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# Truck industry 2020: The future is global





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## Executive summary

Having motored ahead with forceful growth for many years, the truck industry was visibly slackening the pace before the world's financial markets hit the skids. When this turmoil developed into a fully-fledged economic crisis, the industry shifted into reverse.

"Truck industry 2020: The future is global" examines the current changes in the industry landscape, explores the influences that are driving them – including the current macroeconomic context and other, more fundamental factors – and looks at where the industry is likely to be in 2020. Based on interviews with more than 50 top executives from truck OEMs and suppliers serving key markets in all the world's major truck regions, it also asks what manufacturers should and must do now to prepare themselves for the challenges of tomorrow.

Faced with rising fuel prices, stricter environmental legislation and generally saturated markets, OEMs in the triad markets are having to contend with flat or shrinking demand at home. To compensate, they are turning their attention to emerging markets (especially the BRIC countries) that are still experiencing buoyant growth, or that are recovering faster from the financial crisis. For their part, manufacturers based in emerging markets are themselves looking to expand into foreign markets – mostly into other emerging countries, but in some cases into triad regions too.

The truck market as a whole, then, is globalizing rapidly; and this statement applies not only to OEMs, but also to customers. The key criteria that influence purchase decisions are becoming more and more alike in different regions. As a result, OEMs can develop a single, common concept to serve the various segments across different regions. This approach generates additional potential for globalization in the truest sense of the word.

The key question for OEMs in either region is how best to exploit their own strengths and existing market opportunities, weigh up the relevant risks and benefits, avoid potential pitfalls, and so turn globalization to their own advantage.

We examine the obvious differences that exist between the triad and emerging markets on the one hand, and between the world's premium, budget and low-cost segments on the other. In doing so, we find that OEMs moving in either direction must take account of these differences and their gradual convergence across segments in order to successfully implement their globalization strategies.

As premium triad OEMs "downgrade" their offerings to penetrate the budget and perhaps even low-cost segments in developing countries, emerging market OEMs are seeking the knowledge and technology they need to move into the budget and premium segments. We identify three winning strategies for each type of OEM:

#### **Winning strategies for triad OEMs**

1. Enter the emerging market in the higher budget (or lower premium) segment, adapting premium products to local market requirements
2. Enter the emerging market in the low-cost (or lower budget) segment by means of local engineering, sourcing, production or, sales
3. Enter the emerging market in the low-cost (or lower budget) segment, meeting current market requirements, and then after successfully implementing strategy 2, follow up by exporting trucks as the second step

#### **Winning strategies for emerging market OEMs**

1. Export a successful low-cost truck model to other emerging markets
2. Grow with the domestic market as it develops in terms of technology, gradually moving into the budget segment
3. Grow with the domestic market as it develops in terms of technology, entering more developed markets – but not yet those of triad countries – as soon as the necessary requirements can be met (as an extension of strategy 2)

In the discussion that follows, we provide examples of each of these strategies. We also present an in-depth case study of the Indian market. Following this, we examine how the world's markets and market segments differ and how they are converging. Finally, we outline the very real risks that OEMs must bear in mind as they seek to apply the strategies we propose. Thus, business models must be adapted appropriately on the basis of a clear strategic direction. In an increasingly globalized world, platform architectures and local sourcing must be leveraged to develop global truck concepts. The process of admitting necessary regional differences must be streamlined. Global networking and organizational issues must be addressed. And market players must not underestimate the importance of a carefully considered branding strategy, possibly involving multiple sub-brands under a strong global parent brand.

## 1. Introduction

### 1.1 Trucks at the crossroads

In terms of growth, trucks have for many years represented one of the most important sectors of the automotive industry. After years of positive market development, however, the sector today finds itself in a downturn. With the threat of still harder times ahead, the whole industry is in a state of flux.

Established OEMs in the triad markets – Western Europe, North America and Japan – are facing increasing pressure. Rising fuel prices, stricter controls on exhaust emissions and general saturation levels were already beginning to flatten their home markets. Now, the economic downturn triggered by last year's financial crisis has compounded the gloom.

In recent years, the natural response of these OEMs has been to intensify their focus on emerging countries where growth generally remains unbroken – especially China and Brazil. This in turn is putting pressure on local truck manufacturers in developing markets, who are having to defend their turf against incursions from triad OEMs. Nor is the expansionary urge entirely one-sided: Several local manufacturers in emerging markets are themselves now looking to expand into foreign markets.

