Winning the BRIC Truck Battle
How Global and Local Players Can Tap the Full Potential of BRIC Truck Markets

The Boston Consulting Group
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WINNING THE BRIC TRUCK BATTLE

HOW GLOBAL AND LOCAL PLAYERS CAN TAP THE FULL POTENTIAL OF BRIC TRUCK MARKETS

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EXECUTIVE SUMMARY

TRUCK SALES ARE STAGNATING in the Triad markets (Japan, North America, and Western Europe), with little or no growth expected beyond the current recovery. By contrast, developing markets such as Brazil, Russia, India, and China (BRIC) have experienced tremendous growth over recent years and still offer huge growth potential. The BRIC markets, which accounted for one-third of global truck sales in 2000, are likely to contribute two-thirds by 2020.

In addition to volume growth, the truck industry in the BRIC markets will see continuous professionalization. Changes in customer and legal requirements mean that most of today’s low-cost trucks are likely to be replaced by upgraded vehicles offering greater sophistication—at prices 20 to 50 percent higher.

Such upgrading should create considerably more revenue and profit potential in the BRIC markets. Global OEMs from mature economies and local OEMs from developing economies are competing for this highly attractive, newly emerging segment.

In this report, the third in the series Winning the Localization Game in the Automotive Industry, The Boston Consulting Group presents the challenges truck manufacturers will face over the coming decade. On the basis of interviews with more than 75 senior executives from the world’s leading truck manufacturers and suppliers, the report analyzes optimal strategies for excelling in BRIC commercial-vehicle markets. It also compares current strategies and business models and analyzes their potential to be the winning models of the future.

Most BRIC markets outperformed the Triad markets during the economic crisis and offer much greater long-term growth potential.

- By 2020, sales volumes in BRIC markets are likely to have grown to almost five times their 2000 levels. The Triad markets are expected to shrink slightly during the same period.
• BRIC markets are projected to account for 64 percent of global sales volumes, generating about 50 percent of global revenues and profits in 2020.

• During the recent economic crisis, Russia was the only BRIC country to fall back significantly. China experienced even stronger growth, Brazil kept its momentum, and India declined slightly.

• Over the next decade, China is likely to slow down but will remain an attractive growth market in absolute terms. India and Russia offer the greatest relative growth potential.

Global and local players will compete for the same markets.

• Today, global OEMs are concentrated in the Triad markets and Brazil, while local OEMs are confined to their domestic market and to other minor or emerging markets.

• In the future, Triad OEMs will be much more localized in the BRIC markets. This trend was established by recent ventures such as Volvo’s manufacturing plant in Russia, Daimler’s investment in India, and MAN’s activities in China.

• BRIC OEMs are likely to push strongly into other attractive emerging markets—mainly in other BRIC countries—and are aiming for Triad markets over the long run.

Truck OEMs need to understand the characteristics of each BRIC market and prepare for their individual challenges.

• Brazil, a relatively mature market, has the most sophisticated trucks in the BRIC markets. There are no significant local OEMs, and the market is dominated by European OEMs that have localized their operations.

• The Russian truck market was severely hit by the recent economic crisis and is still recovering. Local OEMs achieved strong sales in 2010 but will have to compete with foreign players. Concrete government measures are stimulating localization by global OEMs and suppliers.

• India is dominated by local OEMs. Tata has by far the largest market share. Strong volume growth and a segment shift toward the midmarket are expected within the next decade. The country is open to foreign OEMs, which are currently investing heavily.

• China’s truck market has grown strongly in the past. Growth is expected to slow, but China still offers huge sales potential. It is a highly fragmented market with numerous large local OEMs. Strict government regulations limit global OEMs’ market access.

A new product segment, the midmarket, is currently emerging in the BRIC markets and is projected to make up approximately 44 percent of total global sales in 2020.
Customers in BRIC countries will demand increasingly sophisticated trucks that offer more powerful engines, more comfortable cabins, and better fuel efficiency than today’s BRIC models.

Midmarket trucks will be more sophisticated than today’s trucks from BRIC OEMs but less so than those produced by Triad OEMs.

Midmarket trucks tailored for more demanding local requirements can be based on a single cross-BRIC platform that can be adapted locally.

Global players have not yet tapped into the full potential of local R&D, sourcing, and manufacturing in the BRIC markets. To succeed in those markets, OEMs need a precise concept, the right product offering, and deep-rooted local activities.

All BRIC markets offer extensive opportunities for conducting local R&D, sourcing, and manufacturing, but global OEMs have so far really localized only in Brazil. The other BRIC countries are still dominated by local OEMs.

Rather than localizing all functions across all four BRIC countries, the ideal strategy is to focus on the best opportunities.

Brazil, China, and India, offer great opportunities for local R&D, but not even one-fifth of all OEMs are exploring this potential.

Although Brazil, China, and India already have well-established supply bases offering great sourcing potential, most global truck manufacturers source locally for local operations only.

In manufacturing, it has become obvious that full-scale production with strong localization is necessary to obtain a cost advantage of 20 to 30 percent, but many global OEMs are still shying away from these investments.
In many industry sectors, the BRIC nations—Brazil, Russia, India, and China—are perceived as the markets of the future. In the truck industry, this expectation has already become a reality. The BRIC nations experienced tremendous growth over the past decade, and will continue on this path over the next ten years. In 2010, they accounted for 74 percent of global truck sales. (See the sidebar “The Truck Market: Our Definition.”)

The Truck Industry at a Turning Point

The dominance of the BRIC nations reflects a global volume shift from 2000 through 2010. At the turn of the millennium, the Triad nations—Japan and the countries of North America and Western Europe—were still responsible for 56 percent of world sales and an even higher proportion of revenues and profits. In the aftermath of the recent economic crisis, however, the Triad countries’ share of sales shrank to 17 percent in 2010 and is expected to remain low, reaching only 22 percent in 2020.

This shift comprised two stages. The mature Triad economies grew slowly after 2000, while the BRIC economies expanded rapidly. China, for instance, generated annual volume growth of 16 percent during the decade through 2010.

This divergence grew during the economic crisis. Sales collapsed in the Triad countries,
falling in 2009 to barely half of 2000 levels. The pattern was different in the BRIC countries. Only Russia was hit hard, with sales falling below 2000 levels. India’s sales suffered a minor decrease, Brazil continued to progress, and China maintained its rapid growth.

Looking Forward: The Triad Markets. Our projections suggest that the Triad markets will rebound in the short term, but starting in 2013, they will likely resume their previous pattern of slow growth, with stagnation in Japan and Western Europe. In 2020, overall sales in the Triad markets are expected to be slightly below the 2000 level. Over the same two decades, BRIC sales will likely grow by a factor of four to five. (See Exhibits 1 and 2.)

This does not make Triad markets irrelevant. Truck sales in those markets are dominated by high-performance products such as the Mercedes-Benz Actros, Scania R-series, Freightliner Coronado, and Fuso Super Great.

Because of this, the Triad countries’ projected 22 percent share of world sales in 2020 is still expected to account for relatively higher shares of revenues (33 percent of the global total) and profits (37 percent), but these shares will be considerably lower than 2000 levels.

Looking beyond the Triad and BRIC markets, we project that other countries will make up 15 percent of global sales volumes in 2020. They range from very advanced economies such as Australia to those still in an early stage of development such as some African states. Although they are not the main focus of this report, these countries should be explored opportunistically.

Looking Forward: The BRIC Markets. The implication is clear. New market opportunities are likely to be concentrated in the BRIC countries. What will change, however, is the scale of growth in these markets.

Future growth is unlikely to match the spectacular volume growth—more than 10 percent per year—achieved by truck markets in Brazil, India, and China from 2000 through 2010. Massive investments in fleets meant that truck sales in India and China grew

EXHIBIT 1 | Unit Sales Will Grow by a Factor of 4.8 in BRIC Markets but Will Shrink in the Triad Markets

The truck market is expected to recover strongly until 2013 and grow 3 percent annually in the long term

<table>
<thead>
<tr>
<th>Year</th>
<th>Triad</th>
<th>BRIC</th>
<th>All other</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>2.8</td>
<td>1.6</td>
<td>0.9</td>
</tr>
<tr>
<td>2007</td>
<td>3.0</td>
<td>2.8</td>
<td>0.9</td>
</tr>
<tr>
<td>2009</td>
<td>3.6</td>
<td>3.6</td>
<td>1.5</td>
</tr>
<tr>
<td>2011</td>
<td>4.0</td>
<td>4.3</td>
<td>2.3</td>
</tr>
<tr>
<td>2013</td>
<td>4.7</td>
<td>4.8</td>
<td>2.6</td>
</tr>
<tr>
<td>2020</td>
<td>5.4</td>
<td>5.6</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>5.8</td>
<td>5.9</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td>6.1</td>
<td>6.3</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>6.5</td>
<td>6.8</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**Sources:** IHS Global Insight; BCG analysis.

**Note:** CAGR = compound annual growth rate.

1including trucks whose gross vehicle weight is at least 3.5 tons.
Winning the BRIC Truck Battle

more rapidly than GDP, but the next ten years should see sales trailing behind GDP growth. The reasons for this deceleration differ by country:

- Brazil is hampered by infrastructure weaknesses. In particular, its roads are less developed than those of Russia and China, and no significant improvement is expected. Sales are projected to grow by 2 percent annually to 2020, compared with 10 percent from 2000 through 2010.

- Russia’s economy is still recovering from the recent economic crisis. Truck sales are projected to return to precrisis levels in 2013 and then grow at 4 percent annually for the rest of the decade.

