of assessing the distribution of engineering graduates by field, engineering graduates are defined as students graduating from undergraduate and junior college programs in engineering.

nounced that it planned to invest about \$5.3 million in the center over the next three years. The center’s goals include advancing graduate education and on-the-job training in development. Moreover, in 2006 Toyota opened a new R&D center in Jilin Province together with FAW (First Automotive Works).

Despite the extraordinary promise that China and India hold, most local automotive R&D centers in these countries are not realizing their full potential for value creation. Many R&D centers in China and India are still relatively small and have only limited autonomy. They tend to operate either as *engineering nuclei* or as *local hubs*—two types of R&D organizations that primarily adapt products from the company’s home market to local market requirements. (See the descriptions on pages 14 and 15.) In general, local R&D employees in China and India represent less than 3 percent of their companies’ total R&D staff worldwide. However, our study confirmed that many

foreign OEMs and suppliers are planning to strengthen their local R&D centers within the next few years, expanding their local R&D staff significantly: some of the executives we interviewed told us that their companies intended to triple their local R&D staff by 2010.

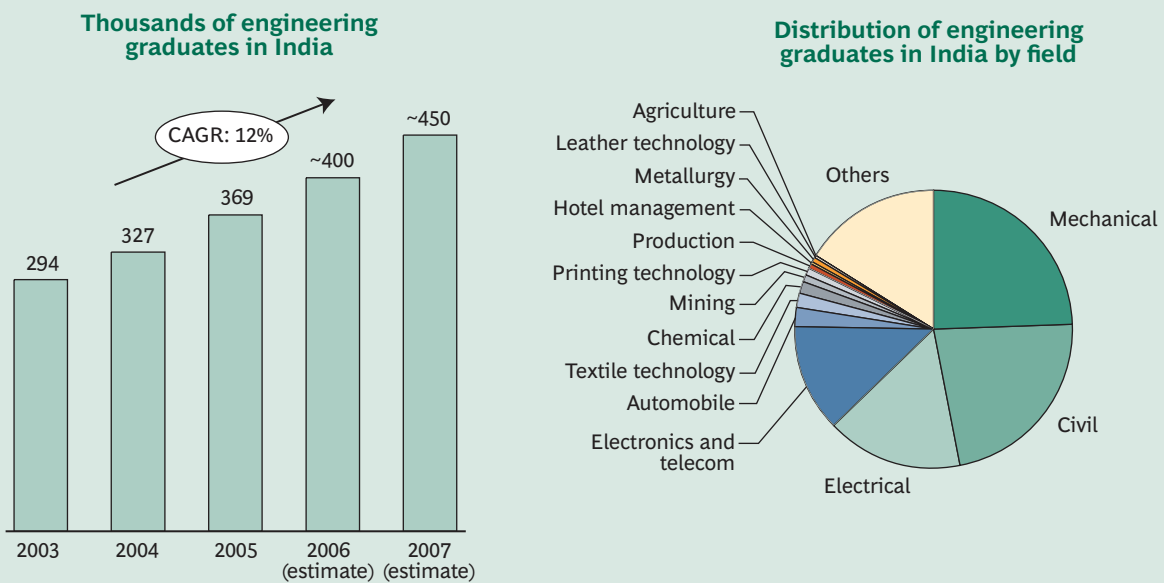
Most local R&D centers are not realizing their full potential for value creation.

To achieve this substantial growth and to fully leverage their local R&D activities, OEMs and suppliers must chart the strategic role that their local R&D centers should play and must manage the transfer of know-how and the protection of intellectual property.

Charting the Strategic Role of Local R&D Centers

The role of local R&D centers can be defined along two major dimensions: the scope of their project responsibility and their managerial autonomy from global R&D. The scope of project responsibility can range from providing

Exhibit 4. India Graduated About 450,000 Engineers in 2007



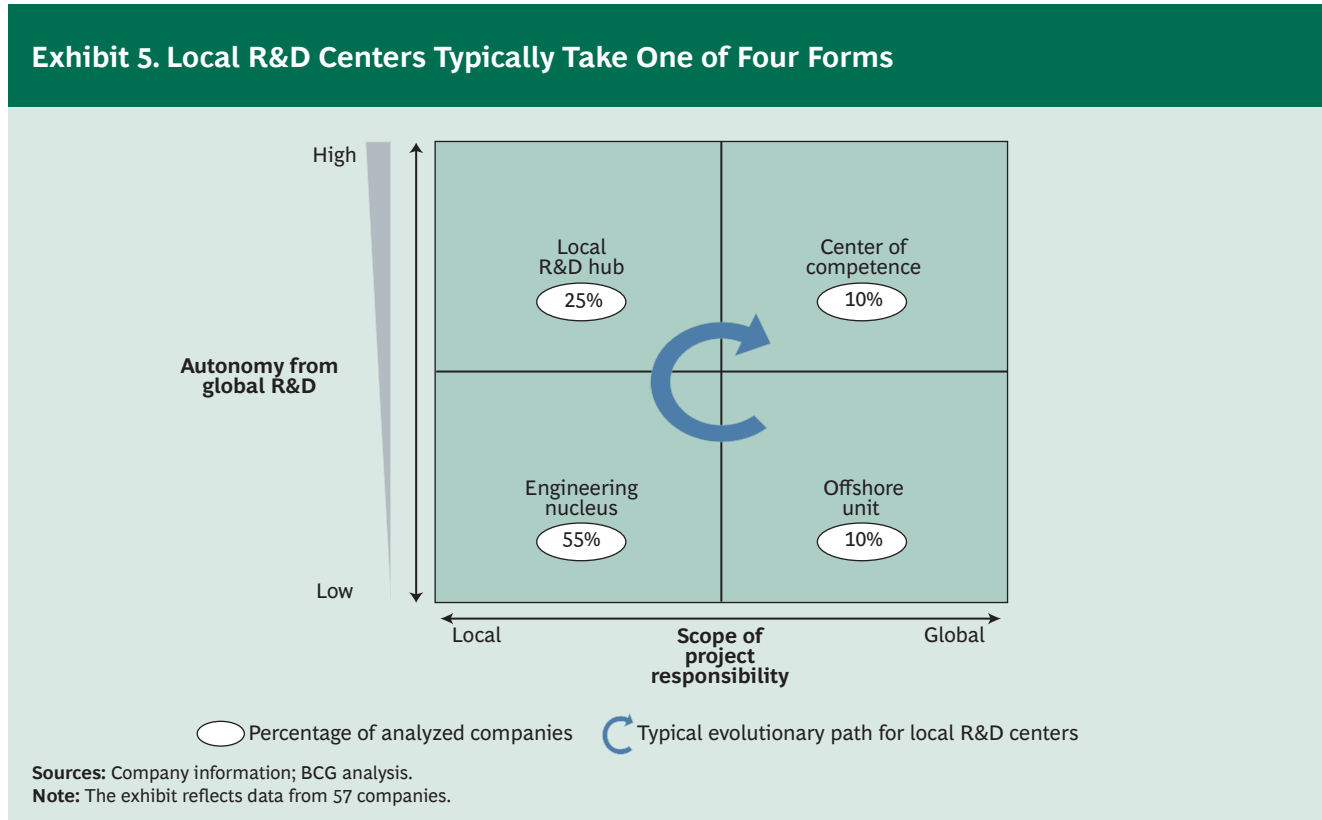
Sources: National Association of Software and Service Companies; Department of Higher Education, Indian Ministry of Human Resource Development; Institute of Applied Manpower Research, *India Yearbook 2006: Manpower Profile*; BCG analysis.
Note: For the purposes of calculating the number and distribution of engineering graduates, engineering graduates are defined as students graduating from three-year or four-year programs in engineering; data for 2006 and 2007 are extrapolated from 2003–2005 data.

some engineering for local product adaptations to managing entire global development projects; managerial autonomy can range from a limited, “extended workbench” approach to an independent and entrepreneurial style of local management. Depending on their positions on both parameters, R&D centers can take four forms: offshore units, engineering nuclei, local R&D hubs, and centers of competence. (See Exhibit 5.)

Offshore Units. The mission of offshore units in low-cost countries is to develop specific products or technologies for worldwide use. A company’s main purpose in setting up such units in China or India is to benefit from low factor costs and abundant local talent. For example, an international supplier established an offshore technology center in China to develop complex software for both automatic transmissions and car navigation systems. In this case, the local R&D center is working on projects that have global reach, but it also has only limited autonomy from headquarters, because most programming routines are prescribed by R&D operations in the home country.

Ten percent of the companies we analyzed reported leveraging their local R&D centers in this way. The quality of interactions between headquarters and the local subsidiary plays an important role in the arrangement, but standardized processes and effective communication are the real keys to success, because headquarters needs to steer each step in the development process.

Engineering Nuclei. The great majority of foreign automotive OEMs and suppliers we interviewed for this report manage their local R&D centers in this manner. Generally, an engineering nucleus works on projects with local reach, primarily by engineering adaptations of existing designs rather than coming up with entirely new ones. Such centers work in close collaboration with global R&D, which may play a steering, supporting, or controlling role. For example, when one German supplier needed to modify a connecting rod to meet the requirements of local customers, its global R&D center chose to retain responsibility for the product while taking advantage of the local R&D center’s proximity to those customers.



In our experience, key success factors for this type of R&D center are the use of mixed teams that include both global and local staff members, the maintenance of significant international involvement, and the frequent exchange of staff. This approach fosters the development of local R&D staff and prepares them to take on more responsibility in the future.

Local R&D Hubs. A local R&D hub typically operates with a high level of autonomy from global R&D while focusing primarily on development projects with local reach. We found an example of such a hub at a European OEM that is intensively redeveloping its products for the Chinese market. Although each vehicle model is still based on the company's global car platforms, the Chinese R&D hub is developing or modifying each model in a quite autonomous way.

For hub arrangements to work well, it is important that the local organization maintain a link to global R&D, leveraging headquarters as a consultant rather than as a watchdog. Conversely, the local R&D center must adopt best practices from global R&D in order to qualify for more responsibility in the future. One-quarter of the foreign automotive companies we analyzed had chosen this setup as the way to organize their R&D activities in China or India.

Centers of Competence. Finally, when local R&D centers gain the authority for global development projects and can execute them in relative autonomy from global R&D, they become centers of competence. Although R&D centers of this type are still rare in China and India today, their numbers are expected to increase as foreign companies strengthen their local capabilities in R&D. For example, a U.S. electronics supplier is developing and manufacturing most of its cables and connectors for local and global use in China, where the company now has a center of competence for these products. In this setup, the local engineering team has responsibility for the global product and acts relatively autonomously, rather than under the close supervision of global R&D. There is of course some coordination between the local and global organizations, mainly in the form of global councils focusing on specific projects.

Managing the Transfer of Know-how and Protecting Intellectual Property

When it comes to localizing R&D activities, two concerns are at the top of many managers' minds: how to transfer know-how effectively from global R&D to China or India and how to protect it from any theft, infringement, or loss caused by employees who leak information or leave the company.

Local R&D hubs should leverage headquarters as a consultant, not as a watchdog.

Transferring Know-how. There are several ways to transfer know-how from global R&D to local R&D centers in China and India. The following three approaches are used most frequently by foreign automotive OEMs and suppliers:

- ◇ *Local Training.* Expert staff members from the company's global R&D travel to provide training to engineers at local centers. In general, this approach is preferred by European and North American companies.
- ◇ *Centralized Training.* Local engineers travel to headquarters for specific training sessions or long-term training exchanges. This approach is typical of Japanese companies, which tend to transfer to their headquarters large portions of the local R&D staff for long periods of time—sometimes up to 30 percent of the staff for up to 18 months.
- ◇ *Joint Projects.* Global and local staff members share knowledge and experience by cooperating on global R&D projects. This approach is by far the most practical way to transfer know-how, but it requires a high level of standardization and discipline at the team's interfaces. (For an example, see the sidebar "A German Supplier Takes a 24-7 Approach to R&D," page 16.)

Protecting Intellectual Property. The management of intellectual property falls into three realms: securing licenses, patents, and nondiffusion agreements; restricting access to information; and retaining staff. All players find that protecting specific know-how through licenses, patents, and nondiffusion agreements is essential from the initial stages of any R&D project through its conclusion. It is critically important to ensure that such protection is seamless. Companies that have unpatented intellectual

A German Supplier Takes a 24-7 Approach to R&D

A German supplier of lighting systems and electronics has been active in China since the 1990s. Several years ago it established a local R&D center for electronic components, where it currently employs 40 engineers. For the past three years, the center has been responsible for small adaptations and product development projects. In addition, some five to eight engineers at the center are members of a worldwide 24-7 R&D team. This team spans the globe, with members working concurrently in China, Germany, and the United States. Their collaboration is based on the “follow the sun” principle. At the end of the workday in each location, the local team hands off the job to the team in the time zone where the workday is just beginning.

To ensure that teams of this kind function successfully across continents and cultures, companies need to establish regular, disciplined, and very structured communication among all team members. It is critical for the involved team members to be assigned to a project that is structured into submodules that can be completed in parallel and for the local teams not to be entirely dependent on each other. Critical elements in this type of R&D approach include intensive joint training, reliable communication tools, advanced coengineering systems, regular face-to-face meetings of all engineers, and advanced English-language skills. It is also important that the teams be truly integrated and equal, with members from all centers involved in all aspects of the daily R&D work.

property run a high risk that it will be copied and sold in local markets and beyond.