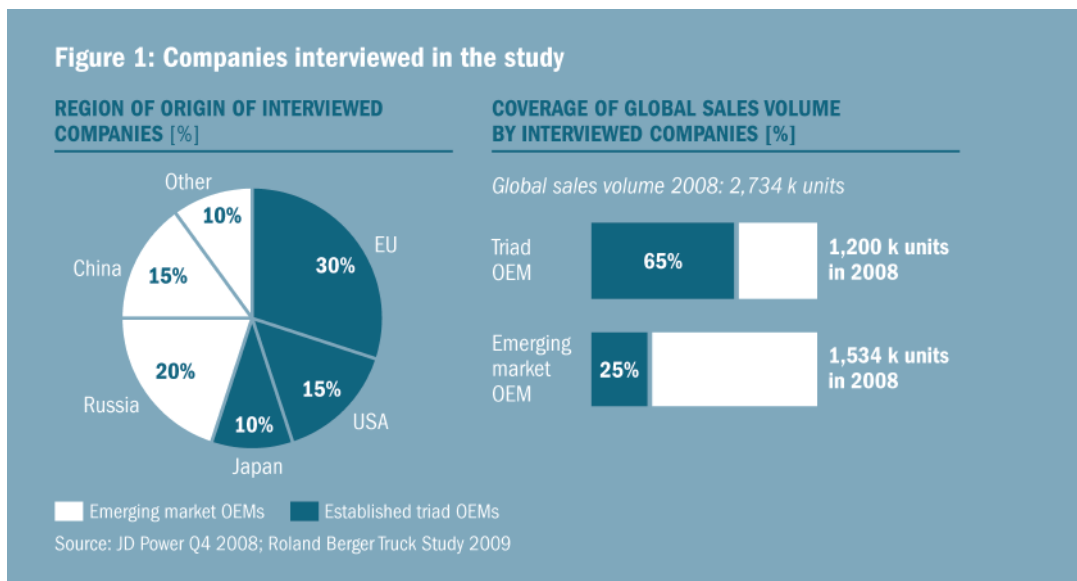
In short, the truck industry is moving more and more toward globalization. In so doing, it is following in the tracks of the passenger car sector, which underwent a similar reshaping in the late 1990s. Increasingly, truck manufacturers – like the producers of passenger vehicles before them – are setting their sights on global markets.

As things stand, the established triad market OEMs are still in the driver's seat and are best placed to reshape the industry. The seemingly irresistible rise of emerging market manufacturers is quickly eroding their lead, however. Aware of the dangers, most established triad market OEMs have already entered emerging markets and are trying, by various ways and means, to enlarge their footprint there. They face country-specific legal restrictions and distinct customer requirements. Though we expect a general shift in segment development, low-cost trucks seem at the moment to be the key to those markets. Successfully targeting the low-cost segment requires a highly specialized business model, however. For their part, emerging market manufacturers are driven by the need for new technology. Accordingly, they are striving to forge partnerships with triad market OEMs – a fact reflected by the increasing number of joint ventures in emerging markets.

**Our new study "Truck industry 2020: The future is global" examines the current changes in the industry landscape, explores the influences that are driving these changes and looks at where the industry is likely to be in 2020. Crucially, it asks what OEMs should and must do now to prepare themselves for the challenges of tomorrow.**

**1.2 Methodology, sources and segmentation**

The new study is based on extensive research into the truck industry conducted in fall 2008/winter 2009. During this period, we interviewed more than 50 top executives from truck OEMs and suppliers serving key markets in all the world's major truck regions. These structured, two-hour interviews were based on extensive questionnaires that enabled us to conduct an exhaustive qualitative analysis of the data collected. The companies surveyed in the course of our study together account for about 50% of the world's truck market (see Figure 1).



The input from these interviews was then collated and analyzed in light of our own in-depth investigation of the markets. To validate the data and enable practical conclusions and recommendations to be drawn from our analysis, we segmented the truck market on a variety of levels. We performed a comparative analysis of the truck sectors in both the established triad markets and the world's emerging markets. We also distinguished between three main market segments, which we have termed the premium, budget and low-cost segments.