- India’s growth potential to 2020, projected at 6 percent annually, should exceed that of the other BRIC countries. Road conditions are still very poor, but improvements to infrastructure will drive increasing efficiency in a fast-growing transportation sector.

- China’s market is currently overheated and expected to cool down. Further growth will be concentrated in light-duty trucks (LDTs) and medium-duty trucks (MDTs), with the heavy-duty truck (HDT) sector stagnating. This trend is reflected in the words of Huang Gang, managing director of Dongfeng Commercial Vehicle, who told The Boston Consulting Group researchers, “We don’t expect big growth in the Chinese HDT market based on 2010 sales. The 2010 sales level was abnormal due to the government stimulus package and won’t be reached again.”

Overall volume growth in BRIC markets is likely to be significantly below past levels, but the shift to upgraded, higher-priced vehicles means that a volume increase projected at 21 percent over the next decade should generate a revenue increase of more than 50 percent. (See Exhibit 3.)

A New Segment Emerging: The “Midmarket”

Volume change is important, but the real BRIC truck-market story will concern changing truck specifications rather than pure sales volumes. Today, the global truck market is dominated by two broad segments: low cost and premium. The low-cost segment is concentrated in emerging markets, the premium segment in mature markets. But a newly emerging midmarket is likely to become the dominant sector over the next decade.

OEMs are already responding to BRIC customer demand for enhanced comfort, safety, and efficiency by launching trucks that are more sophisticated than current low-cost vehicles. However, these upgraded trucks are still clearly positioned below premium trucks. (See Exhibit 4.)
EXHIBIT 3 | Revenues from BRIC Truck Sales Will Near €130 Billion by 2020

Revenues in India and China will grow more than twice as fast as sales volumes

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>169</td>
<td>208</td>
<td>+21%</td>
</tr>
<tr>
<td>Russia</td>
<td>345</td>
<td>230</td>
<td>+11%</td>
</tr>
<tr>
<td>India</td>
<td>613</td>
<td>4,298</td>
<td>+53%</td>
</tr>
<tr>
<td>China</td>
<td>1,957</td>
<td>2,245</td>
<td>+2%</td>
</tr>
</tbody>
</table>

2010 | 3,552 | 613 | 14 |
2015 | 3,786 | 613 | 22 |
2020 | 4,298 | 4,298 | 81 |

Brazil | Russia | India | China

Sources: IHS Global Insight; BCG analysis.
Note: Including trucks whose gross vehicle weight is at least 3.5 tons; CAGR = compound annual growth rate; because of rounding, there may be some variation in sums.
¹Revenues were calculated using inflation-adjusted prices.

EXHIBIT 4 | Customer Demand Has Defined New Truck-Market Segmentation

<table>
<thead>
<tr>
<th>Segment</th>
<th>Product examples</th>
<th>Price level¹</th>
<th>Emissions standards</th>
<th>Features</th>
<th>Horsepower</th>
<th>Cost focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premium</td>
<td>Only global OEMs: Volvo FH, Mercedes-Benz Atego, Iveco Daily</td>
<td>At least twice as much as low-cost vehicles</td>
<td>Conformity to Triad market standards (Euro V and Euro VI)</td>
<td>Numerous special features, enhanced comfort and safety:</td>
<td>Excellent</td>
<td>Best TCO performance: Fuel efficiency, Reliability, Durability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HDT: &gt; €65,000</td>
<td>MDT: &gt; €45,000</td>
<td>Spacious cab, Refrigerator</td>
<td>engine</td>
<td>Performance: Fuel efficiency, Reliability, Durability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LDT: &gt; €25,000</td>
<td></td>
<td></td>
<td>performance: Fuel efficiency, Reliability, Durability</td>
<td></td>
</tr>
<tr>
<td>Midmarket</td>
<td>Some global and some local OEMs: MAN/VW Constellation, Iveco Vertis, Dongfeng EQ1120</td>
<td>About 50% more than low-cost vehicles</td>
<td>Conformity to new BRIC-market standards (Euro III and Euro IV)</td>
<td>Some special features: ABS, Radio, GPS, Air bags, Air conditioning</td>
<td>Good engine</td>
<td>Advanced TCO: Moderate fuel efficiency, Increased reliability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HDT: €35,000–€65,000</td>
<td>MDT: €20,000–€50,000</td>
<td>LD: €12,000–€33,000</td>
<td>Performance: Fuel efficiency, Reliability, Durability</td>
<td></td>
</tr>
<tr>
<td>Low cost</td>
<td>Only local OEMs: Tata LPT 2515, Eicher 11.10, GAZ Sobol</td>
<td>Low purchase prices</td>
<td>No focus on emissions reduction (only Euro I, Euro II, or, at most, Euro III)</td>
<td>No-frills technology: Ability to cope with unpaved roads, Ease of repair, Large load capacity</td>
<td>Weak engine</td>
<td>No TCO focus: Poor fuel efficiency, Poor quality</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HDT: €22,000–€45,000</td>
<td>MDT: €14,000–€40,000</td>
<td>LD: €6,000–€16,000</td>
<td>Performance: Fuel efficiency, Reliability, Durability</td>
<td></td>
</tr>
</tbody>
</table>

Source: BCG analysis.
Note: HDT = heavy-duty truck; MDT = medium-duty truck; LDT = light-duty truck; ABS = antilock brake system; GPS = Global Positioning System; TCO = total cost of ownership.
¹Price ranges overlap segments because of regional price-level differences.
The Growing Midmarket. If the BRIC markets are set to experience the fastest growth, that growth will be mostly in the midmarket, which is expected to dominate in all four markets and is projected to account for 70 percent of their total sales. The BRIC midmarket will generate nearly half—44 percent—of global truck sales by 2020. (See Exhibit 5.)

The once-dominant low-cost sector will lose significance, accounting for less than one in five BRIC truck sales. Upgrading should also increase growth in the premium segment, but this segment will be significant only in Brazil, because of its maturity, and in Russia, because of its proximity to Europe.

The Upgrading. The shift to the midmarket will be driven by an upgrading of demand in the BRIC markets as a result of government action (with governments acting as both the regulators and the suppliers of infrastructure), the increasing demands of customers, and the professionalization of the transportation industry. Across all BRIC markets, we anticipate that governments will take the following actions:

- They will demand compliance with more stringent emissions standards. All four BRIC markets are likely to introduce Euro V standards from 2012 through 2015, and Euro VI over the long term.
- They will tighten safety regulations. Brazil, for example, is requiring all new commercial vehicles to have an antilock brake system (ABS) starting in 2014.
- They will invest in road infrastructure. New and improved high-speed roadways make the purchase of faster, more sophisticated vehicles worthwhile.

For their part, BRIC customers will want more sophisticated vehicles, but their demands will still fall short of the specifications required in Triad markets. The big sales increases will be in the midmarket rather than in the premium segment. Truck buyers will apply a more sophisticated understanding of costs. Fleet management has become more professional in the BRIC markets, and purchasing choices once decided on the basis of

EXHIBIT 5 | The BRIC Midmarket Will Account for 44 Percent of Global Unit Sales by 2020

<table>
<thead>
<tr>
<th>Trucks (In thousands)</th>
<th>Triad markets</th>
<th>Brazil</th>
<th>Russia</th>
<th>India</th>
<th>China</th>
<th>All other markets</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premium</td>
<td>1,455</td>
<td>1,455</td>
<td>162</td>
<td>48</td>
<td>44</td>
<td>328</td>
<td>1,299</td>
</tr>
<tr>
<td>Midmarket</td>
<td>120</td>
<td>123</td>
<td>94</td>
<td>469</td>
<td>1,050</td>
<td>130</td>
<td>1,313</td>
</tr>
<tr>
<td>Low cost</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>327</td>
<td>1,863</td>
<td>24</td>
<td>2,275</td>
</tr>
<tr>
<td>Total</td>
<td>2,293</td>
<td>2,293</td>
<td>446</td>
<td>1,873</td>
<td>3,181</td>
<td>827</td>
<td>4,827</td>
</tr>
</tbody>
</table>

44% of global volume in 2020

Sources: IHS Global Insight; BCG analysis.
Note: Includes trucks whose gross vehicle weight is at least 3.5 tons; the distribution among segments and the segment growth path were derived using BCG’s model; the starting distribution was estimated from the current market distribution among segments (model and brand-based analysis); NA = not available.
the initial sales price are increasingly guided by total cost of ownership (TCO), which will favor midmarket vehicles.

Truck manufacturers that wish to remain global players have to focus on the midmarket now. Not participating will mean missing out on the biggest revenue and profit growth and highest sales volumes globally. But companies seeking serious sales growth should be prepared to make significant investments.

Local and Global OEMs in Battle
The midmarket dynamic will drive the world’s leading OEMs into the BRIC market battleground. Today, there are two broad categories of manufacturers. For the most part, global OEMs such as MAN, Volvo, Scania, and Isuzu sell premium trucks in the Triad markets. Local OEMs such as Tata Motors, Kamaz, and Dongfeng Motor produce low-cost vehicles for BRIC markets.

Local OEMs have vastly outpaced global OEMs over the past decade, and that trend is expected to continue. Most local OEMs from India and China have achieved growth rates of 5 percent and higher, while many global OEMs and local OEMs from Russia have seen sales decline. Stimulated by domestic growth, BRIC OEMs already account for six of the ten largest producers worldwide. The next ten years will see global and local OEMs converge and compete. Global Triad companies will become more localized, local BRIC manufacturers more global.