Similarly, local R&D centers need to prevent the loss of sensitive information stored in digital or print formats; one option is blocking access to computer servers. Many foreign companies, especially in China, have instituted policies whereby they grant online access to project information only to employees who have been with the company for years.

Companies conducting R&D in China or India also face a real risk that intellectual property will simply walk out the door. To minimize this risk, foreign OEMs and suppliers need to establish a comprehensive set of incentives to retain the top members of their local R&D staffs. Important elements of such incentive systems could include the following:

- ◇ *Challenging Projects.* By giving engineers the opportunity to work on significant projects with global reach rather than simple adaptation tasks, companies create learning environments that play a critical role in retaining the best people.
- ◇ *Career Development.* Clear career paths and opportunities to undergo training at global R&D have a dramatic impact on retention—generally outweighing the effects of purely monetary remuneration.

- ◇ *Competitive Remuneration.* Salaries, fringe benefits such as housing and transportation, and long-term financial benefits such as pensions and mortgages play an important, although not decisive, role in retaining talent.

In another approach, some companies are recruiting engineers from midlevel rather than top-ranking universities and locating R&D centers in tier two cities.¹ In this way, companies reduce the level of competition and poaching, while still achieving solid R&D performance.

As we have highlighted in this section, conducting R&D in China or India presents an opportunity that most automotive players will need to address in the next few years. To successfully localize and sustain this critical step in the value chain in these countries, companies must carefully define the strategic roles of their local R&D centers. They also must ensure that the centers adopt approaches that enable them to adequately transfer know-how and protect their intellectual property.

1. For the purposes of this report, BCG classified Chinese cities into tiers by population. Tier one cities, which include Beijing, Chongqing, Shanghai, and Wuhan, have a population of 2 million or more. Tier two cities, such as Hohhot, Luoyang, Xuzhou, and many provincial capitals, have a population of between 1 million and 2 million. Tier three cities, such as Guiyang, Ningbo, and Wenzhou, have a population of between 550,000 and 999,999. Tier four cities have a population of between 350,000 and 554,999. Finally, tier five cities have a population of fewer than 350,000; this tier includes China's smallest towns and villages.



Sourcing from the Local Supply Base

Exports of automotive components from China and India have surged in recent years. From 2000 through 2006, exports from China in the six key commodity groups we analyzed for this study grew at a CAGR of 35 percent, reaching a total value of about \$15.7 billion. During the same period, exports from India grew at a CAGR of 24 percent to reach a value of about \$1.6 billion. (See Exhibit 6, page 18.)

The explosive growth of automotive exports from China and India is likely to continue, driven primarily by low costs. Foreign companies sourcing selected parts from these countries report that their savings on total landed costs average some 15 to 20 percent. (Total landed costs are the sum of all costs associated with making and delivering products, including purchasing and validation costs related to low-cost-country sourcing.) As a result, the exports of many leading local suppliers have grown at a blistering pace. For example, Chinese automotive suppliers Zhejiang Wanfeng Auto Wheel, Shandong Linglong Rubber, and South China Tire & Rubber all increased their exports by between 70 and 110 percent in 2006 alone. Also driving export growth are the many foreign suppliers of parts and components that have established a local presence in China over the past few years. These companies are investing further to expand the range of products they make in the country, both for sale locally and for export.

Despite the recent excitement in the media about low-cost-country sourcing, most automotive OEMs and suppliers currently source less than 5 percent of their global bills of materials from China or India. (See Exhibit 7, page

18.) To fully realize the sourcing potential of these RDEs, companies must grow their local supply bases, and many are working to do that by expanding their local sourcing, actively developing their local suppliers, and overcoming internal resistance to local sourcing.

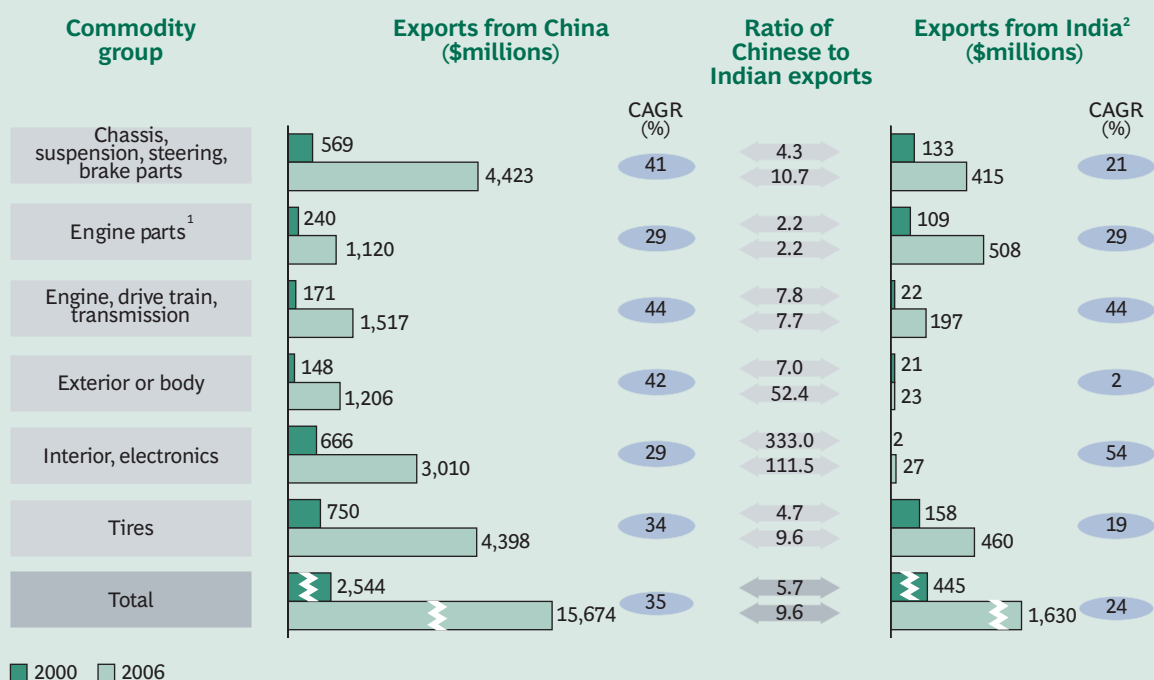
Expanding Local Sourcing

To expand the very limited scope of their current sourcing from China and India, companies need to engage in a threefold approach:

- ◇ Buying more of the parts that they already source in China or India.
- ◇ Upgrading the items they buy by moving beyond sourcing simple parts to sourcing more complex, higher-value-added parts.
- ◇ Shifting their sourcing volumes from higher-cost suppliers to lower-cost suppliers. In some—but by no means all—cases, this shift may mean transferring spending from localized international suppliers to truly local suppliers with Chinese or Indian ownership and management.

Buying More of Currently Sourced Parts. The simplest option is to source larger volumes of the same parts or other commodities that companies are already sourcing in China and India. Because the suppliers already producing those items have established a track record for doing so, there is likely to be little internal resistance to increasing the orders placed with those suppliers. Of course, a supplier's capabilities may need to be developed to

Exhibit 6. Exports of Automotive Components from China and India Surged from 2000 Through 2006



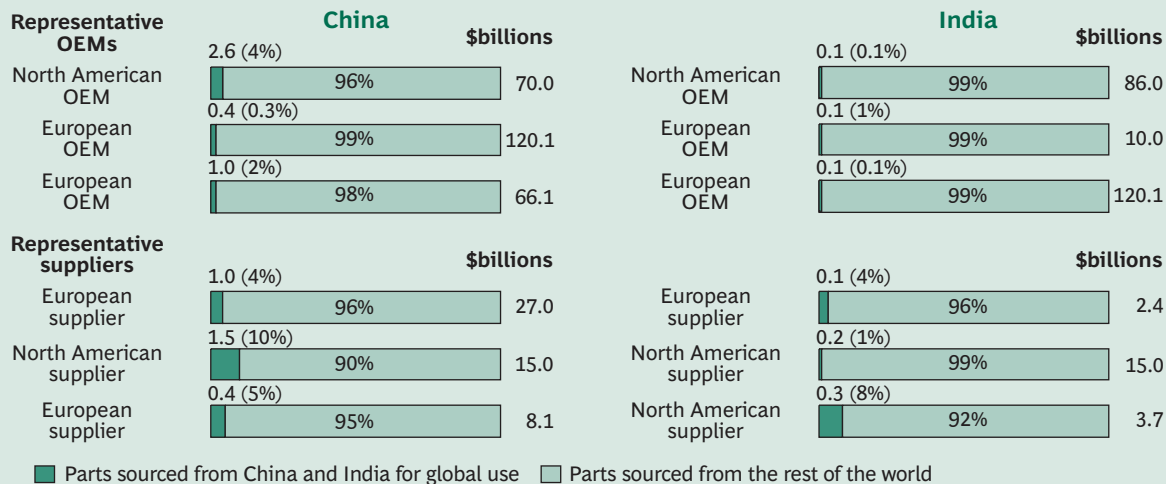
Sources: United Nations Commodity Trade Statistics Database; BCG analysis.

¹The engine parts group includes parts for nonautomotive engines, such as those for aircraft.

²BCG estimated 2006 values for India on the basis of 2005 data.

Exhibit 7. On a Global Scale, Automotive Parts Sourced from China and India Still Play a Minor Role

Sourcing volumes of selected automotive companies, 2007



Sources: Company information; BCG analysis.

accommodate the larger orders.

Upgrading the Items Sourced. Moving beyond simple parts to source modules and components requires a well-established and trusting relationship with local suppliers and a commitment to actively developing them. In many cases, companies shy away from this option because it is time-consuming and costly. Many foreign companies prefer to have proven home-country suppliers of modules or components establish a local presence in China or India and thus continue serving their customers' needs in those countries. Nevertheless, sourcing from truly local suppliers has the potential to generate substantial cost savings and is becoming more feasible as the local supplier industry matures.

Shifting to Lower-Cost Suppliers. Companies need to carefully assess the actual total costs of working with various local suppliers, choosing the ones with the optimal overall cost positions. Total costs include, for instance, not only the agreed-upon costs of producing and delivering the requested items but also the costs associated with supplier development, supervision, and quality assurance. In some cases, companies can cut total costs by shifting more of their sourcing volume from localized international suppliers to truly local suppliers; in other cases, the reverse may be true.

Currently, we cannot identify a clear trend in this area. Among the companies we interviewed, sourcing from truly local suppliers ranges from 20 to 80 percent of total sourcing from China and India. To choose between the two kinds of suppliers based in China and India, companies must carefully weigh the lower product costs that

A Japanese OEM Develops Its Local Suppliers

When establishing a relationship with a supplier, a certain Japanese OEM assumes responsibility for helping that supplier develop its capabilities and grow its business. This OEM considers its suppliers' success to be a reflection of its own success, and it expends considerable effort to help its suppliers improve their performance. Toward this end, the OEM employs the following techniques:

- ◇ Monitoring its suppliers' performance extensively, while insisting that the senior managers and key executives of each supplier organization be responsible for all quality and performance issues
- ◇ Performing thorough quality audits every six months
- ◇ Deploying proprietary processes that facilitate rapid problem resolution; these processes also ensure that whenever there is a defect, the supplier addresses the root cause to prevent such problems from recurring
- ◇ Making available to its suppliers a robust knowledge-sharing network that allows them to enhance their capabilities by learning from one another

truly local suppliers typically offer against the higher process and quality risks that result from their relative lack of experience supplying to foreign companies. Our study has shown that truly local suppliers still have a long way to go before they can become the primary supply base for the industry. Interestingly, when it comes to tapping into the truly local supply base, the automotive industry lags behind many others, such as apparel and electronics.

Actively Developing Local Suppliers

Every sustainable sourcing strategy in China requires a strong supplier-development component. Developing suppliers may mean working with them to prepare their production staff and facilities to handle larger volumes, improve quality, or produce

more sophisticated modules and components. Moreover, because many local suppliers are not familiar with the processes used by international OEMs—such as risk management, part and process audits, production readiness approvals, and supplier quality reviews—companies need to help them get up to speed on these topics. (For an example, see the sidebar “A Japanese OEM Develops Its Local Suppliers.”) For this reason, best-practice purchasing organizations generally employ two to three times as many supplier-development specialists as they do buyers.

Best-practice supplier-development programs focus on the following five dimensions:

- ◇ *Quality.* Helping suppliers reduce their defect rates to targeted levels and establish sustainable quality cultures.

- ◇ *Plant Effectiveness.* Helping suppliers improve their production systems, including process flow, asset structure, and operations skills.
- ◇ *Logistics.* Helping suppliers meet OEM-specific logistics requirements, including the management of logistics partners and export operations.
- ◇ *Product Development.* Helping suppliers master OEM-specific engineering guidelines and standards.
- ◇ *Management of Tier Two Suppliers.* Helping suppliers master best practices in purchasing and in managing the supplier interface.

A U.S. Supplier Educates Its Employees on Sourcing from China

To lower internal resistance to sourcing from China, a U.S. supplier set up an educational program with two major elements: China sourcing fairs and supplier visits to headquarters.