To facilitate a 360° view of this market, it is also necessary to distinguish between three weight classes (light commercial vehicles of under 6 tons, medium-duty vehicles of between 6 and 16 tons, and heavy-duty trucks of over 16 tons), and occasionally to differentiate further between long-haul, construction and distribution vehicles.

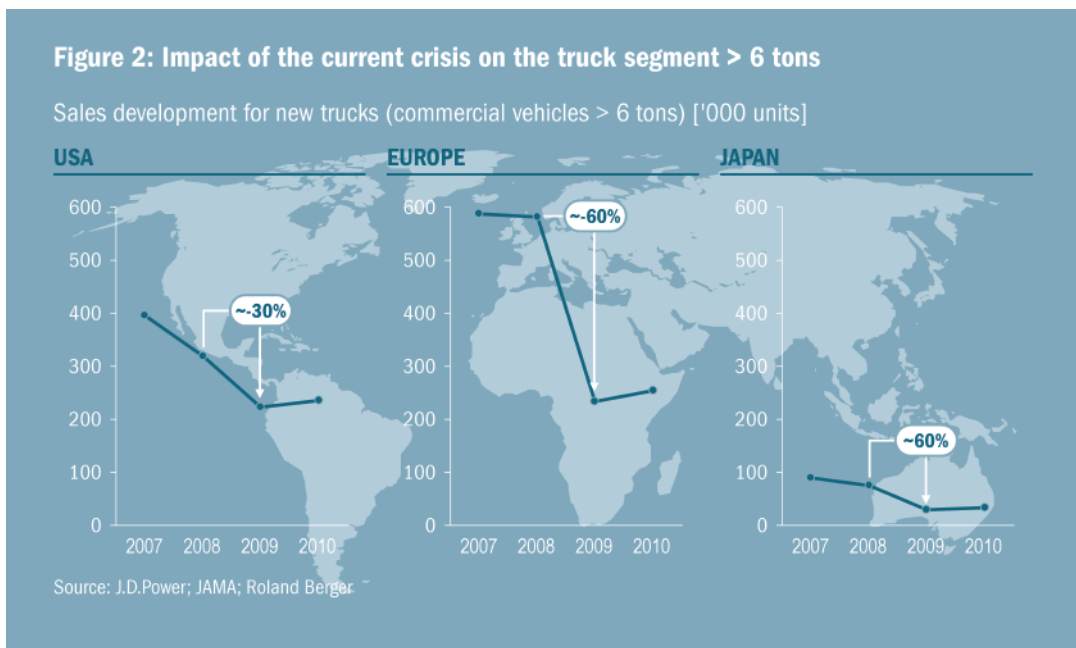
### **1.3 Macroeconomic background and the current crisis**

Many players from emerging markets enjoyed significant growth rates in recent years and have already reached a considerable size. Dongfeng Motor Co. (DMC), the largest commercial vehicle OEM from an emerging market, has rapidly expanded its truck business, especially in the Chinese market. Established in 1969, the company boosted its truck sales to 178,000 units in 2008, posting double-digit growth in recent years. Many other emerging market OEMs have similar stories to tell. Russia's Kamaz and China's ChongQing Heavy, for example, likewise reported double-digit growth between 2005 and 2008. Their expansion has primarily been enabled by a booming economy in their home markets that has consistently stimulated the road transportation, logistics and construction sectors.

Triad market players have generally shown much lower growth rates than their counterparts in emerging countries. The economic downturn unleashed by the financial crisis is affecting developed economies particularly badly. In advanced economies, the OECD expects average GDP to shrink by between 0.5% and 1% in 2009. In some markets such as the US and Germany, the recession will even be worse. The truck industry is suffering acutely from the consequences of the crisis. Indeed, the truck market has now shifted into reverse right across the triad countries. Many fleet customers, including logistics/transportation providers and construction firms, have canceled existing orders. And many banks are tightening their lending standards for corporate clients, making it harder for firms to replace their truck fleets.

The negative effects on sales are already apparent in Western Europe and the US. In the US, a cyclical upturn and introduction of a new emissions regulation in 2010 might buoy the market slightly and temporarily. Even so, analysts expect the volume of commercial vehicle sales to decrease compared to the levels of past years. Some established triad OEMs focusing on the North American market – Daimler, for instance – reported revenue losses in the US as early as 2007. OEMs with most of their business in Europe have so far been stable, but future orders indicate that here, too, a sharp decline is inevitable. Scania, for instance, conceded a 98% drop in new orders in the fourth quarter of 2008. There are also indications that, in the first quarter of 2009, the order intake will again have dropped by more than half.