Global OEMs. With Triad markets remaining stagnant, global players need new markets. Even though BRIC buyers are seeking more sophisticated trucks, vehicles designed and priced for Triad markets still cost too much. They meet emissions standards and come with special features that BRIC buyers do not demand. To compete with local BRIC players, global OEMs must downgrade specifications and reduce costs. We calculate that to do this, they will need to localize more than 90 percent of their activities. A European OEM told us, “We could achieve a competitive level in Brazil only after localizing all of our activities.”

Local OEMs. BRIC OEMs also seek fresh markets. So far, they have profited from rapid growth in home economies. In terms of sales units, annual growth rates exceeding 10 percent—achieved from 2000 through 2008 by companies such as Tata in India and Dongfeng in China—were in line with overall growth in domestic commercial-vehicle markets. But new entrants and upgraded vehicles have intensified competition, so these companies can no longer rely on domestic growth to power expansion. To maintain momentum, local OEMs must operate two key levers: tapping into upgrades in their domestic market and capturing growth in other rapidly developing economies.

The next ten years will see global and local OEMs converge and compete.

To tap the potential of upgraded vehicles, BRIC OEMs need access to advanced technology. Many local OEMs have, therefore, entered into partnerships with global suppliers or OEMs. Tata, for example, built an upgraded truck using advanced components from global suppliers such as Cummins, ArvinMeritor, and ZF Friedrichshafen. Prakash Telang, the managing director of Tata Motors, reported, “We are not confining ourselves to the domestic market but are now building a world truck to be sold in overseas markets.”

To encourage further growth, local OEMs need to improve their positions in other developing economies. Most local OEMs we spoke with are aiming for an export rate of 15 to 20 percent over the next five years compared with less than 5 percent today. The most frequently named markets are Southeast Asia, Latin America, Africa, the Middle East, and other BRIC countries.
INDIVIDUAL CHALLENGES IN THE BRIC MARKETS

Each BRIC economy presents challenges that can be overcome only by companies that understand the workings of the individual countries’ market peculiarities, regulations, and prospects. (See the sidebar “Infrastructure: An Essential Driver of BRIC Truck Markets.”)

Brazil: The Mature Market
Of the four BRIC truck economies, Brazil is currently the most developed. The midmarket is already the dominant sector, while the overall market is dominated by global OEMs. With GDP expected to grow 7 percent annu-

<table>
<thead>
<tr>
<th>INFRASTRUCTURE</th>
<th>An Essential Driver of BRIC Truck Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brazil</strong></td>
<td>Brazil’s road infrastructure is underdeveloped: only 12 percent of the country’s roads are paved, accident rates are high, and roads in urban areas and between economic centers are seriously congested. The situation is unlikely to improve sufficiently to cope with the country’s expected GDP growth. Upgrades for the 2014 FIFA World Cup and the XXXI Olympic Summer Games in 2016 will mean better public transportation and roads to stadiums—but not better truck routes.</td>
</tr>
<tr>
<td><strong>India</strong></td>
<td>India is currently developing a national highway system to connect major cities and industrial zones. About 47 percent of India’s roads are already paved, but many are seeded with potholes. Large investments in highways should make pan-Indian long-distance travel possible, but road deficiencies could still hamper economic growth.</td>
</tr>
<tr>
<td><strong>Russia</strong></td>
<td>Of the BRIC countries, Russia has the highest proportion—81 percent—of paved roads, but only 5 percent are classified as “good quality.” Remote and rural areas have particularly poor roads. Some deficiencies are being addressed. In 2010, a substantial investment was earmarked for improvements to road infrastructure.</td>
</tr>
<tr>
<td><strong>China</strong></td>
<td>With the second-longest national highway network in the world, China already has, by far, the most developed infrastructure of the BRIC countries and is further improving it through massive investments in its roadways.</td>
</tr>
</tbody>
</table>
ally to 2020, Brazil has strong economic prospects but is handicapped by poor traffic infrastructure.

Our projections for Brazil’s truck market, illustrated in Exhibit 6, indicate the following:

- Annual volume growth of 2 percent to 2020, leading to total demand of 208,000 trucks
- Sustained dominance, but no growth in the midmarket while the premium sector expands to take about 40 percent of sales
- Revenues rising by 2 percent annually through 2020 to about €14 billion, half of which will come from the premium segment and the other half from the midmarket

Local Versus Global. Global OEMs have operated in Brazil for a long time and now dominate the market. MAN, which acquired Volkswagen’s operations in Brazil, has just over one-quarter of the overall market, followed by Daimler, Ford, Iveco, Volvo, and Scania, all of which have significant presences. Agrale, a local OEM, has survived as a niche player, supplying specialized vehicles to, for example, truck-driving schools.

Localization. All global OEMs manufacture locally, and all those BCG interviewed report that production quality is at least as high as in their home countries. But in spite of this deep localization, global OEMs have not achieved real cost advantages. Of those we interviewed, 25 percent said that local production costs were lower than at home, 50 percent said that their costs were the same, and 25 percent said that they were higher. Brazilian energy and raw-material costs are higher than Triad country norms, and the generally small labor-cost advantage is offset by lower productivity. Labor costs are typically lower outside Greater São Paulo and coastal regions. Thus, OEMs should assess possible cost advantages by relocating production facilities or building new capacities in less expensive regions. Although government regulations foster localization in Brazil, foreign companies need to be aware that strong workforce unions might demand adaptations to established processes.

The Market. Because of the dominance of global OEMs, Brazil was the first of the BRIC
markets to upgrade its product lines. The midmarket accounts for 96 percent of MDTs and 60 percent of HDTs.

This dominance will be reinforced by Euro V emissions regulations starting in 2012 and probably by Euro VI in 2017. Price levels are close to those in the Triad markets, with no low-cost penetration.

The market in Brazil is characterized by tailored vehicles from global OEMs, for example, the MAN/VW Constellation, the recently launched Iveco Vertis, and the Mercedes-Benz Linha Tradicional. In addition, global OEMs offer localized variations—more robust, simpler to maintain, and less expensive—of trucks designed for Triad markets.

The market in Brazil is characterized by tailored vehicles from global OEMs.

The Battleground. “We want Brazil to be our door into South America, as the country is the strongest economy in Latin America,” Dongfeng Commercial Vehicle’s Huang Gang told BCG. Brazil’s existing midmarket and potential as a regional entry point to Latin America make it highly attractive to ambitious Asian OEMs seeking export markets. However, Asian OEMs will need to set up production facilities in Brazil to avoid import taxes and to sustain their Brazil strategy. Products such as the Tata Prima, which meets the Euro V emissions standards, and the Dongfeng Kinland are likely to provide competition for established products. Incumbents need to devise lower-cost vehicles at the low end of the midmarket to meet this challenge.

Achieving market success in Brazil will require the following:

- A comprehensive product lineup that covers the premium and midmarket segments and is tailored to handle local conditions such as bad roads and humidity
- Deeply localized operations to achieve more than 60 percent local content—and avoid high import duties
- A dense sales-and-service network to satisfy demanding customers in this rather mature market
- Brazilian operations at the center of a regional Latin American manufacturing-and-sales network to increase volume and scale while optimizing costs

Russia: The Roller Coaster
Russia was the only BRIC nation hit severely by the recent economic crisis. Demand, which crashed by two-thirds from 2008 through 2009, will not be restored before 2013. Although Russia’s economic prospects are strong, with average GDP growth to 2020 projected at 7 percent, long-term growth will be constrained by infrastructural problems related to its size, climate, and years of limited investment. (See Exhibit 7.) We project the following:

- Two phases of growth, starting with annual volume growth of about 28 percent to 2013, restoring precrisis volumes
- From 2013, annual growth of around 4 percent, leading to a volume of about 230,000 trucks in 2020
- Midmarket dominance in terms of volume, rising to more than 40 percent of the market, while the currently predominant low-cost sector drops to less than 20 percent as local OEMs such as Kamaz upgrade
- Expansion of the premium sector to take around 40 percent of total sales
- Revenues rising by 13 percent annually from 2010 through 2020, reaching about €12 billion in 2020 driven mostly by upgrading to the midmarket

Local Versus Global. Local OEMs dominate, with four leaders supplying almost 75 percent of volume. Kamaz has around one-third and
leads in the HDT sector while GAZ leads in MDTs. Several Asian players that entered the market were driven out during the economic crisis. They are likely to return, offering new competition with midmarket models. The local OEM offerings are complemented by a segment of European OEM-made trucks suited to Russia’s vast distances and climatic extremes. An “arctic” package designed to cope with extreme cold is among the more popular upgrades.

Localization. Although this is likely to change in the wake of its accession into the World Trade Organization (WTO), Russia remains, so far, a relatively secluded market, dominated by local OEMs. It has a tight regulatory framework, and most global OEMs have localized only to avoid high import duties. Companies with local operations reported that although production quality was generally in line with quality levels at home, they had not achieved a real cost advantage. For 80 percent of them, costs were higher than at home. Although Russia has the lowest energy and raw-material costs of the BRIC countries, its prices for land and labor are the highest, and manufacturing productivity is low. (See the sidebar “Regulations Drive Localization in the BRIC Markets.”)

Localization has been constrained by local deficiencies in suppliers and know-how. Until a recent upsurge in investment, global OEMs had not progressed beyond assembly operations. The new plant Volvo opened in 2009 highlights increasing localization, as do joint ventures between global and local OEMs, such as those formed by Daimler with Kamaz for its Mercedes-Benz and Fuso brands.