Twice a year, the company's local sourcing office in China hosts a sourcing fair involving more than 200 local suppliers and some 80 U.S.-based purchasers and engineers. The fairs include company presentations, supplier presentations, and plant visits, as well as more than 400 one-on-one meetings. They are designed to offer multiple opportunities for purchasers and engineers to learn about suppliers' capabilities and to build or deepen personal relationships.

In addition to these half-yearly China sourcing fairs, the company invites its top-performing Chinese suppliers to its headquarters, where focused interactions with purchasers, development engineers, and quality managers provide opportunities for U.S.-based staff to get to know the Chinese suppliers and their capabilities. The suppliers, for their part, have a chance to present their product ranges and to better understand their client's product-development processes, quality standards, and policies.

which buyers' and engineers' individual performance assessments are tied to the company's sourcing volume from China or India.

Finally, much internal resistance arises from the perceived risks of sourcing from China or India. These risks include the real uncertainties inherent in extended supply chains, foreign currencies, and unfamiliar cultural and political practices. The executives we interviewed reported that, in most cases, their companies have been able to overcome this resistance only when top management has supported and driven local sourcing activities. In addition, clear policies for logistics, hedging, development, and sourcing in China or India are critical for a successful sourcing strategy.

Overcoming Internal Resistance

Internal resistance, principally in the company's headquarters, is the main constraint limiting the rapid growth of sourcing from China and India. Many purchasers, development engineers, and quality managers at headquarters have only limited knowledge of Chinese and Indian suppliers' capabilities and are unfamiliar with their business environments and practices. One way to address this lack of understanding is through internal education programs that inform relevant stakeholders about the strengths and benefits of the Chinese and Indian supply bases. (For an example, see the sidebar "A U.S. Supplier Educates Its Employees on Sourcing from China.")

A second reason for internal resistance is the perceived difficulty of sourcing from China and India—primarily the additional work needed to find new suppliers, qualify them, and transfer the company's sourcing to them. It can be helpful to establish central program management to coordinate this process, as well as an incentive system in

As described in the previous pages, sourcing successfully from China or India requires moving away from traditional transactional relationships between OEMs and suppliers to more strategic and cooperative patterns. It also entails broad efforts to develop local suppliers and overcome internal resistance.



Managing Manufacturing Operations

In recent years, automotive OEMs and tier one suppliers have established more than 100 production plants in China and more than 60 in India. Within each country, clusters of plants have formed, strengthening both countries' roles as major production hubs for automotive players. In China there are now four principal automotive manufacturing clusters, near Beijing, Changchun, Guangzhou, and Shanghai; in India there are currently three, near Bangalore, Delhi, and Pune. The main drivers of this development have been low labor and factor costs and fast-growing local-market demand, combined with local-content regulations that make imports financially unattractive. (See Exhibit 8, page 22, and Exhibit 9, page 23.)

The potential cost savings in these countries rest heavily on labor cost differentials. In 2007 an hour of manufacturing labor cost \$37 in Germany, \$1.40 in China, and \$1 in India. Taking into account the lower productivity in China and India, manufacturing labor there costs three to five times less than labor in developed countries. Strikingly, despite these substantial cost differentials, nearly two-thirds of the companies we analyzed reported that their unit costs in China or India were equal to or higher than their unit costs in their home countries. (See Exhibit 10, page 24.) Among many factors driving this sub-optimal outcome are the typically small scale of local operations, the limited localization of production processes, and the relatively high cost of local quality control. (See Exhibit 11, page 24.)

One reason for the scale issue is that many foreign suppliers have located their plants in China or India close to foreign OEMs' plants, where they are dependent on those

OEMs' relatively low and volatile production volumes. For instance, whereas in North America the OEMs' average annual production volume is 485,000 vehicles per model type, in China it is only 210,000 and in India 110,000. In addition, volume volatility tends to be much higher in RDEs than in developed markets. In China, for example, the sales of some models dropped by close to 50 percent from 2004 to 2005 and then quadrupled from 2005 to 2006.

Another reason for the disappointingly high manufacturing costs is that companies have achieved only limited localization and adaptation of their production processes. In some cases, this is because they pursue a strategy of standardizing production processes across regions. Although this approach may offer opportunities for sharing best practices and exchanging staff, relying on a high degree of automation—and thus using a relatively low share of manual labor—don't make sense in regions where low wages constitute a huge competitive advantage.

Last but not least, companies operating in China or India must make considerable efforts to attain quality levels that are comparable to those in developed countries. The cost of these efforts substantially undercuts the local advantage in labor costs.

To fully realize the potential competitive advantage to be gained from their localized Chinese or Indian manufacturing operations, foreign OEMs and suppliers need to optimize the scale of their operations, adapt their manufacturing processes to local conditions, and closely manage quality.

Optimizing the Scale of Operations

Many plants operated by foreign automotive players in China and India are subscale. To address this issue, companies can either increase per-plant volume by bundling scattered, smaller plants into one or two manufacturing hubs or increase each plant's production to serve a broader market. For example, a company could reconfigure a plant that makes products for the local market to make products for international or even global markets. Magneti Marelli took this approach when it shifted to its Guangzhou plant those product volumes intended for sale worldwide, thereby creating economies of scale so that it could achieve a competitive cost position for both local and global markets.

Examples of concentrated production that increases per-plant volume include PSA Peugeot Citroën, which operates just one plant in Wuhan in which it produces all six Citroën and Peugeot models it sells in China. Similarly, VW Group uses two manufacturing hubs in China to produce nearly a dozen models for the local market.

Adapting Manufacturing Processes to Local Conditions

The second major lever that companies can pull to make production in China or India cost-effective is to localize their manufacturing processes. Automotive companies are doing this in four ways: increasing “manualization”—that is, converting automated processes to processes that

Exhibit 8. Foreign Automotive OEMs and Suppliers Have Set Up More than 100 Plants in Four Main Production Clusters in China

Selected examples, second quarter 2007



use manual labor; using local equipment; making production lines flexible; and moving operations, when necessary, to lower-cost locations within each country.

Increasing Manualization. Opportunities for manualization lie primarily in logistics, material handling, assembly, and quality control. For example, a North American supplier cut its process costs by using manualization to take full advantage of lower labor costs; it also reduced its investment costs by sourcing equipment from local Chinese suppliers.

In general, the manualization of noncritical processes offers tremendous potential for lowering costs. OEMs

should consider manualizing process steps such as body welding (excluding framing), window fixing, or wheel mounting. By contrast, some process steps that have a high impact on quality, such as conducting final performance testing on a roller dynamometer or integrating the body with the engine, should remain automated. (See Exhibit 12, page 25.) To tap the full potential of cost savings related to manualization, companies need to conduct a stringent analysis of the whole production process, identifying those steps where quality is less critical and where manual labor is a viable alternative to automation.

Using Local Equipment. Executives from several foreign companies that are currently manufacturing in China or

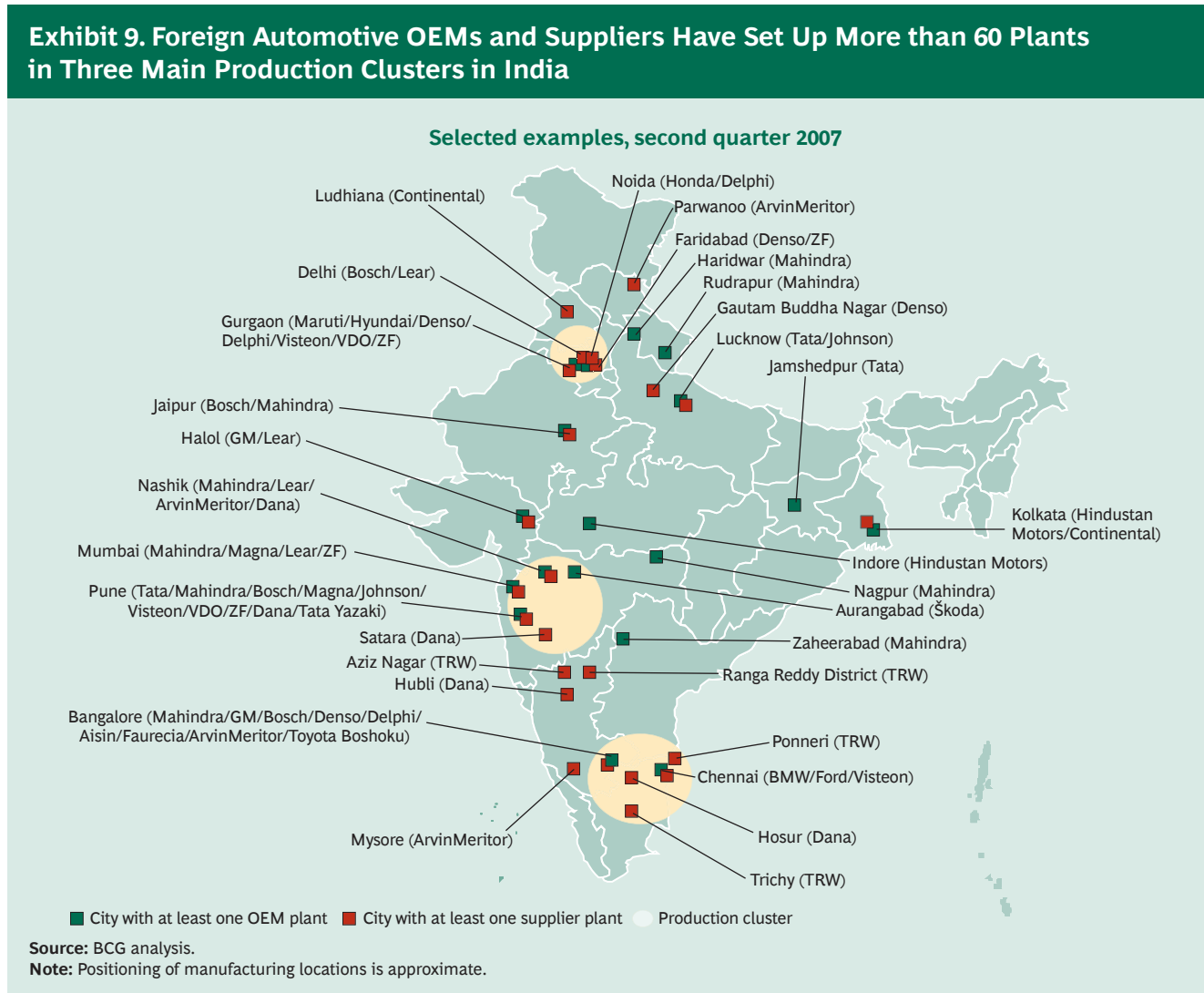
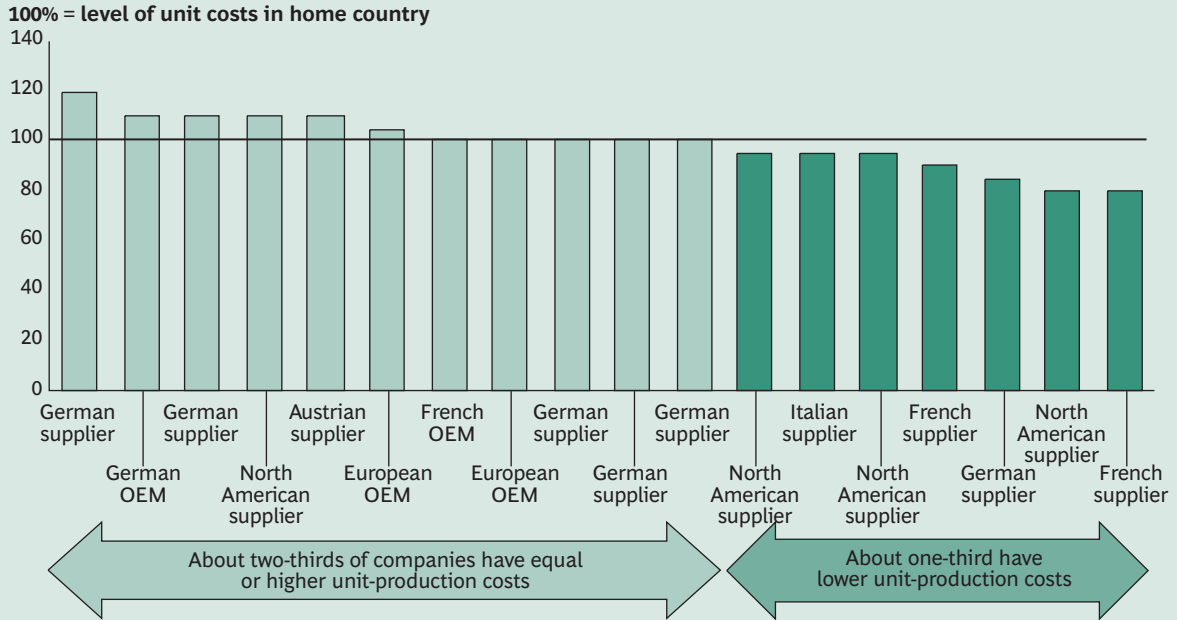


Exhibit 10. About Two-Thirds of the Manufacturers We Analyzed Reported Unit Costs in China Equal to or Higher than Those in Their Home Countries

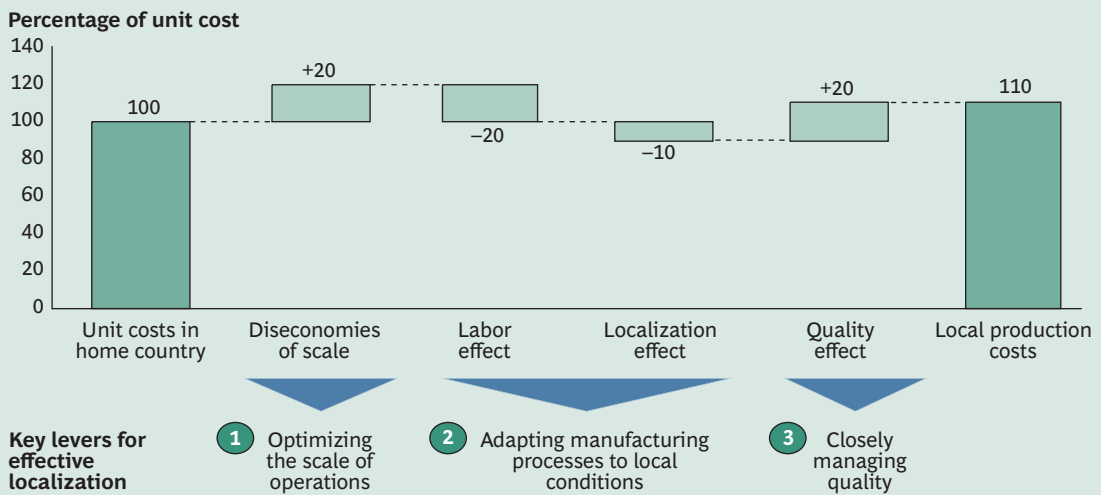
Comparison of unit production costs in home country and in China



Sources: Company interviews; BCG analysis.