The current downturn, coupled with the historic trend in sales in Western Europe and the US, is clearly reflected in the data for heavy-duty trucks (see Figure 2).



#### 1.4 Fundamental drivers of change in the truck industry

Although the bleak economic outlook is clearly placing a heavy burden on the truck industry, it is by no means solely to blame for the changes taking place in the market. Structural shifts were already in evidence before the recent downturn, for a number of reasons. Both the causes and effects of these shifts differ in a number of ways between the established triad markets and the world's emerging markets. Hence the market players in each region respond in different ways – as we discuss in the next section.

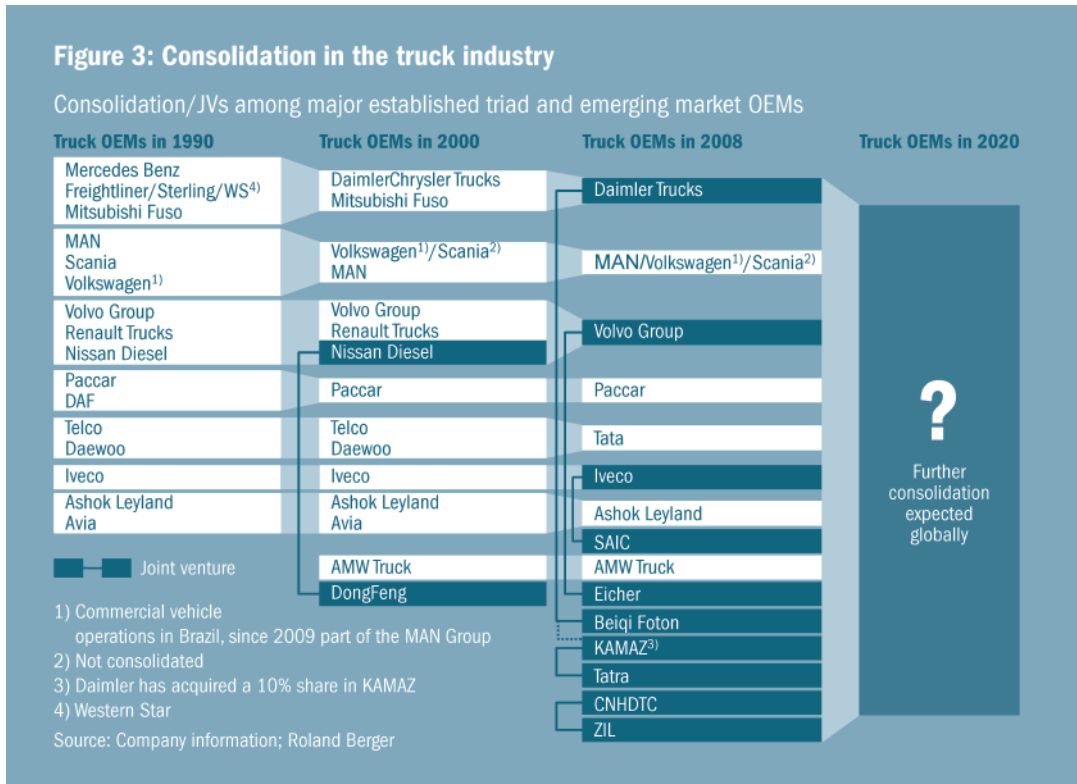
## 2. Incumbents and challengers

### 2.1 OEMs in the triad regions – Under pressure from all sides

Truck OEMs in the established triad markets have been busily building up their capacity in recent years. At the same time, they face the challenge of reducing emissions in order to meet tighter regulations. A steady stream of ever stricter new legislation (such as EPA 10 and EURO 6/7) is gradually coming into force. This means higher costs for truck manufacturers, such as for exhaust aftertreatment to comply with prescribed emissions norms. Material costs and fuel prices have been on the rise, too. While the economy was still buoyant, these added burdens could be absorbed to some extent. As economic growth slows, however, OEM customers are postponing further investment and trying to extend the lifecycle of their truck fleets.