The Market. The market today is characterized by a very large low-cost segment. Among the best-selling trucks is the Russian Kamaz 65116, a four-wheel-drive, three-axle tractor that conforms to Euro II emissions standards. Increasingly stringent controls are expected to drive upgrading. Russia will probably demand Euro IV compliance in the near future, following up with Euro V and Euro VI in the long term.

Low-cost vehicles are already the minority in the LDT segment. Further impetus to upgrade...
The Battleground. Dominant local players will be challenged by both the recent influx of Triad OEMs and a renewed push from Asian companies. Asian OEMs, squeezed out during the crisis, were hampered by reputations for poor quality, but they plan to return. Foton, for example, has announced plans for large-scale local production. Shen Yang, Foton’s director for overseas strategy told us, “We’re not here to produce and sell cheap, low-quality products.”

Achieving market success in Russia will require the following:

- **A Robust Midmarket Product.** The midmarket will be the dominant segment in Russia, where customers demand robust trucks that can operate in the coldest weather conditions.

- **Localized Assembly.** Until the full impact of Russia’s WTO accession becomes reality, its high import tariffs will remain the main driver for local production. However, cost advantages rarely go beyond savings achieved by not paying import duties.

- **A Strong Partnership.** Partnership with a local player, whether for production or distribution, is often the best way to enter this volatile market.

- **A Comprehensive Local Sales-and-Service Network.** Coverage of Moscow, Saint Petersburg, and the 15 next-largest centers, as well as the ten key routes across the country, will be necessary to reach 80 percent of customers.

India: The Shifting Market

India can expect more fundamental changes than any other BRIC economy over the coming decade. Beginning as a low-cost market with a minimal midmarket, India’s truck market will combine strong volume growth with product upgrading to create the predominant midmarket of the BRIC economies.

Although growth rates slowed during the recent economic crisis, losses were overcome by 2010, and the overall economic outlook is now exceptionally positive. GDP is expected...
to grow at a compound annual growth rate (CAGR) of 11 percent to 2020.

We project the following:

- Volume growing 6 percent annually, leading to output of about 613,000 trucks in 2020
- A profound shift to the midmarket, which could account for around 76 percent of trucks sold in 2020
- Massive revenue growth of 12 percent per year, driven by the upgrading market and leading to revenues of more than €20 billion in 2020—more than three times current revenues

Local Versus Global. India’s market, which is highly concentrated, is dominated by a single local OEM. In 2010, there were more than 200,000 Tata registrations in India—almost two-thirds of the national volume. Tata has a majority of sales in all three weight segments. Its closest pursuers are Ashok Leyland, with around one-sixth of total sales and second place in HDTs, and Eicher Motors, which has around one-tenth of total sales and second place in MDTs. Asia Motor Works, a recent market entrant, achieved more than 6,000 truck registrations in 2010. (See Exhibit 8.)

Global OEMs have had little impact so far. Daimler will launch a broad range of vehicles from its own production site near Chennai starting this year. The MAN Force joint venture was active for several years but was recently dissolved through MAN’s purchase of Force’s stake. MAN is planning to continue on its own in India with its localized HDT-vehicle products. Other joint ventures recently formed by global OEMs to expand their activities in India include Mahindra Navistar Automotives and VE Commercial Vehicles, as well as the collaboration between Volvo and Eicher.

Localization. Companies that have pursued localization have seen serious benefits. Those we interviewed—a mix of suppliers and manufacturers—reckon the cost savings potential as high as 30 percent. Although energy and raw-material costs in India are

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**EXHIBIT 8 | In India, Tata Dominates, and the Midmarket Will Explode**

<table>
<thead>
<tr>
<th>Unit sales</th>
<th>Top ten OEMs in 2010</th>
<th>Revenues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Truck registrations (thousands)</td>
<td>Registrations per OEM (thousands)</td>
<td>Revenues (€billions)</td>
</tr>
<tr>
<td>2010</td>
<td>Tata</td>
<td>345</td>
</tr>
<tr>
<td>2013</td>
<td>Ashok Leyland</td>
<td>402</td>
</tr>
<tr>
<td>2020</td>
<td>Force Motors</td>
<td>613</td>
</tr>
<tr>
<td>CAGR, 2010–2020</td>
<td>Eicher</td>
<td>3%</td>
</tr>
<tr>
<td>Premium</td>
<td>Mahindra &amp; Mahindra</td>
<td>1%</td>
</tr>
<tr>
<td>Midmarket</td>
<td>Asia Motor Works</td>
<td>4%</td>
</tr>
<tr>
<td>Low cost</td>
<td>SML Isuzu</td>
<td>42%</td>
</tr>
<tr>
<td>2010</td>
<td>Scania</td>
<td>7%</td>
</tr>
<tr>
<td>2013</td>
<td>Volv</td>
<td>10</td>
</tr>
<tr>
<td>2020</td>
<td>Daimler</td>
<td>7</td>
</tr>
<tr>
<td>CAGR</td>
<td>Eicher</td>
<td>22</td>
</tr>
</tbody>
</table>

Sources: IHS Global Insight; BCG analysis.
Note: CAGR = compound annual growth rate; because of rounding, some totals do not equal 100.
comparable with those in Triad markets, land and, particularly, labor costs are very advantageous. At the same time, most global companies reported that production quality was lower than at home.

The Market. The market is overwhelmingly dominated by the low-cost segment, which accounted for 95 percent of total sales in 2010. Typical vehicles include the Tata LPT 2515 and the Ashok Leyland 2516, both 6x2 rigid trucks. Many trucks are still sold without a cabin and subsequently completed by local cabin builders.

Upgrading will be driven by both more stringent emissions standards and increasingly sophisticated customer demand. India raised national emissions standards, switching from Euro II to Euro III in 2010, while city requirements were switched from Euro III to Euro IV. National standards are likely to become more rigorous, moving to Euro IV in the near future.

Achieving market success in India will require the following:

- **A Price-Competitive Midmarket or Low-Cost Product.** More than 90 percent of the market is low cost and will be midmarket or low cost for the foreseeable future. Price sensitivity will remain high in spite of upgrading.

- **Fully Localized Production.** Fully localized production will be necessary to take advantage of the low labor costs and achieve a competitive cost position. Liberal market conditions also make a “greenfield” approach possible, enabling global OEMs to set up from scratch.

- **A Dense Local Sales-and-Service Network.** Most local players have more than 200 service points and three times as many roadside mechanics capable of maintaining their easy-to-repair vehicles.

- **Good Local Financing Solutions.** More than 90 percent of Indian truck sales are financed or leased, but many customers do not comply with established loan requirements used by Triad OEMs. A flexible, locally adapted credit-scoring model will be the key.

National standards are likely to become more rigorous.

Increased emphasis on TCO reflects the higher priority being given to speed, fuel efficiency, quality, and, especially, driver comfort and safety. Fuel accounts for a huge share—around 70 percent—of total costs.

The Battleground. India’s combination of volume growth and upgrading will make it an exceptionally attractive and, therefore, intensely competitive market. Local OEMs aim to consolidate their hold by creating midmarket vehicles such as the Tata Prima range and Mahindra Navistar Automotives’ HDTs.

Their use of components from global OEMs—for example, Cummins engines and cabins designed in Italy—to upgrade existing low-cost vehicles is a popular model for ambitious local OEMs. Global OEMs such as Daimler, which is investing around €700 million in its Indian operation, also seek entry into a lucrative local midmarket segment.

China: The Easing Giant

China, which dominates global truck markets in terms of volume, is projected to account for 48 percent of the world’s truck registrations in 2020. Its overall economic environment is very positive, with GDP expected to grow at a CAGR of 10 percent through 2020.

Volume growth will slow in this overheated market. Government stimulus packages have driven China’s truck sales to an extraordinarily high level—far above the levels in other BRIC and Triad markets—relative to GDP in recent years. Fleets were increasing their stock instead of investing in the professionalization of their logistics.

But the situation will change. The stimulus no longer exists, and operators are expected to make more efficient use of their fleets. The level of truck sales relative to GDP will probably drop
to half the current levels but remain high in comparative international terms. (See Exhibit 9.)

We project the following:

- After a small dip extending until 2013, volume growth in registrations of 2 percent annually from 2013 through 2020 will lead to sales of about 3.2 million trucks in 2020.

- LDTs, with an annual growth rate of 2 percent, will be the fastest-growing segment, while HDTs contract.

- Upgrading from low-cost to midmarket trucks by 2020 could account for more than 70 percent of sales.

- Revenue growth double that of volume growth will reach around €81 billion in 2020—almost two-thirds of total BRIC revenues.

Local Versus Global. Although the market is dominated by local OEMs, it is also extremely scattered. There were 19 companies with sales of 20,000 trucks or more in 2010. The leader is Beijing Automotive Industry Holding Company with Foton. It commands around one-fifth of the total volume and leads in the LDT segment. Second is Dongfeng, which leads in the MDT segment and has around one-sixth of the total volume. Global companies such as Mercedes-Benz and Volvo are largely confined to premium-market niches.

Localization. The fight for Chinese partners is on. Global OEMs need local joint-venture partners to engage in this high-volume market, but few have as yet established any. The few include Iveco, which formed a joint venture with SAIC in 2007 and now reckons that China accounts for half its global sales; MAN, which engaged with CNHTC in 2009; and Daimler, which is establishing a joint venture with Foton.