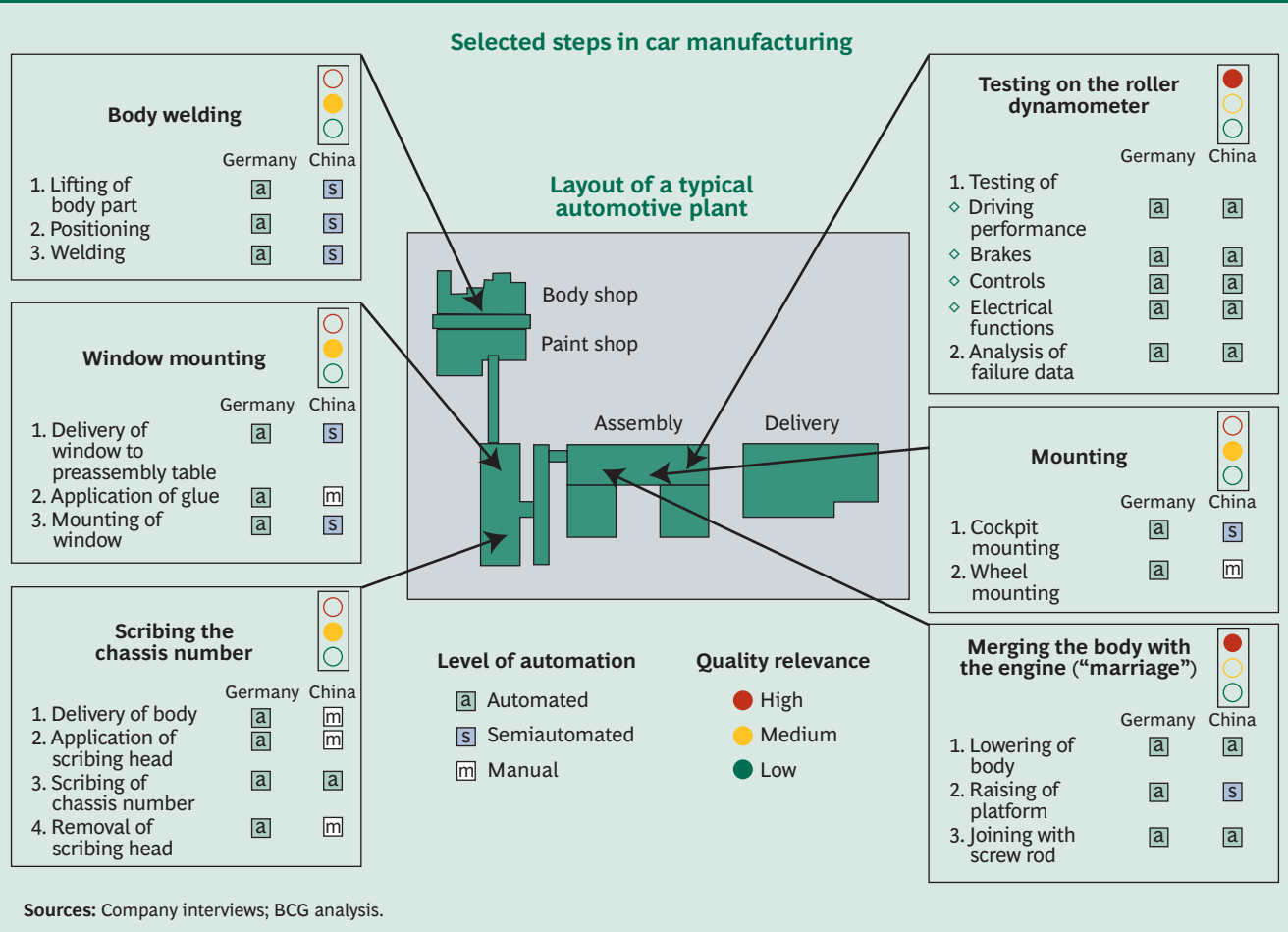
Exhibit 11. Diseconomies of Scale and Higher Quality Costs in China and India Can Outweigh Savings on Labor

Example: Adjustments to unit costs after shifting production to China or India



Source: BCG analysis.

Exhibit 12. To Reap the Benefits of Low Labor Costs, Companies Need to Shift Noncritical Processes from Automation to Manual Labor



India told us that sourcing local equipment has reduced their companies' machining costs by as much as 50 percent. For example, a German supplier initially established a plant in China that copied exactly the layout and processes of the company's leading plant in Germany. Confronted with the extremely high costs of transporting machinery and technical support from Germany—as well as the high volatility of demand in China—this supplier decided to employ flexible production lines that consisted primarily of local components. At the same time, it manualized many noncritical production steps, particularly in parts handling, to increase the share of manual labor. By implementing all these measures, the company shaved some 40 percent off the original manufacturing cost.

Making Production Lines Flexible. Flexible production lines reduce costs by increasing speed and allowing for product versatility and market responsiveness. A U.S. clutch supplier operating in China found that by using semiautomated rather than fully automated production lines, it could cut its installation time from 12 weeks to 3. The new lines also enabled the supplier to produce more models in smaller batches, shifting from producing 150 units with three or four variants per line to making around 10 units each for as many as 50 models. (For another example, see the sidebar “A European OEM Is Benefiting from Flexible Production Lines,” page 26.)

Moving Operations to Lower-Cost Locations. As companies increase the level of manual labor in their plants,

they become more dependent on operating where labor rates are as low as possible. Another lever they have, if local rates are no longer contributing to a significant competitive advantage, is to move their operations to lower-cost locations. For instance, a company currently manufacturing in the eastern part of China might consider moving to the western part of the country. Labor rates in the Shanghai region, in the east, are some 25 percent higher for general managers and up to 70 percent higher for skilled workers than they are in the Wuhan region, in the west. (See Exhibit 13.) Even lower salaries can be found farther west, in regions such as Chengdu and Lanzhou. In India, similarly, labor rates are considerably higher in the traditional clusters around Bangalore, Delhi, and Pune than in the more rural areas.

Closely Managing Quality

Adapting the quality management system to local conditions is a third major lever for paring away cost. Adaptation takes two forms: preventive actions and corrective actions.

Preventive Actions. Best practices in terms of preventive actions to ensure quality include undertaking cross-functional staff development, introducing a modular platform strategy, and creating a learning organization. For example, a Japanese supplier ensures that quality standards are common across its operations by sending local staff from its Chinese plant to Japan for extensive training. Specifically, every year the company sends about

20 Chinese quality managers to its headquarters in Japan for a period of six months. Afterward, these managers return to assume managerial responsibilities in China, where they implement the Japanese quality culture and quality management system. The company also ensures tight integration of operations by duplicating the layout of its Japanese plants in its Chinese plants and by deploying homogeneous processes. Through these means, headquarters can closely monitor and support local operations.

Corrective Actions. Most foreign automotive companies operating in China or India are achieving quality levels similar to those in their home countries—in terms of customer rejection rates. However, their

in-house rejection rates are much higher in the RDEs than in their home countries. Therefore, many companies are introducing Total Quality Management and Total Productive Maintenance in their plants. In addition, they are working hard at managing and developing their supplier portfolios to ensure that production input from their suppliers is flawless. (For an example, see the sidebar “Sona Koyo Steering Systems Sets the Standard for Quality Leadership in India.”)

For OEMs and suppliers alike, conducting cost-effective manufacturing in China and India requires making bold moves along most dimensions of their traditional production systems. Companies operating in these rapidly developing markets find themselves adjusting volumes and adapting processes, equipment, and standards in order to establish sustainable manufacturing operations.

Cost-effective manufacturing in China and India requires bold moves.

A European OEM Is Benefiting from Flexible Production Lines

One of the major European OEMs currently manufactures all 200,000 units it makes in China in a single factory. Although this production volume would be the normal capacity of a European plant producing one or two models, this OEM produces six or seven. Manufacturing so many models in one plant requires an unusual degree of flexibility in the production process, which the OEM achieves by relying heavily on manual labor for certain steps, such

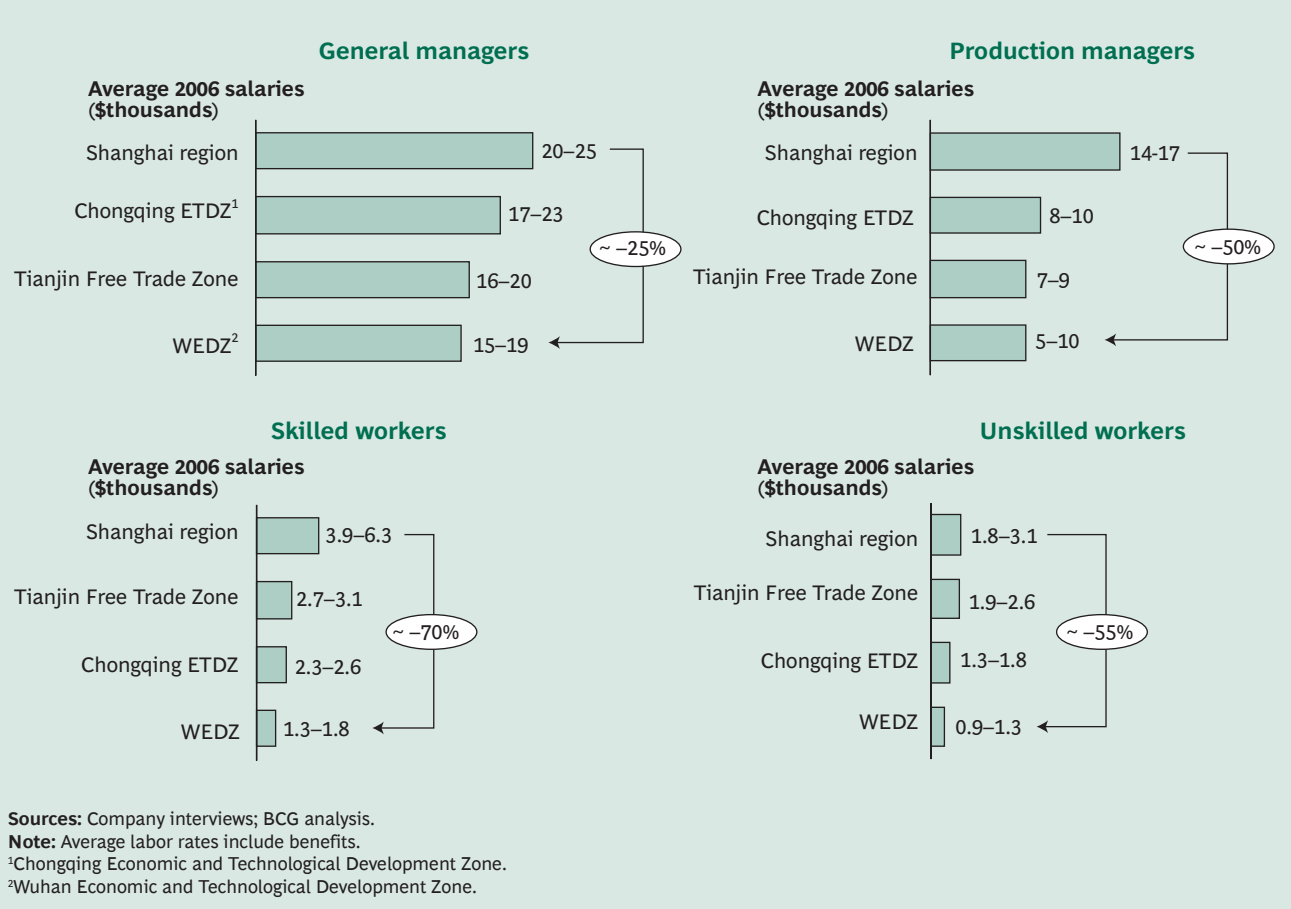
as the handling of the lighter parts in the press shop, as well as assembly. In the body shop, expensive and inflexible robots have been replaced by people welding by hand the parts that are not critical to the safety of the vehicle. In certain other areas, such as the paint shop, however, the OEM applies the same level of automation that it uses in Europe.

Sona Koyo Steering Systems Sets the Standard for Quality Leadership in India

This Japanese supplier of steering systems has participated in a joint venture in India since 1985. From the beginning, Sona Koyo has always stressed quality management initiatives. In 1998 it began implementing Total Quality Management and Total Productive Maintenance practices throughout the organization. Thanks to these measures, the company was able to reduce customer rejection rates from around 1,580 parts per million (ppm) in 1998 to 110 ppm in 2004. In parallel it invested in tier two supplier development and implemented quality programs at its suppliers. These efforts led to a reduction of supplier rejection rates from 35,000 ppm to 932 ppm during the same period.

In 2004, Sona Koyo's achievements were honored with the Deming Prize, which is awarded by the Union of Japanese Scientists and Engineers to companies that make major contributions to the advancement of quality. Since then, the company has launched several new initiatives, such as just-in-time production, flow manufacturing, breakthrough management, risk-hazard analysis, and *kaizen* (a Japanese quality strategy). Its objective is to lower customer rejections to 5 ppm and supplier rejections to 100 ppm. Sona Koyo is seen as the benchmark for quality management in India.

Exhibit 13. As Companies Shift from Automation, Their Dependence on Labor Rates Will Drive Them to Lower-Cost Locations in China





Driving Sales: The Challenge for OEMs

In China, annual sales of passenger cars and light commercial vehicles nearly quadrupled from 2.1 million units in 2001 to 8.1 million units in 2007, growing at a CAGR of 25 percent over the period. India's annual sales grew at a slower but still very dynamic pace of 15 percent CAGR over the same period, from 0.7 million to 1.7 million units. Although these rates will slow in the years ahead, both markets will continue to expand much faster than the Triad markets. By 2015, China and India together are expected to represent more than 20 percent of the global automotive market, just bypassing the size of the market in Western Europe. (See Exhibit 14.)

As foreign competitors have rushed to these fast-growing markets in recent years, the market shares of established local OEMs and of pioneering foreign OEMs have plummeted. Meanwhile, significant overcapacities and increased customer requirements have put strong pressure on the margins of many OEMs, which need to offer much more elaborate models at very competitive prices. So, to stabilize their market shares and to boost their profitability, most OEMs need to take their sales to the next level, boosting sales volumes and attracting new consumer segments. Key strategic issues in this quest include which products to offer in which cities and regions, and how to organize locally for growth. OEMs are exploring ways to expand new-car sales, sell higher-value-added products, and manage their expanding sales organizations.

Expanding New-Car Sales

The two most promising ways to expand new-car sales in China and India are to increase the density of sales net-

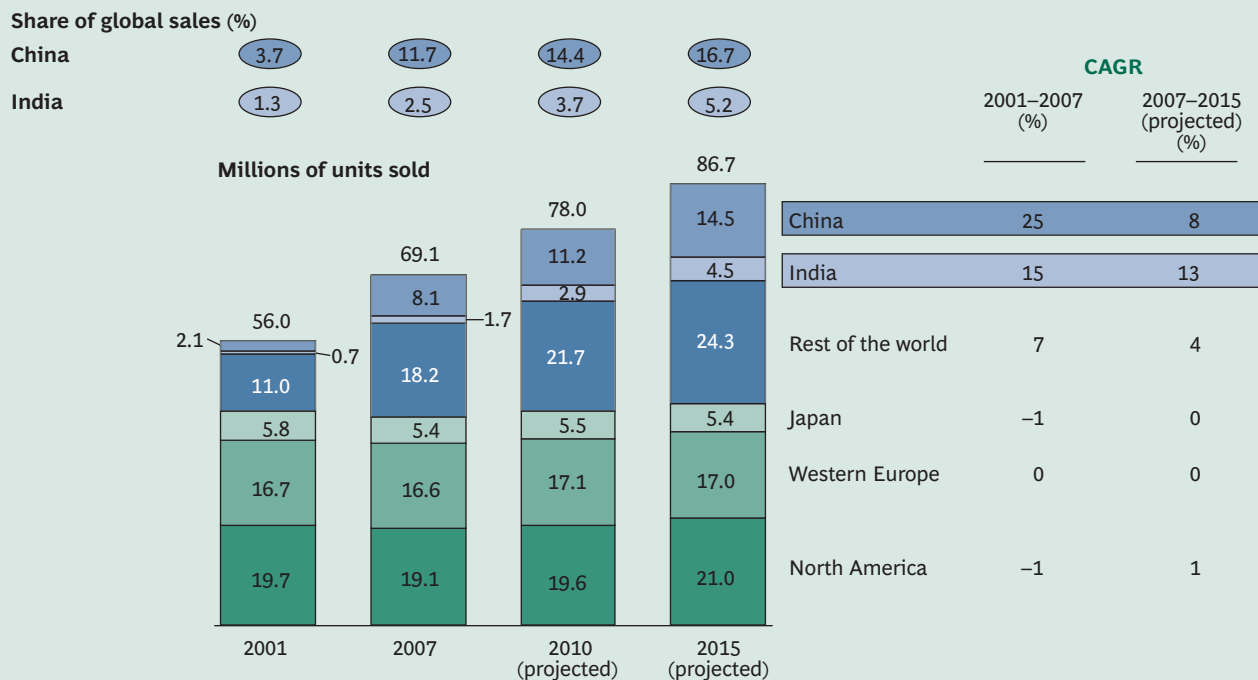
works, especially in tier three to tier five cities, and to customize product portfolios to local requirements and aspirations.

Increasing the Density of the Sales Network. The density of a sales network is measured by the number of dealers per consumer. In China, sales networks are currently three times denser in large, tier one cities such as Beijing than in tier three cities. To expand new-car sales, OEMs need both to increase the density of their networks in regions and cities where they are already present and to expand their networks into currently untapped regions and cities. Dealer networks should also better reflect the distribution of both population and wealth.

To achieve these goals, OEMs can pursue various sales-network strategies. (For an example of one of these strategies at work, see the sidebar “A European OEM Operates a Differentiated Sales Network in China.”) A volume-oriented OEM targeting rural middle-income populations, for example, should consider a *wide-coverage network* that sacrifices some density in tier one cities in order to ensure that the network covers smaller cities where lower-income people may live. By contrast, a *concentrated network* approach is more appropriate for a premium-oriented OEM targeting urban people with high incomes. (See Exhibit 15, page 30.)

Customizing the Product Portfolio. Another way to increase sales volumes in China and India is to tailor products specifically to the particular tastes and preferences of each local market. In the past, foreign OEMs tended to offer RDEs outdated models from their home markets. Today, consumers in China and India are far more knowl-

Exhibit 14. China and India Are Growing into Major Automotive Markets



Sources: Global Insight 2007; BCG analysis.
 Note: Includes passenger cars and light commercial vehicles.

A European OEM Operates a Differentiated Sales Network in China

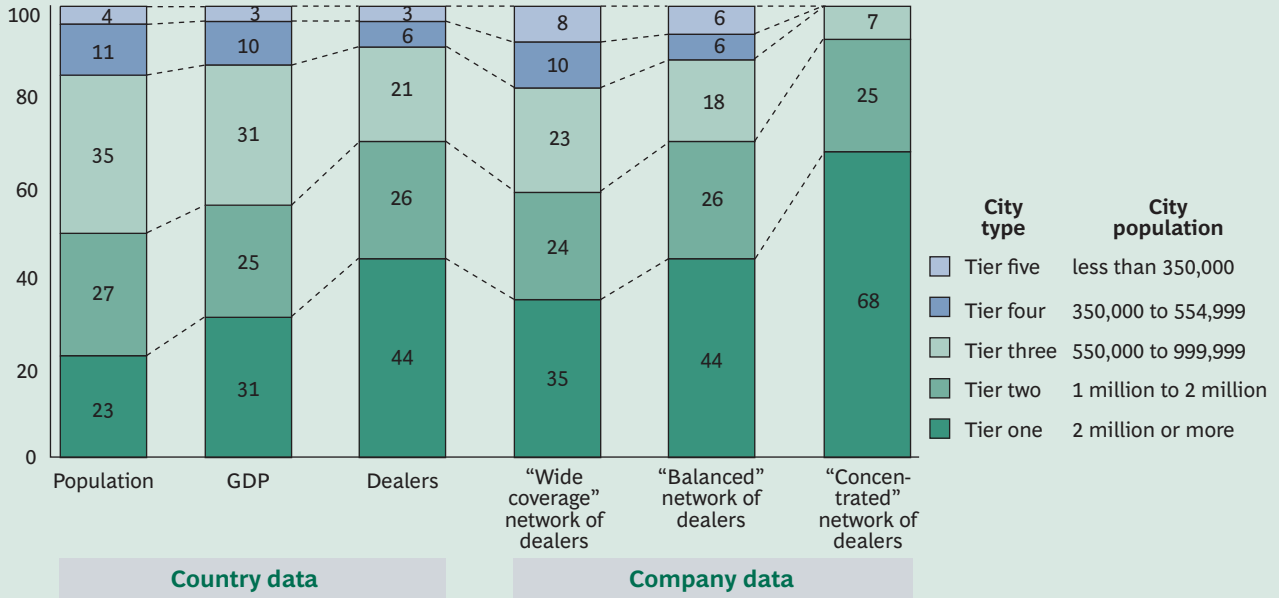
A European OEM has chosen to pursue a differentiated approach to selling its two brands in China. Brand A is targeted at the lower end of the market; the cars meet buyers' basic needs, providing good value for the price. The models offered are conservative in design, using solid but not cutting-edge technology. Brand B, in contrast, is positioned to sell to a more affluent, middle-class segment. Its models feature the latest designs and technologies, and differ only slightly from the models that the OEM sells in Western Europe.

To sell the two brands in China, the OEM runs two completely independent sales networks that share no services. Selling Brand A's more basic models are approximately 250 dealers located throughout all regions of the country, 30 percent of them in tier three to tier five cities,

which have fewer than 1 million inhabitants. The more elaborated models of Brand B, in contrast, are offered by only about 100 dealers, located mainly in tier one and tier two cities, which have more than 1 million inhabitants. The OEM is targeting further growth for this brand primarily in areas where GDP is growing fast. Clearly, this OEM trades off the potential scale effects it could achieve by combining its dealer networks in favor of effective brand positioning.

Exhibit 15. OEMs' Approaches to Dealer Networks Don't Always Mirror the Distribution of People and Gross Domestic Product Across China's Cities

Distribution across China by city size (%)



Sources: China Statistical Yearbook, 2006; company data; BCG analysis.

edgeable and sophisticated in terms of technology and innovation. So, to meet those increasingly stringent requirements, OEMs are pursuing three types of strategies for localizing products: slight revamping, extensive customization, and low-cost design. (For examples, see the sidebar “Three Companies Take Different Approaches to Localizing Cars.”)

In the *slight revamping* approach, OEMs adapt a few features or specifications on their cars to meet local requirements with limited R&D investment. For example, because many cars in India are driven by chauffeurs, OEMs enhance the back seats of their vehicles with features such as reading lights, audio controls, and cup holders. This approach is used primarily by makers of premium cars, which want to transfer their premium image to China or India with minimal adaptations in order to reap the full benefit of their exclusive positioning.

With the *extensive customization* localization strategy, OEMs aim at achieving greater conformity with local

market demands and tastes by adapting the cars' exterior and interior designs. Because this approach requires considerable investment in development, it is suitable mainly for mass-market vehicles. The main challenge in extensive customization is managing the tradeoff between the benefits of local volume effects and the costs of adaptation.

The third way to localize products is to use *low-cost design* to develop completely new products for the Chinese and Indian mass markets. To offset the relatively high R&D costs of development projects of this kind, these new products must achieve very high sales volumes—ideally selling not only in China and India but also in other low-cost countries. Alternatively, developing low-cost cars by using as many carryover components and modules as possible can be an economically interesting option. One example of such a car is Renault's Logan. Another, even more radical example is Tata's “one-lakh-car” project, which aims to develop a car priced between \$2,500 and \$3,000.

Selling Products That Add More Value

In their home countries, international OEMs offer a wide variety of value-added products, including financial services to promote new-car sales, after-sales services to support customers, and used-car businesses to support a smooth resale process. In all three activities, the markets in China and India are less mature than Triad markets. OEMs should nonetheless consider these activities to strengthen their long-term competitive position.

A German OEM uses a truck to deliver mobile after-sales services in distant regions of India, thus enabling new-car sales there, too. OEMs must consider their after-sales strategies when extending their sales networks, because these activities cannot be undertaken independently.