Global suppliers have achieved much deeper localization. Cummins, for example, has 15 production facilities and its East Asia R&D center in China. Partners include Dongfeng,

**EXHIBIT 9 | China Has Strong Local OEMs and an Expanding Midmarket Segment**

<table>
<thead>
<tr>
<th>Truck registrations (thousands)</th>
<th>Registrations per OEM (thousands)</th>
<th>Revenues (€billions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>Beijing Automotive</td>
<td>~ 601</td>
</tr>
<tr>
<td>2013</td>
<td>Dongfeng</td>
<td>~ 513</td>
</tr>
<tr>
<td>2020</td>
<td>FAW</td>
<td>~ 358</td>
</tr>
<tr>
<td></td>
<td>CNHTC</td>
<td>~ 200</td>
</tr>
<tr>
<td></td>
<td>Jianghuai</td>
<td>~ 195</td>
</tr>
<tr>
<td></td>
<td>Jiangling</td>
<td>~ 124</td>
</tr>
<tr>
<td></td>
<td>Shaanxi</td>
<td>~ 111</td>
</tr>
<tr>
<td></td>
<td>Shandong</td>
<td>~ 95</td>
</tr>
<tr>
<td></td>
<td>Yuejin</td>
<td>~ 73</td>
</tr>
<tr>
<td></td>
<td>Sichuan</td>
<td>~ 70</td>
</tr>
</tbody>
</table>

Sources: IHS Global Insight; BCG analysis.
Note: CAGR = compound annual growth rate; because of rounding, some totals do not equal 100.
one of a number of Chinese OEMs that uses its links with global suppliers to develop technical competence.

Localizing companies enjoy significant cost advantages. In productivity-adjusted terms, labor is less expensive than in other BRIC economies. Global OEMs and suppliers we interviewed reported production costs that were 15 to 20 percent lower than at home. But production quality was also lower than at home.

**The Market.** Although low-cost truck sales dominate the market (63 percent), there is already a substantial midmarket. Among the driving forces in upgrading are higher emissions standards and customer requirements. China defines emissions by its national standards, which are similar to corresponding European Commission standards, and will demand the Euro V standard for trucks in Beijing from 2012 onward. Standards elsewhere are also likely to rise—from the current Euro III to Euro IV in 2012 and to Euro V in 2015.

**The Battleground.** The colossal volumes of the Chinese market make it attractive to global OEMs and suppliers. Although sales in the premium segment are projected to account for less than 9 percent of 2020 volume, these sales could amount to more than 270,000 trucks. Global companies should attack this sector with their Triad trucks. At the same time, they should compete for the growing midmarket against local OEMs that are upgrading their technical competence base through joint ventures.

Achieving market success in China will require the following:

**A Strong Local Partnership.** Global OEMs have to act now to fulfill joint-venture requirements. Most major local OEMs are already connected to global players, and very few partnering opportunities are left.

**Attractive Technology.** Chinese OEMs enter into partnerships to upgrade their vehicles, so they are seeking strong global players with advanced technology.

**A Range of MDT and LDT Products.** The HDT market is expected to shrink slightly, but the MDT and LDT segments still offer substantial growth potential in absolute numbers.

**Strong Government Relations.** Many local OEMs are still owned or controlled by the government, and all local partnerships require government approval.

**Good Financing Solutions.** The share of financed vehicles among new truck sales is rising in China, and the shifting focus from initial price to TCO will require advanced financing solutions.
Until recently, most trucks were tailored to meet specific national needs, which differ across the BRIC countries. Russian trucks, for example, have more powerful engines than their Indian counterparts, which offer the robustness needed to cope with heavy overloading. (See Exhibit 10.) Changes in regulations and customer demand will however lead to a convergence of vehicle specifications across the BRIC markets. This trend should assist the emergence of a BRIC midmarket-truck segment offering higher quality at affordable prices.

**EXHIBIT 10 | In the Past, the BRIC Countries Had Different Truck Requirements**

**Brazil**
- The “advanced” product
  - **Past**
    - Very advanced vehicles from European OEMs
    - Specific Brazil-made trucks (for example, MAN/VW Constellation) and European trucks (Volvo FM)
  - **Current developments**
    - Euro V capability from 2012 onward¹
    - Ethanol and flexible fuels

**Russia**
- The “power” product
  - **Past**
    - Low-cost vehicles with a focus on construction and mining (tipper trucks)
    - Very powerful engines and four-wheel drive
  - **Current developments**
    - No upgraded technology available
    - Cooperation with global players to support upgrading

**India**
- The “oldest” product
  - **Past**
    - Ultralow-cost vehicles
    - Third-party-built cabins with no comfort
    - Very low engine power (less than 180 horsepower)
  - **Current developments**
    - First upgraded products already in the market

**China**
- The “fast follower”
  - **Past**
    - Low-cost vehicle base
    - Old technology (high emissions, low safety)
  - **Current developments**
    - Rapid development of advanced technology
    - Advanced features, including GPS and ABS, already available

Sources: Press research; company interviews; BCG analysis.
Note: GPS = Global Positioning System; ABS = antilock brake system.
¹Brazil was the first BRIC country to introduce Euro V emissions standards.
Higher Quality at Affordable Prices: Squaring the Circle

Although regulatory requirements, infrastructure improvements, and professionalization of the transport industry are the main drivers of upgrading, truck owners and drivers are also increasingly expressing their demands. The growing affluence of the BRIC economies has fostered a shift in customer demand, with TCO and quality, technical innovation, driver comfort, safety features, service coverage, attractive styling, purchase price, and engine power gaining importance. (See Exhibit 11.)

TCO. Fuel and maintenance account for more than three-quarters of the TCO of low-cost trucks. As fuel prices rise, customers seek trucks whose fuel efficiency can reduce operating costs. Improved reliability and durability that enable better utilization rates at equal or reduced operating costs are also increasingly emphasized for upgraded vehicles. The initial purchase price of mid-market trucks is about 30 percent higher than the low-cost alternatives, but their TCO is more than 20 percent lower.

Technical Innovation. For decades, trucks from local OEMs were characterized by very limited innovation. In some cases, the same engines were used for 20 years and more. Today, technical innovation is key. For example, the Dongfeng Kinland, a Chinese mid-market truck, is equipped with a Cummins engine, a ZF AMT transmission, and other advanced components, which make it a completely new vehicle in comparison with previous generations of trucks.

Driver Comfort. In the past, driver comfort scored extremely low as a consideration, but our interviews show that this is changing. Features such as cushioned seats, radios, and air conditioning will increasingly become norms rather than luxuries, even in India, which will see the greatest improvement—ahead of China and Russia.

Safety Features. Greater safety is demanded by governments—which aim to foster a rapid development of more advanced technology—and by customers. Sophisticated braking systems such as ABS, crash-tested vehicles,
and more robust cabins are among the key upgrades today’s customers demand.

**Service Coverage.** With enhanced technology inside trucks and more intense usage of truck fleets across the country, providing good service coverage—even in remote areas—becomes key. Midmarket trucks need professional assistance in case of breakdowns or accidents. Therefore, OEMs need to ensure the local presence of mechanics who can be available within a few hours. Possible solutions to this challenge are described later in this report.

**Attractive Styling.** The new generation of trucks from local OEMs represents not only a technical revolution in many ways but also a design revolution. Companies such as Tata and Dongfeng rely primarily on the expertise of Italian design studios to give their trucks modern and appealing exteriors and interiors.

**Engine Power.** With better roads that permit higher-speed driving, customers are seeking more powerful engines. Faster journeys promote increases in turnover and more efficient logistics. In the past in India, for example, very few 40-ton trucks had engines with more than 180 horsepower. The problem this created is vividly illustrated along the new six-lane highway from Mumbai to Pune. Many trucks struggle to maintain a speed of 20 kilometers per hour wherever the slope of the road inclines 10 percent. So the 180-kilometer journey still takes about six hours, which could be halved with a more powerful engine.

These new demands have inspired a flow of new products. Local OEMs were quicker to launch their new trucks, but global OEMs are about to hit back. Recent or impending midmarket vehicles include the following.

Launched in China:
- Dongfeng Kinland, 2007
- FAW J6M, 2007
- Foton Auman CTX9, 2008
- CNHTC HOWO-A7, 2009
- SAIC-Iveco Hongyan Genlyon

Launched in India:
- Tata Prima, 2009
- Mahindra Navistar MN40, 2011
- Volvo-Eicher Commercial Vehicles (VECV), scheduled for 2012
- Daimler’s BharatBenz, scheduled for 2012

These trucks exemplify the convergence of local and global OEMs in the midmarket. Previous midmarket vehicles were downgraded versions of the premium trucks produced by global OEMs. These new vehicles are upgrades, produced mostly by local OEMs with the assistance of Triad market technology.

**Build a BRIC midmarket truck platform and customize it for individual markets.**

We recommend that truck manufacturers build a BRIC midmarket truck platform and customize it for individual markets. Trucks intended for Brazil need to cope with poor road conditions; those for Russia must withstand extreme cold and may have to travel very long distances. Trucks intended for India must withstand enormous overloading and poor roads, and they should be equipped with right-hand drive; those for China need to cope with expressways as well as unpaved roads.

**Building the Midmarket Truck**

As global and local OEMs converge on the midmarket, we see three broad strategies for creating the trucks for this segment: joint ventures and collaborations, greenfield projects, and local upgrading initiatives.

**Joint Ventures and Collaborations.** Over the past decade, the truck industry has seen more than 40 new joint ventures and more than 100 collaborations formed through the acquisition of minor stakes or full takeovers. Notable examples include the Volvo-Eicher joint venture in India, Daimler’s purchase of a
stake in the Russian OEM Kamaz, and MAN’s acquisition of Volkswagen Truck & Bus in Brazil. Most aim to build trucks that combine greater sophistication with lower price. The local OEMs bring access to the local market, expertise in local requirements, and brands that are familiar to local customers.