Managing an Expanding Sales Organization

As an OEM's sales in China or India grow, its sales organization must be aligned with that growth in terms of its structure, processes, and people.

OEMs should consider offering value-added services in China and India.

Structure. As their sales organizations grow, companies need to decide early on which new functions to introduce and how much to grow existing functions, such as marketing and after-sales strategy. For example, an OEM selling 30,000 vehicles a year usually does not need a direct sales department that focuses on key accounts such as large corporate customers, government organizations, or rental-car companies. However, by the time an OEM reaches a certain level of sales—say, 300,000 vehicles—it does require such a function, as well as other new functions, including volume planning and IT management. (See Exhibit 16, page 32.)

Processes. OEMs need to clarify the degree to which their current sales processes are market specific or can be bundled into regional shared-services centers. They must also apply methods and systems to adequately ensure the sustained high performance of their dealer organizations in China or India. This requires defining specific point-of-sale standards, providing active dealer training, and implementing sophisticated performance-measurement systems.

Three Companies Take Different Approaches to Localizing Cars

BMW, General Motors, and Renault have applied different localization strategies to adapt the 5 Series, the LaCrosse, and the Logan, respectively, for the Chinese and Indian markets.

A Slight Revamping Strategy. BMW adapted its 5 Series (the 530Li, 525Li, and 523Li) only slightly for the Chinese market, retaining most of the features of the model sold in developed countries. The Chinese model has an extended wheelbase and an enhanced configuration in the back seat, including a DVD display and other entertainment options. This strategy makes sense for high-priced, low-volume cars because it limits the R&D spending needed to adapt the product and maintains its premium image.

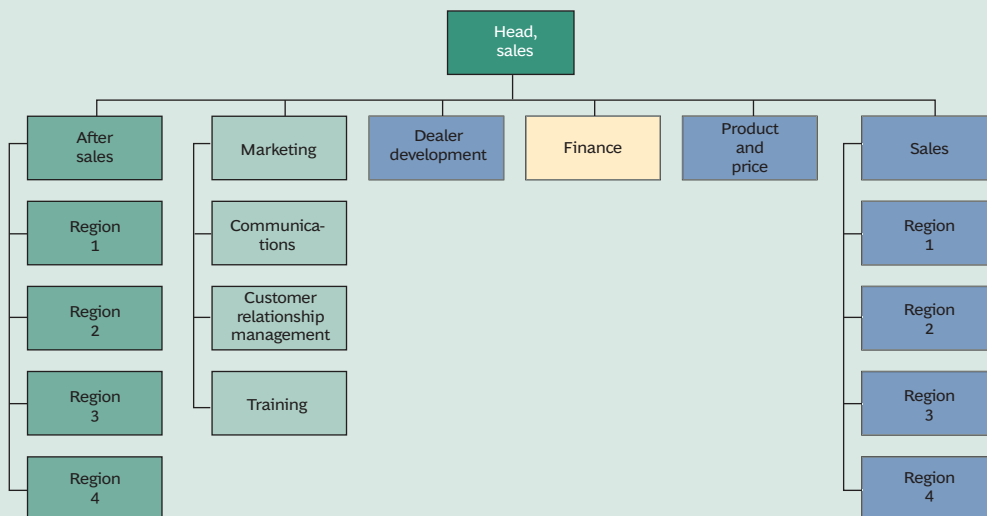
An Extensive Customization Strategy. GM customized its Buick LaCrosse extensively to better meet Chinese market requirements. The Chinese model builds on the

existing product but uses different exterior and interior designs to reflect local taste. For example, the Chinese Buick LaCrosse features a higher hood, a more luxurious interior design, and a stronger focus on rear-passenger comfort. Such a strategy requires high sales volumes to outweigh the considerable cost of adaptation engineering.

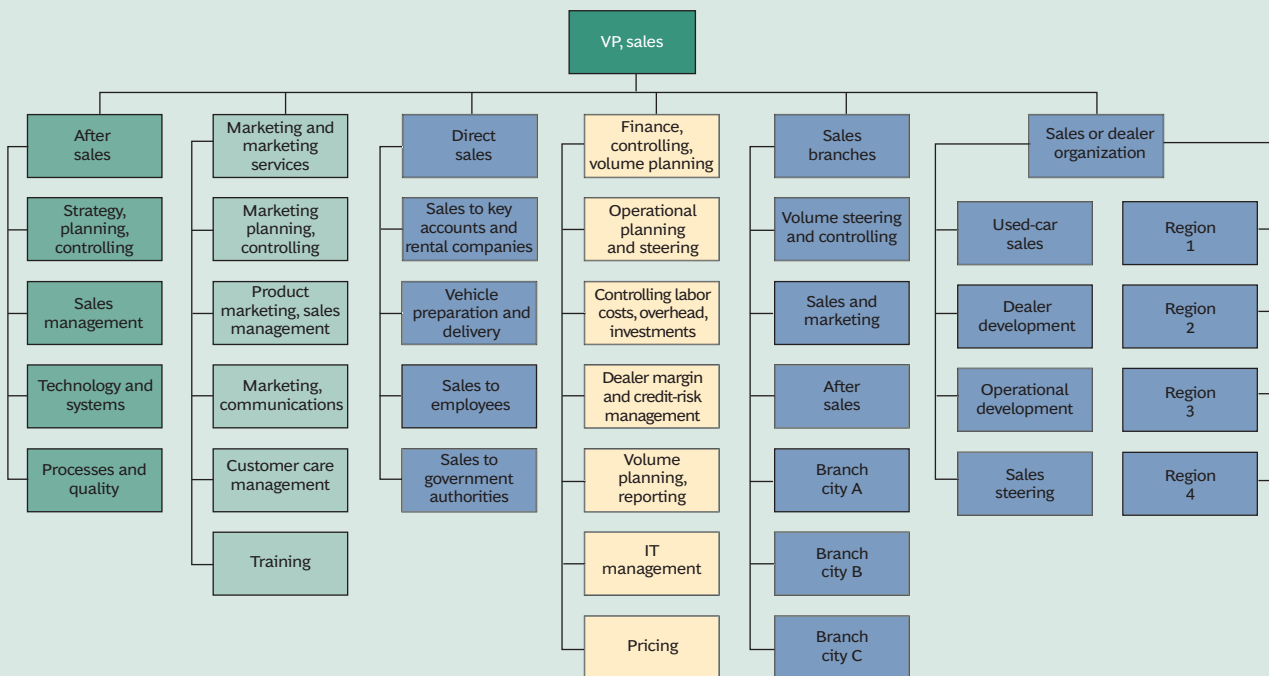
A Low-Cost-Design Strategy. Renault developed its Logan specifically for low-cost-country markets in Central and Eastern Europe. For India, the car was tailored in a joint venture between Renault and Mahindra & Mahindra. The Logan borrows as many parts and systems as possible from other models to avoid the cost of custom-designing new ones. It was developed on a platform derived from that of the Renault-Nissan Alliance, which is the basis of the Renault Clio III, Renault Modus, Nissan March, and Nissan Note models. For example, the Logan's front axle, door handles, and steering wheel, among other parts, are identical to those of the Renault Clio.

Exhibit 16. Ramping Up an OEM's Sales Organization Requires Expanding Existing Functions and Defining New Ones

Potential sales organization for an OEM selling 30,000 vehicles per year



Potential sales organization for an OEM selling 300,000 vehicles per year



■ After sales □ Marketing □ Overhead functions ■ Sales management

Source: BCG analysis.

People. OEMs need to identify the skills they will need to acquire or develop to support their expanding networks and product offers. In general, they require people with solid knowledge of the regions or cities in which the OEM intends to grow, as well as people with expertise in specific fields such as the used-car business or financial services. It is important to develop strategies for meeting these needs in China and India through recruiting, transferring, and training—and then retaining—skilled staff.

As illustrated in this section, Chinese and Indian consumers are becoming increasingly demanding and their requirements increasingly diverse. OEMs' sales organizations need to respond by skillfully combining product customization, market coverage, and professional approaches to sales.



Driving Sales: The Challenge for Suppliers

Many foreign automotive suppliers, including virtually all tier one suppliers, have established production facilities in China and India, most of them located close to foreign OEMs' plants. Their presence reflects both local-content requirements and their clients' expectations. These suppliers have benefited from the strong growth of automotive manufacturing in both countries, driven primarily by surging domestic demand.

This growth is expected to continue, provided that foreign and domestic OEMs begin making large-scale exports to other markets, as Hyundai does in India. In fact, in 2006 the Korean OEM exported 113,000 locally produced Accent, Santro, and Click models, and it intends to ship 260,000 to 270,000 units by the end of 2008.

However, most foreign auto suppliers have not yet managed to fully tap the potential of these markets. For instance, although the Chinese market's share of global car sales in 2007 was almost 12 percent, foreign tier one suppliers made just 2 to 8 percent of their global sales in China. The reason for this discrepancy is that foreign suppliers have been more successful at selling to foreign OEMs than to local OEMs. In fact, only an average 15 percent of the total China sales of the suppliers interviewed for this study went to local OEMs, while 85 percent still went to the local subsidiaries of international OEMs. (See Exhibit 17.)

Given the fact that local OEMs produce roughly half of the cars sold in China and India—and will continue to command a substantial share of those markets into the

future—it is essential for foreign suppliers to find ways to do business with them.

The challenge that foreign suppliers face in selling to local OEMs in China and India involves the substantial differences between foreign and local OEMs in terms of their requirements for prices, products, and processes. For example, foreign OEMs practice a very transactional approach to sourcing in China and India—one that is very similar to the approach they practice in their home countries. But local OEMs require a more relational sourcing approach, in which technological support and sales go hand in hand. Compounding this difficulty, from the suppliers' point of view, is the fact that foreign OEMs are expanding their local supply bases and searching for local suppliers, which can sometimes offer products better suited to local production—at lower prices—than the foreign suppliers can.

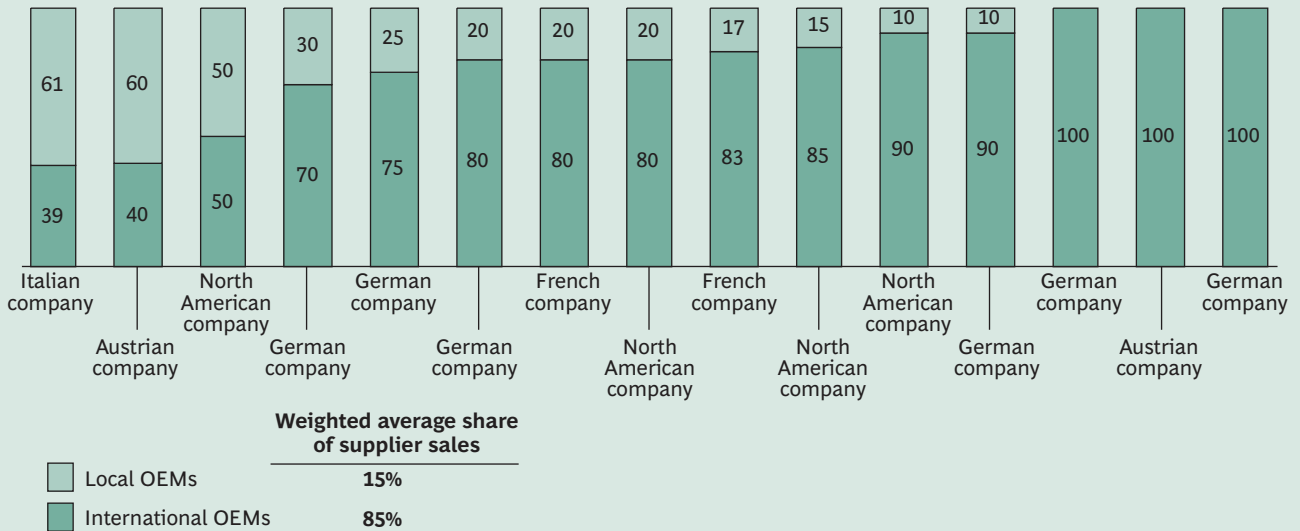
To expand their sales in China and India, foreign suppliers need to address three important issues: broadening their customer bases, tailoring their products to the needs of local customers, and building an effective local sales organization.

Broadening the Customer Base

To broaden their customer bases in China and India, foreign suppliers need to understand various customer segments in detail and identify the specific requirements of OEMs in each segment. OEMs can be differentiated into four segments on the basis of the prices of the cars in their portfolios, their demands for quality and technology, and their place of origin. (See Exhibit 18.)

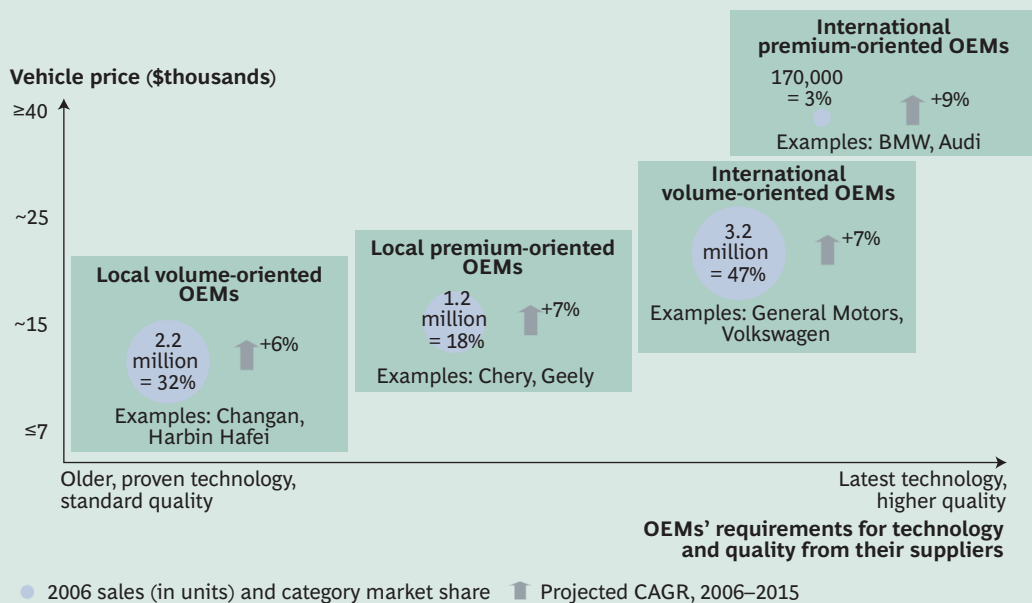
Exhibit 17. Most Foreign Suppliers Find It Harder to Sell to Local OEMs Than to International OEMs

2007 sales of selected foreign suppliers in China, by type of OEM customer (%)



Sources: Company interviews; BCG analysis.

Exhibit 18. Foreign Automotive Suppliers in China Need to Differentiate Their Sales Approaches by Type of OEM Customer



Sources: Global Insight 2006; BCG analysis.

Note: Volumes include passenger cars and light commercial vehicles.

- ◇ Local volume-oriented OEMs
- ◇ Local premium-oriented OEMs
- ◇ International volume-oriented OEMs
- ◇ International premium-oriented OEMs

Local Volume-Oriented OEMs. Only very few foreign suppliers manage to serve local volume-oriented OEMs, such as Changan and Harbin Hafei, which focus heavily on low cost and simple design. Local Chinese suppliers clearly are better positioned to serve these OEMs, thanks to their cost advantages and existing relationships. There are few chances for foreign suppliers to win new customers in this segment; certainly they cannot win on cost alone. The most effective ways for them to increase penetration are to acquire existing local suppliers or to offer the OEMs advanced technologies, related coengineering services, or other knowledge or skills that the OEMs cannot get elsewhere. (For examples, see the sidebar “Foreign Suppliers Take Different Tacks in Competing to Serve Local OEMs.”)

Local Premium-Oriented OEMs. Local premium-oriented OEMs, such as Chery and Geely, have been the main target of foreign suppliers, as companies in this category look for technological partnerships rather than simple supply transactions. Furthermore, because many of these OEMs plan to export more of their cars to Triad markets, they require state-of-the-art technology. Suppliers benefit most by entering into technological partnerships with these OEMs and transferring experience to China or India from other emerging markets, such as Brazil. For example, one European supplier of lighting, power trains,

and electronic systems sells a considerable share of its products to local Chinese OEMs—as high as 70 percent in some categories—by leveraging its experience from other low-cost markets. Its engineers are accustomed to looking for low-cost solutions. The supplier’s main challenge today is to stay ahead of competitors in offering advanced technology at affordable prices.

International Volume-Oriented OEMs. International volume-oriented OEMs in China and India, such as General Motors and VW, focus mainly on selling models that they are already selling in their home markets. To serve these OEMs in China and India, foreign suppliers can continue to build on existing relationships with them in their home markets, providing the same components at reasonable prices. However, the increasing need for local adaptation in China and India means that these OEMs are also opening their doors to local suppliers, with the result that competition is intensifying. Furthermore, international OEMs are beginning to negotiate worldwide contracts for new platforms in China and India to achieve

higher purchasing power. So foreign suppliers need to continually introduce superior technology and services, as well as keep their prices competitive, to maintain their strong position with these OEMs.

International Premium-Oriented OEMs. For large international suppliers, serving international premium-oriented OEMs, such as BMW and Audi, in China or India does not differ significantly from serving them in their home markets. Most premium-oriented OEMs seek to source locally primarily in order to comply with local-content regulations. These OEMs rely heavily on their existing bases of international suppliers, requiring them to localize and willingly paying a premi-

Foreign Suppliers Take Different Tacks in Competing to Serve Local OEMs

Often, foreign suppliers can find it difficult to overcome the cost differentials that local suppliers offer local OEMs. This was the case with a foreign supplier of electric motors in China that competed against a local supplier. The Chinese supplier could promise the local OEM cycle times that were 50 percent shorter and prices that were 50 percent lower than what the foreign supplier could offer. The differential rested in part on the Chinese supplier’s practices of imposing a 70-hour workweek (in contrast to the 40- to 50-hour workweek at the foreign supplier), providing limited social benefits to its employees, and maintaining working facilities that were far more crowded and uncomfortable, with neither heating nor air conditioning.

In contrast, another foreign supplier of engines chose not to compete with local suppliers purely on price or cycle times. By developing engines together with local OEMs, this supplier managed to be seen as a strategic partner. As a consequence, sales to local OEMs have grown to represent two-thirds of the company’s sales in China—and fully half of this volume consists of engineering services.

um to source from companies they know well. So there is limited potential for a foreign supplier that localizes in China or India to serve a premium-oriented OEM there—unless the supplier is already selling to that OEM in its developed markets. Local suppliers, similarly, face a tough battle to win contracts from these OEMs. However, even entrenched suppliers should keep a close eye on developments at both their customers and their competitors.

Tailoring Products to the Needs of Local Customers

In tailoring products to local market requirements, companies can take either a top-down or a bottom-up approach.

The Top-Down Approach. This approach makes sense for foreign suppliers responding to an explicit demand from a multinational OEM to adapt an existing part or component to meet local market requirements. The adaptation in question may take many forms, ranging from adapting products only to local regulations or making simple technical adjustments, to reducing specifications or making material changes. All these moves may need to be validated by headquarters. Companies that take a top-down approach report cost savings of as much as 20 percent.

The Bottom-Up Approach. In this approach, products are designed from scratch to meet local market requirements. This strategy becomes necessary when companies must meet very low price levels and cannot do so by adapting existing products. (For an example, see the sidebar “A Foreign Supplier Cuts Cost Through a Bottom-Up Approach,” page 38.)

The biggest challenge in taking this approach is transferring the relevant know-how, because local engineers are generally inexperienced with the supplier’s product range, but expatriate engineers lack the necessary experience to conduct truly low-cost design. In order to bridge this experience gap, foreign suppliers can make strategic acquisitions to gain access to engineering skills related to low-cost design. They can then leverage these abilities to gain competitive advantage in other low-cost markets.

Building an Effective Local Sales Organization

In structuring their local-sales and key-account-management organizations in China and India, foreign suppliers need to consider how to configure them internally, how to design an optimal cooperation model with customers, and how to ensure an appropriate level of support from and involvement by the company’s headquarters.

The local sales team should consist primarily of local key-account managers.

Internal Configuration of the Local-Sales and Key-Account-Management Organization. The local sales team should consist primarily of key-account managers from the local market. In China, only Chi-

nese people are able to apply *guanxi*—the basic dynamic that is essential in creating effective personal networks and that enables one person to prevail upon another on the basis of a feeling of mutual indebtedness and relationship.

To gain access to skilled local sales managers, foreign suppliers frequently poach their rivals’ employees, hoping to hire managers who have existing relationships with local OEMs. As a result, annual attrition rates are in the range of 20 to 30 percent. Companies absolutely require attractive retention schemes for local sales managers in order to safeguard this localized sales interface. Another approach is to acquire entire local companies, thus gaining not only relevant skills but also access to local OEMs.

A Model for Cooperation with Customers. Each local sales organization needs to choose among several kinds of cooperation models: conducting transactions, offering light support such as helping customers define their R&D requirements, and forging more strategic collaborations—for example, through technological partnerships. Especially when serving local premium-oriented OEMs, foreign suppliers that have the latest know-how can benefit by positioning themselves as valuable technological partners. For example, a European supplier of power train technology was able to establish a strategic partnership with two local OEMs to further develop transmission systems that the supplier had already marketed in other low-cost-country markets.

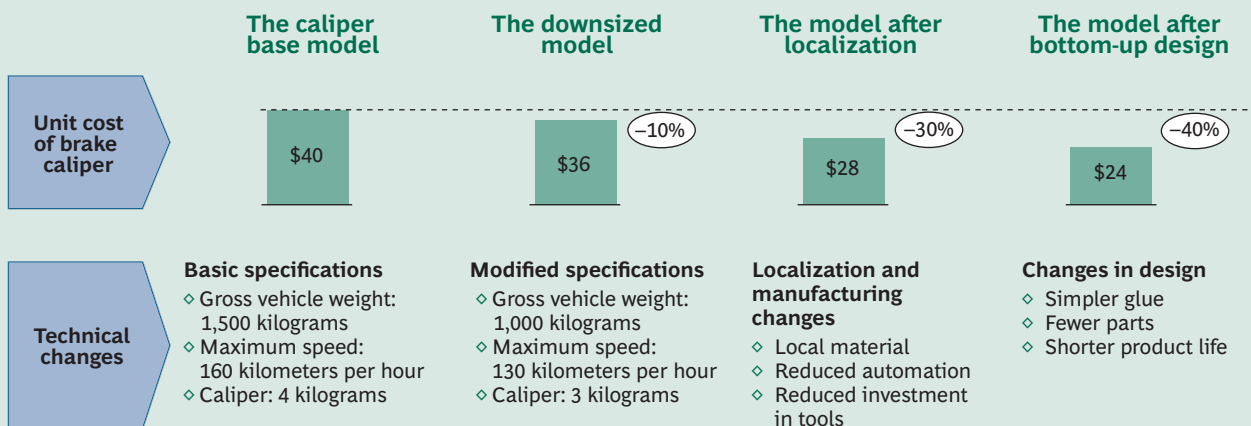
A Foreign Supplier Cuts Cost Through a Bottom-Up Approach

A foreign supplier of brake calipers needed to take three steps to reduce the unit cost of its base model for use in a Chinese OEM's vehicle. First, the supplier aligned the part's specifications with the specifications of the vehicle that the part would be built into. In comparison with the 1,500-kilogram European car for which the calipers had originally been designed, the Chinese car had a gross weight of just 1,000 kilograms; and instead of a top speed of 160 kilometers per hour, it had a top speed of 130 kilometers per hour. Adapting to these specifications allowed the supplier to reduce the weight of the brake caliper from four kilograms to three kilograms, which trimmed its cost by about 10 percent. To further cut costs, the supplier changed the manufacturing process, using local materials

and reducing the automation in the process, thus generating additional savings of 20 percent.

But a 30 percent reduction in costs was insufficient to win the business of the local OEM. So the supplier modified the design, using simpler glue, employing fewer parts, and allowing the calipers a shorter product life. This bottom-up design trimmed another 10 percent off the base cost, bringing the total savings to 40 percent. Such a product would have been hard to design in the supplier's home country because engineers there are used to Western requirements. (See the exhibit below.)

A Bottom-Up Design Helped a European Supplier Remain Competitive



Sources: Company interviews; BCG analysis.

Support from and Involvement by Headquarters. Foreign suppliers should tailor their relationships with senior management at the company's headquarters to local market requirements and even to specific customer segments. For example, suppliers serving local Chinese customers must be able to make decisions quickly, so they need considerable autonomy and decision-making rights. When serving international customers, the local sales office needs close collaboration with headquarters because tenders are becoming ever more international in scope.

As local OEMs become increasingly prominent in the Chinese and Indian automotive markets, foreign suppliers will find that their long-term success rests on devising effective ways to sell to these players. Essential ingredients in every solution will include a strong local sales staff and a cooperative, technology-driven mode of interaction.



Orchestrating the Value Chain

In the previous sections of this report, we have addressed the challenges presented at individual steps in the value chain for companies localizing operations in China or India: leveraging R&D capabilities, sourcing from the local supply base, managing manufacturing operations, and driving sales. While it can be useful to consider these steps individually, ultimately a company's localization must take place in an integrated, coherent manner.

In this section we address the various patterns of localization that automotive companies are pursuing in China and India, their approaches to coordination with headquarters, their organization structures for their localized enterprises, and their relationships with their joint-venture partners.

Identifying Patterns of Localization

Some companies pursue localization fairly uniformly, moving all the steps in their value chains more or less simultaneously. We characterize these companies by the pace and extent of their localization, classifying them as *early starters*, *midfield players*, or *advanced leaders*. In contrast, other companies aggressively localize one or two steps in the value chain, such as sourcing or manufacturing, while keeping other steps, such as R&D, centralized at headquarters. We characterize these companies as *spread developers* because of the wide spread in their pattern of localization. Companies in this group should pay particular attention to managing the interfaces and communication flows between the localized value chain and the functions at headquarters, in order to avoid losing too much efficiency. (See Exhibit 19, page 40.)