**Greenfield Projects.** This strategy for global OEMs is exemplified by the localization of European OEMs such as Volkswagen in Brazil and Daimler’s BharatBenz in India. Its advantage is that the OEM can define its own strategy from scratch. However, this strategic freedom comes at a high price—Volkswagen’s Consórcio Modular venture in Resende, Brazil, cost $250 million in 1996, and Daimler is currently investing around €700 million in BharatBenz.

**Local Upgrading Initiatives.** Using components from global suppliers has been the favored strategy of local OEMs seeking the technical competence they need to build midmarket trucks. This strategy is typified by the development of Tata’s Prima and Dongfeng’s Kinland trucks. These OEMs gained rapid access to the advanced know-how and technology of global tier-one suppliers while avoiding large R&D expenditures.

**Our Recommendation.** Global OEMs should consider a greenfield strategy only if they have the resources and the ambition to achieve a top position. We recommend the approach for Brazil and India only and as a niche strategy for Russia. A joint venture is likely to be a better strategy for companies with big aspirations in China or Russia.

Local OEMs seeking only a product upgrading should collaborate with suppliers. Collaboration with a global OEM, however, can bring further benefits in organizational development and knowledge transfer in production technologies, sourcing strategies, and management techniques. (See the sidebar “The New Midmarket Vehicles.”)

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**THE NEW MIDMARKET VEHICLES**

In the BRIC markets, the emerging midmarket segment is characterized by vehicles that offer a higher level of sophistication than current low-cost trucks. Most of the new midmarket vehicles offer attractive improvements.

**Efficiency.** Fuel consumption has been reduced by 20 to 30 percent, and engines conform to Euro V emissions standards.

**Performance.** More powerful engines have from 220 to 400 horsepower and are capable of covering longer distances each day.

**Durability.** Higher quality ensures fewer breakdowns and extends operational lifetimes.

**Safety.** The new vehicles have ABS and air bags for drivers and passengers. Many comply with Triad safety standards.

**Comfort.** Designed to enhance drivers’ ability to handle multiday trips, new vehicles come with such features as cushioned seats and beds, GPS navigation, and entertainment systems.

**Price.** Even with these improvements, these trucks are priced relatively low—from €20,000 to €50,000 in the MDT segment, and from €35,000 to €65,000 in the HDT segment.
Regardless of a company’s specific local targets, engagement in BRIC markets will always involve some localization of key functions. Decisions about the extent and focus of the localization should be based on the understanding of the company’s ambitions, local market, and competition. Our interviews revealed that companies find making such decisions extremely challenging.

BCG has developed a tool to help companies approach this difficult phase of strategy development. The tool facilitates companies’ comparison of their local footprint with that of their competitors.

This proven framework has a five-year track record. During this period we have analyzed the local achievements of more than 80 automotive OEMs and suppliers, devising localization strategies that depend on individual company situations. The degree of localization is analyzed for each value-chain step.

Exhibit 12 shows that OEMs and suppliers generally follow a five-stage progression as they localize in BRIC markets.

- Home players serve the BRIC market only, exporting low volumes from their home bases in Triad countries.
- Exporters have a minor presence in the local market but keep all localized functions under tight control from their headquarters.
- Explorers have localized some independent functions (for example, purchasing and sales) in the BRIC markets, but their headquarters still have a strong impact on local strategies.
- Settlers have localized all their core functions in the BRIC location and empowered local management with relative independence.
- Global players give their local operations not only considerable autonomy but also global responsibility for particular functions and products in, for example, an R&D competence center.

For this report, we have extended the framework to examine the progress of local companies as they advance toward global maturity. Local OEMs from BRIC economies go through a comparable five-step process. As shown in Exhibit 13, the beginning and the endpoint are similar to those of the original framework. The progression takes a company from local player to global player, but the intermediate points differ:

- Local players are active only in their home country’s local market, and they focus on local needs.
### EXHIBIT 12 | Global Companies Are Ranked by the Degree of Their Localization

Degree of localization along the value chain and product portfolio indicates local engagement

<table>
<thead>
<tr>
<th>Value chain steps</th>
<th>Home players</th>
<th>Exporters</th>
<th>Explorers</th>
<th>Settlers</th>
<th>Global players</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
<td>Serving BRIC markets only through low-volume exports</td>
<td>Minor presence in BRIC markets; key functions under tight control from headquarters</td>
<td>Some independent presence in certain functions in BRIC markets; headquarters still has strong impact</td>
<td>Full independence from headquarters; all key functions covered by the local staff and organization</td>
<td>Full independence from headquarters; with global responsibility for some or all functions taken in the BRICs</td>
</tr>
<tr>
<td>R&amp;D and engineering</td>
<td>No presence</td>
<td>No presence; only minor adaptations</td>
<td>Minor local R&amp;D activities</td>
<td>Major local R&amp;D activities</td>
<td>Extensive R&amp;D to meet global requirements</td>
</tr>
<tr>
<td>Sourcing</td>
<td>No presence</td>
<td>Simple parts</td>
<td>Submodules</td>
<td>Wide array of products</td>
<td>Full-fledged sourcing, serving worldwide network</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>No presence</td>
<td>Complete knockdown production; small-scale local production</td>
<td>Full-fledged manufacturing</td>
<td>Several plants</td>
<td>Several large plants that also serve export markets</td>
</tr>
<tr>
<td>Sales and distribution</td>
<td>Only through low-volume exports, if any</td>
<td>Only key functions localized</td>
<td>Sales subsidiary for tier 1 and tier 2 cities</td>
<td>Large sales network, including in tier 3, tier 4, and tier 5 cities</td>
<td>Sales department that is also in charge of exports</td>
</tr>
<tr>
<td>Product portfolio</td>
<td>No adjustments for local markets</td>
<td>Only minor adjustments for local markets</td>
<td>Products adjusted for local-market needs</td>
<td>Local products are for the local markets only</td>
<td>Established full product line for BRIC markets</td>
</tr>
</tbody>
</table>

Source: BCG analysis.

### EXHIBIT 13 | Local BRIC Players Are Ranked by Maturity

Readiness of operations and products for global scale indicates global potential

<table>
<thead>
<tr>
<th>Value chain steps</th>
<th>Local players</th>
<th>Exporters</th>
<th>Internationalizing layers</th>
<th>Developing-market champions</th>
<th>Global players</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
<td>Active only in the home country’s local market; focus is on local needs</td>
<td>Exporting to developing countries; active in the budget segment</td>
<td>minor presence in developing countries; meets midmarket requirements</td>
<td>Strong presence in developing markets; meets higher standards</td>
<td>Independent presence also in Triad markets; fully compliant with Triad standards</td>
</tr>
<tr>
<td>R&amp;D and engineering</td>
<td>In the home country only</td>
<td>Minor R&amp;D activities for markets outside the home market</td>
<td>Listening posts outside the home country</td>
<td>R&amp;D hub established outside the home country</td>
<td>Several global R&amp;D hubs and centers; also in Triad markets</td>
</tr>
<tr>
<td>Sourcing</td>
<td>Home sourcing, mainly of low-tech parts</td>
<td>Home sourcing to meet standards of other developing markets</td>
<td>Some sourcing from Triad suppliers to obtain advanced technology</td>
<td>Global sourcing of high-tech parts to obtain technology</td>
<td>Sourcing on global scale from optimal source</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>In the home country only</td>
<td>Small semi-knockdown or complete knockdown plant in another developing market</td>
<td>Semi-knockdown or complete knockdown production outside the home country</td>
<td>Several large plants outside the home country</td>
<td>Large plants also in Triad countries; exporting from Triad countries</td>
</tr>
<tr>
<td>Sales and distribution</td>
<td>No activities outside the home country</td>
<td>Some sales points established in other developing countries</td>
<td>Sales and service network established in many developing countries</td>
<td>Some sales points located in Triad countries</td>
<td>Established global sales network covering developing and Triad markets</td>
</tr>
<tr>
<td>Product portfolio</td>
<td>Products only for the home low-cost market</td>
<td>Minor adjustments to some products for suitability in other developing countries</td>
<td>Product designs for foreign markets; some products suitable for BRIC midmarkets</td>
<td>Some products suitable for Triad midmarkets</td>
<td>Full product line suitable for Triad markets in place</td>
</tr>
</tbody>
</table>

Source: BCG analysis.
• Exporters export minor volumes to other developing countries and are active in the low-cost segment.

• Internationalizing players already have a minor presence in other developing countries and, typically, meet midmarket requirements.

• Developing-market champions have a strong presence in one or more other developing markets and meet midmarket standards.

• Global players are active in other developing countries, as well as in Triad markets, and they fully meet Triad standards.

We turn from this methodological introduction to examine the potential for localization in BRIC markets along the entire value chain, reviewing the best strategies for coping with the challenges. (See the sidebar “Localization and Globalization: What Truck Makers Have Achieved.”)

Localizing R&D
The case for localizing R&D in BRIC markets grows steadily more compelling. The BRIC markets offer advantages in cost and local expertise, as well as increasing numbers of R&D staff with state-of-the-art engineering skills and world-leading knowledge in specific areas of technology. Brazil, for example, has developed world-class competence in the development and application of flexible fuels.

Our survey of global OEMs showed that although most of them think that the quality of R&D in the BRIC economies still falls short of that in their own countries, this will change in the years to come. By then, according to three-quarters of those interviewed, R&D in the BRIC economies will be comparable to that in their home countries. One European OEM told us, “We are developing an entire truck 100 percent locally in China that will also be suitable for European markets.”

The Potential of Local R&D. Companies will need to examine local R&D potential before deciding which activities to localize. These decisions depend particularly on local expertise, the availability of skilled engineers, and the specifications of the local markets. The situation varies across the BRIC economies:

• Brazil produces large numbers of well-qualified engineers and has developed world-class expertise in the application of flexible fuels. It is second only to the U.S. as a producer of ethanol fuels and is projected to hold both that position and its 16 percent global share of world production. Some truck manufacturers have therefore built their global center of competence for flexible fuels in Brazil. The flexible-fuel technology is often applied to light trucks, such as the Ford E-Series, but it has also been used for heavier vehicles such as the Iveco Trakker and Volvo FM.

To localize successfully, a company must take advantage of local knowledge as well as lower labor costs.

• Russia’s engineering industry is less developed than that of other BRIC markets, so localization by global OEMs is as yet largely confined to homologation.

• India has the second-largest engineering talent pool in the world and is already a major outsourcing center for computer-aided engineering and software programming. This qualified workforce makes India an attractive location for the development of new, lower-cost vehicle concepts, while factor cost advantages make it attractive for establishing testing facilities with global reach.

• China aims to be a world leader in electric and hybrid vehicles and has a substantial competence base in vehicle electronics.

Levels of Localizing R&D. To localize successfully, a company must take advantage of local knowledge as well as lower labor costs. Exhibit 14 illustrates the current four models of localization: engineering nucleus, offshore unit, R&D hub, and R&D center.
We analyzed the localization and global maturity of the major truck OEMs and suppliers. This isolated a number of significant trends within a broader picture.

Global players have achieved the following:

- Suppliers are far more localized than OEMs. In part, this is true because China, while it allows suppliers to localize on their own, requires OEMs to enter into partnerships. But the suppliers’ progress has also been a result of the drive of local OEMs to obtain sophisticated components. This has created local demand for parts.

- Brazil has seen the deepest localization by far. This is mainly the result of European OEMs’ early penetration of a market that had no local Latin American players.

- China still has relatively limited localization by foreign OEMs, most of which have yet to reach “explorer” status. (See the exhibit “Global OEMs Have Achieved the Greatest Localization in Brazil.”) This is the result of strict regulations that prevent foreign OEMs from localizing without a local partner and market domination by very strong local OEMs.

- India is currently experiencing a wave of localization, while Russia still lacks the supplier base needed for localization of activities other than truck assembly.

- In general, global players are inconsistent in their approach to BRIC countries, and there are great differences in the level of their local activity. Brazil is the only country that has experienced significant penetration by global companies, and India and China currently have only foreign explorers. In Russia, global companies serve only a niche segment.

Local players have not yet achieved the same levels of globalization:

- No local OEM has yet matured into a global player. Local OEMs are still focused on domestic markets, and none has yet exceeded the status of an “internationalizing player.”
OEMs still book less than 5 percent of overall sales outside their home country.

- Indian and some Chinese manufacturers are the most mature local OEMs, having established minor presences in other emerging markets and upgraded their product offerings. (See the exhibit “Local OEMs from India and China Are the Most Mature.”)

**LOCAL OEMS from India and China Are the Most Mature**

<table>
<thead>
<tr>
<th>Degree of maturity</th>
<th>Home players</th>
<th>Exporters</th>
<th>Internationalizing players</th>
<th>Developing-market champions</th>
<th>Global players</th>
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<tbody>
<tr>
<td>R&amp;D and engineering</td>
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<td>Sourcing</td>
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<td>Manufacturing</td>
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<td>Sales and distribution</td>
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<td>Product portfolio</td>
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**EXHIBIT 14 | Most Global OEMs Have Localized Only with Engineering Nuclei in BRIC Markets**

**Examples of localized R&D entities in BRIC markets**

- R&D hub: 35%
- R&D center: 15%
- Engineering nucleus: 45%
- Offshore unit: 5%

**Sources:** Company interviews; company websites; BCG analysis.
• **Engineering Nucleus.** This model, which 45 percent of the analyzed companies use, works for local adaptation, homologation, and understanding local needs. It generally involves no more than ten employees.

• **Offshore Unit.** The offshore unit focuses on specific engineering applications and takes global responsibility for some technology. Generally, it is staffed by 10 to 30 employees.

• **R&D Hub.** An R&D hub takes ownership of each new product and its customization for the local market, reporting to local management rather than global R&D. An R&D hub typically has 30 to 100 staff members.

• **R&D Center.** By contrast, an R&D center designs new products for global markets, reports to local management, and employs more than 100.

Global players should localize R&D either to tap special local capabilities or to acquire a profound understanding of the local markets while realizing cost savings. (See the sidebar “Developing and Engineering Products for BRIC Markets.”) A global R&D setup for a truck OEM could be modeled to include the following elements:

- Engineering nuclei across all BRIC countries to secure product homologation with local requirements
- A center of competence for flexible-fuel-engine development in Brazil
- A center of competence for truck electronics in China
- A global center to develop a midmarket product platform in India

### Exploring the Potential for Local Sourcing

Our research revealed a clear potential benefit of local sourcing: most parts can be purchased at much lower prices in BRIC markets. The landed cost, for example, of a cylinder head sourced from Brazil, India, or China is from 28 to 45 percent lower than a German equivalent. Still, OEMs have to consider the BRIC-made part’s quality and suitability of purpose.

The decision on the degree of local-sourcing activity depends mainly on the answers to two questions: Should sourcing be done purely for local production, or should it be extended to the procurement of parts for global operations? And should sourcing be for basic, typical, or high-end products? Typically, OEMs choose from three product-adaptation options for the BRIC markets. Decisions regarding product strategy depend on individual objectives and determine the extent to which companies localize R&D.

- **Homologation.** The OEM does nothing more than secure official agreement for a few adjustments to its truck in order to comply with local legal requirements. Only a small engineering nucleus with fewer than ten staff members is required.

- **Customization.** This involves major adaptations or reengineering of an existing platform to better suit local requirements and reduce costs. A local R&D hub is required.

- **A New Truck.** An exclusive development for the local market in most cases requires a substantial local R&D center with more than 100 staff members.

OEMs that want to enter the midmarket segment should localize R&D in BRIC markets. This approach gives an OEM both local-market expertise and low-cost R&D. A European OEM told us, “You can develop a lower-cost product for the local market only if you are in this market and have the local mindset. You will not achieve this type of products with the mindset of German or Japanese engineers.”
simple parts only, or should it include complex and high-tech components such as axles and transmissions? Exhibit 15 shows how decisions related to local-sourcing activity depend heavily on the local offerings:

- Brazil has a strong local supply base because all the global suppliers have localized to serve the global OEMs that dominate local truck manufacturing. Of the BRIC economies, Brazil exports the second-highest volume of parts and is particularly strong in mechanical parts (for example, engine parts). There are also advanced opportunities for plastics and fibers.

- Russia as yet lacks a competitive local supply base that offers suitable products for more sophisticated trucks. But recent localization legislation should attract new suppliers and help improve the local supply base.

- India has a relatively large local supply base. This is driven mainly by vertical integration of Indian OEMs, which is low compared with that of local OEMs in other BRIC markets. Eicher, for instance, produces its own engines and assembles the trucks, but it purchases all other parts from suppliers.

- China, which has developed very rapidly in recent years—overtaking Brazil as an exporter of components—has established a strong local supply base. This was driven by intense cooperation between local OEMs and global suppliers, as well as the rapid development of local suppliers.

Although most global OEMs have localized sourcing to increase the degree of localization of their products in specific countries, we recommend further exploration of local sourcing for global operations. Each of the BRIC economies offers the potential for some local sourcing:

- Sourcing basic parts—such as the tank, tires, and batteries—locally, if possible from local suppliers

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**EXHIBIT 15 | Most of the BRIC Countries Offer a Supply Base with Great Sourcing Potential**

Brazil, India, and China have well-established local supply bases; Russia’s needs development

<table>
<thead>
<tr>
<th>Country</th>
<th>Key characteristics</th>
</tr>
</thead>
</table>
| Brazil  | Many global OEMs do a high degree of local sourcing  
- 80%–90% local content is typical  
Well-established local supply base |
| Russia  | Global OEMs source only simple, basic parts locally  
Local OEMs such as Kamaz and GAZ have high vertical integration and a low share of external module sourcing  
Local supply base not yet developed |
| India   | Many local OEMs collaborate with Western suppliers  
- New Indian midmarket trucks contain a substantial proportion of Western technology  
Local OEMs source 70%–80% of required modules externally  
Good local supply base |
| China   | Locals with high vertical integration source mostly high-tech parts from Western suppliers  
Few strong local suppliers (for example, Weichai Power)  
Local OEMs usually source 30%–40% of required modules externally  
Well-established local supply base |

Sources: Company information; BCG analysis.
• Sourcing advanced parts—such as axles, gearboxes, as well as steering and brake systems—from localized global suppliers in Brazil and China

Optimizing Manufacturing Operations
The challenge of manufacturing locally is to keep costs low without losing quality. Against most expectations, costs are often the greater challenge.

Only a minority of the companies we interviewed said that they could produce at a lower cost than at home. They blame lack of scale, great production volatility, and the high cost of quality control. On the other hand, two-thirds said that final production quality was at least as good as at home.

Success in local manufacturing depends on choosing the right entry strategy for the specific country. (See the sidebar “Increasing Automation in the BRIC Economies: The End of Low-Cost Labor?”)