Ensuring Coordination with Headquarters

Coordinating local activities with the company's headquarters is critically important for all localized companies, regardless of their patterns of localization. People working at international headquarters tend to be quite unfamiliar with the peculiarities of the local markets and therefore need some assistance to fully grasp the challenges of management in China and India. As the chief executive officer of the China operations of a European supplier told us, "No matter how often we communicate the importance of the Chinese market for our company, the headquarters still has difficulty understanding it, especially in the area of gaining local OEMs as customers. We do not get enough funding to develop our business."

A key issue in the relationship between headquarters and the localized operations is decision-making rights. How involved should headquarters be in local strategic and operational decisions? Should headquarters focus on providing support or should it issue directives? What degree of liberty in financial and budgetary decisions should headquarters allow the managers of local operations? Best-practice companies arrive at clear definitions of responsibilities and decision-making rights along five dimensions:

- ◇ *Strategy development*: the degree of freedom to define a local strategy
- ◇ *Portfolio definition*: the degree of freedom to define product and service portfolios

- ◇ *Target setting*: the degree of detail in the targets set by headquarters
- ◇ *Budget definition*: the degree of authority to set functional budgets
- ◇ *Budgetary compliance*: the frequency and depth of compliance checks

Designing Organization Structures for the Localized Enterprise

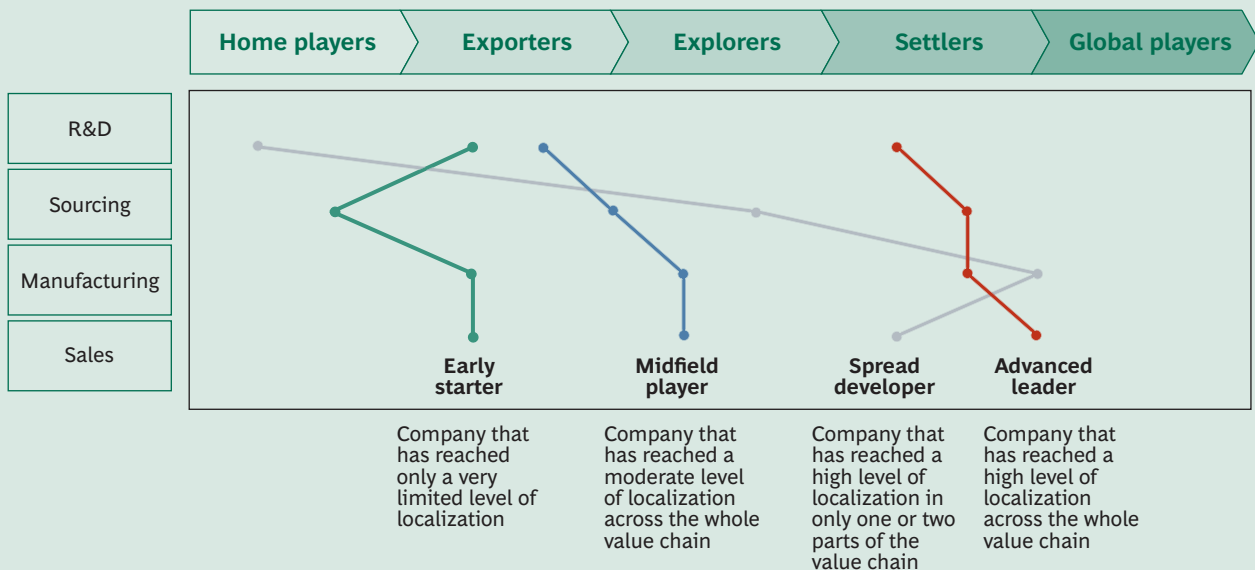
Companies that have multiple divisions must decide, when they localize in China or India, whether to steer their localized activities as an independent business or integrate them into their global divisions. If they install a central local organization under a managing director for China or India, what role should this function play? Should it coordinate among divisions and brands or steer all the local divisions? In answering these questions, it can be helpful to refer to four generic organization models that reflect varying degrees of autonomy and levels of centralization: the silo, the satellite, the chief operating officer (COO), and the “viceroys.” (See Exhibit 20.)

The Silo Organization. The silo organization is characterized by a strict alignment of functions between the divisions at headquarters and the local subsidiaries. Clearly, aligning the strategy and processes within each division supports the international exchange of know-how, but it also tends to impede local coordination, causing inefficiencies, incompatible standards, and duplicative efforts.

The Satellite Organization. In this organization model, the various functions are linked to headquarters only by financial reporting and controlling. This structure gives the local operations considerable freedom to optimize their portfolios and processes, but it also gives rise to some “island” solutions that have low levels of both central support and local coordination.

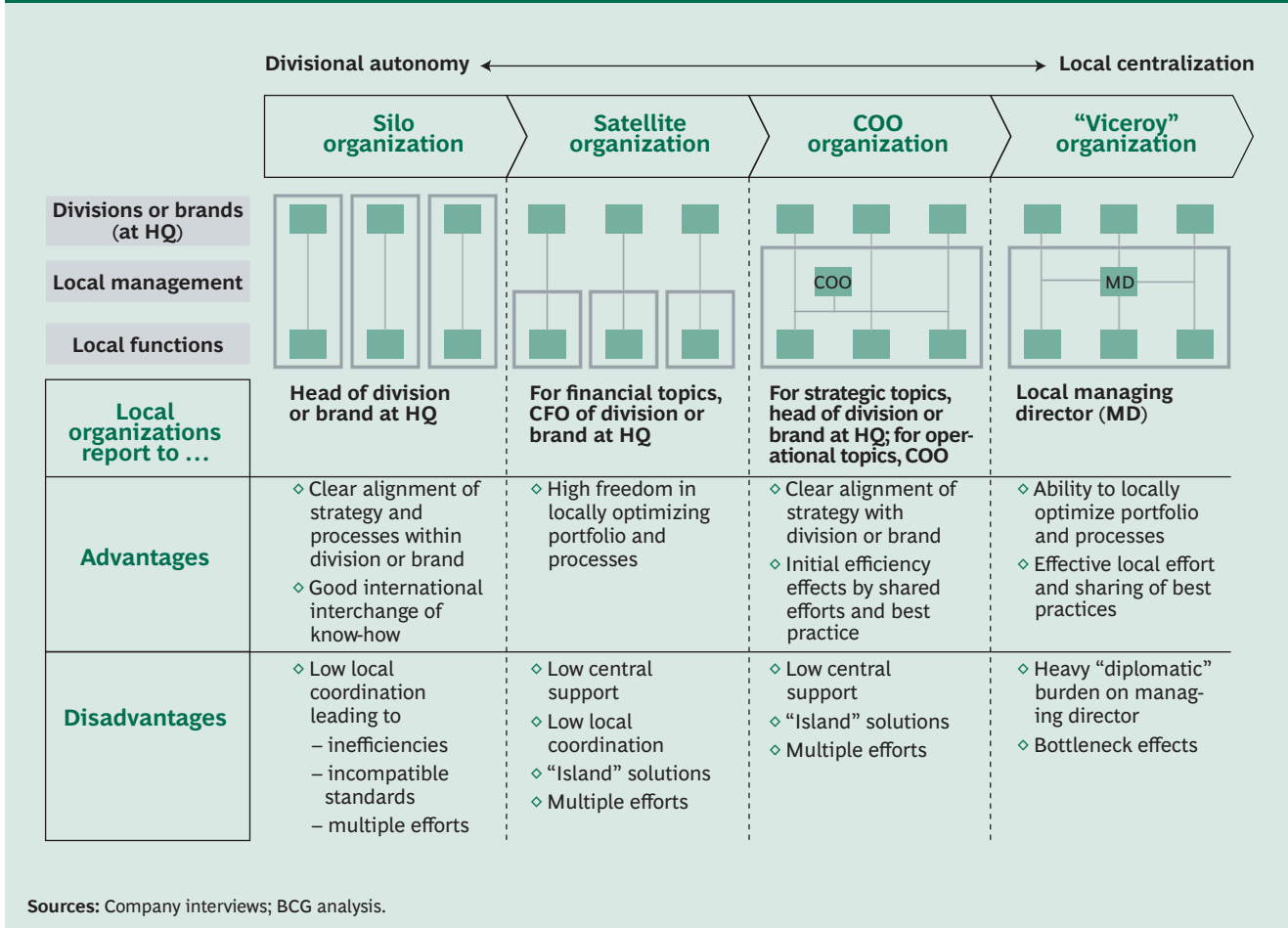
The COO Organization. In this kind of organization, the divisional management at headquarters sets the overall strategy, while the COO in China or India coordinates activities locally. This arrangement ensures a clear alignment of local strategy with the division or the brand, but it also runs the risk of duplicating efforts and creating island solutions.

Exhibit 19. Companies Follow One of Four General Patterns in Their Localization Processes



Source: BCG analysis.

Exhibit 20. Localized Organizations Differ in Structure, Degrees of Autonomy, and Levels of Centralization



The “Viceroy” Organization. In this organization model, the company puts a strong managing director in China or India. This arrangement offers sufficient autonomy to optimize portfolios and processes in these markets and to bundle local activities across divisions or brands. But companies applying this type of organization need to be aware of the heavy diplomatic burden on the managing director and the resulting bottleneck effects.

Optimizing Relationships with Joint-Venture Partners

Regulations in China—and to a lesser extent in India—have required foreign OEMs and suppliers to form joint ventures with local companies to establish businesses.

Today many foreign companies are finding that their joint-venture partners also act as their competitors and sometimes even as their customers. Not surprisingly, such cases frequently generate strong conflicts of interest. Some foreign companies, frustrated by these experiences, have even questioned the merits of further localization.

Foreign companies in this situation need to rethink their joint ventures and decide whether to exit them or to continue. If they choose to continue, they should adopt the following six principles to make the relationship work:

- ◇ *Ensure clarity and alignment on strategic objectives.* Managing a joint venture without common three- to five-year objectives does not work.

- ◇ *Set up pragmatic escalation processes to solve strategic and operational disputes.* Lingering conflicts can destroy considerable value.
- ◇ *Clearly define which joint-venture partner will take the lead in which roles.* Foreign companies typically focus on technology, quality, finance, and—for OEMs—sales.
- ◇ *Staff the joint ventures adequately from the board level to the operational level.* A joint venture must be not only managed top-down but also lived bottom-up.
- ◇ *Be prepared for ongoing negotiation.* Management of the joint venture is an ongoing discussion in which both partners must regularly reevaluate what they bring to the table.

- ◇ *If possible, engage in more than one joint venture.* This approach helps a company avoid becoming overly dependent on one partner. If a company has only one joint venture, underestimating potential power plays could be fatal.

Whatever organization model a company chooses for localizing in China or India, the interaction between local operations and headquarters, as well as between foreign and local joint-venture partners, requires a high level of interpersonal skills. As a prerequisite for their leadership role, therefore, senior managers at the helm of operations in these emerging markets should possess all the skills of a diplomatic negotiator.



Seven Key Lessons from Across the Value Chain

Throughout this report, we have argued that automotive companies need to further embed their local operations in RDEs such as China and India if they want to succeed in these markets of the future. Beyond the functional considerations we have discussed here, we have derived from our study seven overarching principles for winning the localization game.

- 1. Derive localization strategy from overall strategy.** OEMs and suppliers should have a comprehensive strategy for operating in China, India, or both countries, and such a strategy should include a clear understanding of the impact of these markets on the future of the company.
- 2. Set the right time horizon.** When defining a localization strategy, companies need to apply a time horizon of at least three to five years to achieve the targeted degree of localization.
- 3. Plan step by step and function by function.** To attain the targeted degree of localization, companies must take a carefully orchestrated step-by-step approach, with well-defined and aligned activities in each function. The goal is to ensure effective implementation while remaining flexible enough to respond to changes in these markets.
- 4. Focus on local-to-local activities.** Activities that enhance the local-to-local interface—such as using local suppliers, hiring local staff, and adapting products to local needs—should have highest priority for management attention and for implementation.
- 5. Allow for flexibility and uncertainty.** Improving the local-to-local interface in some value-chain steps may result in a relatively wide spread between the most and the least localized functions. This difference will require companies to maintain a higher level of flexibility so that they can act locally while being dependent on global decisions.
- 6. Embed local operations in global business models.** The new business models should clearly define the role of operations in China or India within their broader global context. For example, companies should specify whether local operations are a competence center or a production hub with global reach.
- 7. Grow the human resources pool.** To achieve both localization and future growth, companies will find it essential to recruit, develop, and retain key staff along the whole value chain. Only those companies that manage to dedicate enough top management attention and resources to this critical area will be successful over the long term in China and India.

In our view, these seven principles can serve as a sound basis for successful operations in China and India not only for automotive companies but also for those in a wide range of other industries. Given the tremendous significance of these fast-growing economies for virtually all industrial sectors, these guidelines should be at the top of every corporate leader's agenda.



For Further Reading

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Aligning Talent for Global Advantage: How Top Companies Develop the Right Talent in the Right Places

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Opportunities for Action in Industrial Goods, November 2005

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Opportunities for Action in Operations, May 2005

“Globalizing R&D: Knocking Down the Barriers”

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“Avoiding Supply Chain Shipwrecks: Navigating Outsourcing’s Rocky Shoals”

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The Central and Eastern European Opportunity: Creating Global Advantage in Serving Western Europe

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Navigating the Five Currents of Globalization: How Leading Companies Are Capturing Global Advantage

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