Generally, we observe three stages of localization: local assembly only—semi-knockdown (SKD) or complete knockdown (CKD)—local midscale production, and fully localized production. (See Exhibit 16.)

Local Assembly. For most companies, the first step in localization is setting up an SKD or CKD plant in the target country. Importing modules or components from other factories they own for local assembly limits initial investments, but this approach also leads to low local value creation. Companies cannot realize cost advantages associated with low labor costs, but in most cases, they can avoid high duties because importing modules is often cheaper than importing entire vehicles. We recommend this approach for low volumes of 5,000 to 10,000 vehicles per year, leading to a capital expenditure requirement of €2,000 to €4,000 per MDT- or HDT-vehicle production capacity. More than 50 percent of global OEMs’ local production in BRIC economies is of this type.

Local Midscale Production. Adding a share of locally sourced parts to the assembly plant is the best way to increase local content without substantial additional investment. Most companies choose this method in order to achieve lower production costs while retaining flexibility and limiting investment costs. This option, which is recommended for a real local-market push with volumes of 10,000 to 25,000 vehicles per year, requires a capital commitment of €4,000 to €8,000 per MDT- or HDT-vehicle production capacity. About 30 percent of production in BRIC economies is local midscale.

Increasing numbers of plants in the BRIC economies are automating. In China and India, where labor costs remain low, automation is embraced in order to improve quality in critical process steps. In Russia and Brazil, where manual workers are better paid, automation is aimed more at reducing labor costs.

An Indian OEM, for example, has automated critical engine-assembly process steps to enhance production quality. One step, for example, is the fitting of the cylinder head into the cylinder block. The head of production told us, “After the automation of the critical process steps in our engine production, we could increase quality by at least 20 percent.”

In Brazil, many localized manufacturers introduced automation mainly to reduce labor costs. The CEO of a supplier in Brazil told us, “Our production in Brazil used to be more manual, because labor was cheap. However, now we are moving to automation and just made a $30 million investment in the automation of our plant to preempt future increases in wages.”

The overall effect is that automation addresses two traditional concerns: cost and quality.
Fully Localized Production. With fully localized production, a company produces its own major components, such as engines or axles, locally. Because this approach is accompanied by a higher investment of €10,000 or more per MDT- or HDT-vehicle production capacity, fully localized production is most suitable for large local volumes of at least 25,000 vehicles annually. The increased local share of value creation allows OEMs to fully exploit local cost advantages. All interviewed companies that were using fully localized production reported lower production costs in local operations. The head of production of a successfully localized manufacturing plant told us, “You can only produce at lower costs locally if you fully localize the production.” Almost 20 percent of local production in BRIC economies is fully localized. Iveco in China provides a good example.

Building the Right Sales-and-Distribution Model
Without efficient, cost-effective sales and after-sales service organizations, the benefits of well-organized R&D, sourcing, and manufacturing will be lost. Three cornerstones are needed to achieve high local sales: a sales network with wide reach, a dense service network that covers key routes, and efficient local financing solutions. The head of a European OEM told us, “Besides the right products, our growth depends on our ability to open up outlets in the key regions and to ensure service coverage across this large country.”

A Sales Network with Wide Reach. Local sales activities in BRIC countries require a presence in all tier 1, tier 2, and tier 3 cities, of which there are, for example, 36 in Brazil. To ensure national reach, these activities should be supplemented by a presence in selected tier 4 and tier 5 cities. Successful OEMs in Brazil have more than 100 sales points, covering the entire country. The preferable locations are in industrial zones and cities. (See Exhibit 17.)

A Dense Service Network. Providing good and timely service is essential. Although OEMs in Triad markets operate through authorized dealers only, local OEMs in BRIC markets rely for repairs on a mixture of their own service stations, authorized service points, and many independent road mechanics trained by the OEMs. The service network should be distributed along major transportation routes rather than focused exclusively in population centers.
Most local OEMs get help to a vehicle in need of repair within two to four hours. In a country such as India, which spans more than 3 million square kilometers, this can be a challenge. (See the sidebar “Providing Service in the BRIC Markets: OEMs Need to Rethink.”)

**Financing Solutions.** Financing solutions in BRIC markets involve certain challenges. The truck-financing landscape is very heterogeneous, and it is not easy to find the right partners to set up these operations. Furthermore, established credit-rating processes from Triad markets are not applicable to BRIC customers, who are generally less solvent than their Triad counterparts. India’s market, where more than 90 percent of new trucks are financed, is the most advanced. Chinese OEMs are also beginning to offer their own financing services. (See Exhibit 18.)

> An executive of a global OEM in India told us that his company has redefined service. He said, “For us, service is not offering a service station every 60 kilometers. We offer availability and direct help 24-7.”

**PROVIDING SERVICE IN THE BRIC MARKETS**

**OEMs Need to Rethink**

Dense service networks are crucial. But what can be done when incumbent leaders have an established advantage that newly rising players cannot match? Building up hundreds of service stations is not the best strategy. OEMs need to rethink.

An executive of a global OEM in India told us that his company has redefined service. He said, “For us, service is not offering a service station every 60 kilometers. We offer availability and direct help 24-7.”

Trained technicians provide drivers with initial help over the phone. The executive explained, “We can solve more than half of the usual causes of breakdowns directly over the phone.” Strategically positioned service stations offer fast support with required spare parts and on-site help. “We can reach more than 90 percent of all points on key truck routes within two hours,” he said, adding that “rethinking service can lead to greater coverage with fewer physical locations on the ground.”
of a local OEM told us, “We expect a strong increase in demand for financing services over the next few years and therefore, we’ve started to offer our own financing solutions to our customers.” The global OEMs that want to push their financing solutions locally need to focus on smart financing packages that can include financing, insurance, and service modules. In addition, OEMs should consider offering downstream services, such as fleet management, that can help local fleet operators enhance the professionalization of their business.

It is not easy to localize the full value chain. Still, global OEMs that want to tap the full potential of the BRIC markets need to approach value chain localization rigorously and rapidly.
THE TRUCK MARKET IS currently at a turning point, and successful OEMs will be those that heed the lessons of the past and start preparing for their future direction now. The following are recommendations for global OEMs from the Triad markets.

1. **Focus on BRICs—for growth and profit.** Demand in the Triad markets is stagnating, but the BRIC countries offer a huge midmarket and growing premium segment. From 2000 through 2020, BRIC sales should grow by a factor of four to five, while Triad sales decrease.

2. **Look beyond China to other BRICs.** The giant is slowing down, but Brazil, Russia, and India still offer high growth potential. Focus on the right markets when thinking about local activities in BRIC markets.

3. **Push globalization strategically, not opportunistically.** In the past, the main drivers of globalization were regional concepts or simply ad hoc decisions to explore attractive, short-term opportunities. These old approaches won’t work. OEMs have to change their approach now and embrace a global concept to orchestrate all their activities effectively and maximize the benefits achievable from global economies of scale.

4. **Develop a midmarket truck platform.** Although the midmarket is expected to be the largest segment worldwide, global OEMs will reach a competitive pricing level for this segment only when they develop a new truck platform. This midmarket platform must be less sophisticated and priced lower than the vehicles that OEMs are offering today.

5. **Ensure an optimal, flexible value chain.** Localize R&D activities in target markets and countries with special potential and needs. Roll out global sourcing with a reach that goes beyond simply sourcing for local needs. Optimize the production footprint to achieve high localization, cost advantages, and efficiency gains.

New entrants are increasing competition in the BRIC economies.

At the same time, local OEMs from the BRIC markets should prepare to do the following:

6. **Defend strong positions in the home markets.** New entrants are increasing competition in the BRIC economies. Therefore, local OEMs need to use their competitive edge to extend their customer reach, provide tailored products that are right for the
market, and capitalize on their well-established brands.

7. Acquire advanced technical know-how. BRIC customers are increasing their demand for upgraded vehicles that use advanced technology. Most OEMs based in BRIC countries lack the know-how needed to upgrade their vehicles, so they should acquire it through collaboration with global OEMs and suppliers.

8. Look beyond domestic markets to maintain growth momentum. Volume growth is slowing, and competition is increasing in BRIC markets. Other BRIC markets outside the home market and other developing markets such as Africa, Latin America, and Southeast Asia offer the next step.
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A Focus by The Boston Consulting Group, July 2011

**Powering Autos to 2020: The Era of the Electric Car?**
A report by The Boston Consulting Group, July 2011

**The 2011 BCG Global Challengers: Companies on the Move**
A report by The Boston Consulting Group, January 2011

**The Internet’s New Billion: Digital Consumers in Brazil, Russia, India, China, and Indonesia**
A report by The Boston Consulting Group, September 2010

A report by The Boston Consulting Group, September 2010

**The African Challengers: Global Competitors Emerge from the Overlooked Continent**
A Focus by The Boston Consulting Group, June 2010

**The Keys to the Kingdom: Unlocking China’s Consumer Power**
A report by The Boston Consulting Group, March 2010

**Batteries for Electric Cars: Challenges, Opportunities, and the Outlook to 2020**
A Focus by The Boston Consulting Group, January 2010

**Winning the BRIC Auto Markets: Achieving Deep Localization in Brazil, Russia, India and China**
A report by The Boston Consulting Group, January 2010

**The Comeback of the Electric Car? How Real, How Soon, and What Must Happen Next**
A Focus by The Boston Consulting Group, January 2009

**Winning the Localization Game: How Multinational Automotive OEMs and Suppliers Are Realizing the Strategic Potential of China and India**
A report by The Boston Consulting Group, January 2008
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