At the same time, customers in established markets are becoming increasingly sensitive to the total cost of ownership (TCO), which simply means all the costs of an investment over its entire lifecycle. In the case of trucks, this includes the initial investment plus the cost of fuel, drivers, repairs and maintenance. Another factor driving change is that trucks are becoming more and more interchangeable and, hence, commoditized. When this happens, product differentiation becomes increasingly difficult. OEMs thus find themselves forced to place greater emphasis on developing solutions rather than focusing purely on truck sales.

Not surprisingly, these pressures are having a profound effect on the structure of the industry. Our study identifies clear signs of consolidation in the triad markets, with the number of established OEMs diminishing significantly in recent years (see Figure 3). This trend is likely to continue over the coming decade. Some consolidation has even taken place among emerging market manufacturers. Another visible trend is the increasing number of joint ventures between established triad OEMs and emerging market OEMs – a further sign of change in the structure of the global truck industry.



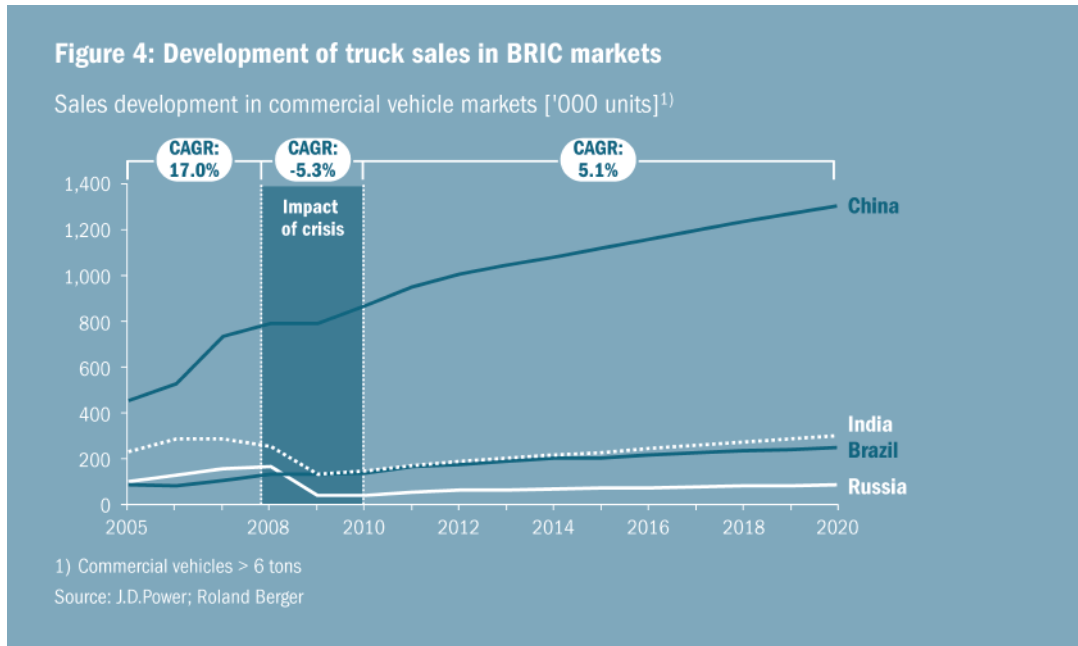
## 2.2 The rise and rise of emerging markets – Strong growth even in times of crisis

Emerging markets paint a different picture. Chinese and Indian OEMs have consistently realized double-digit revenue growth since 2005. Nor is this merely a short-term phenomenon: Increasing global transport volumes (such as the 4.9% annual growth that is forecast for China through 2020), strong economic expansion and developing road infrastructures will continue to boost demand for trucks for many years to come.

In 2007, the markets for commercial vehicles over six tons in Russia, Brazil, China and India had a combined volume of approximately 1.2 million vehicles. According to Andreas Renschler, head of Daimler, every second truck sold anywhere in the world is now sold in one of the four BRIC markets. Clearly, the big players want a piece of this action. And for Renschler, now is the time to act:

"BRIC countries are a key element of the growth strategy of Daimler Trucks and Daimler Buses. These markets grew by 120% in 2002 through 2007. Daimler Trucks' sales in BRIC countries were up 29% in 2007 compared to 2006 and up 34% year on year in the first half of 2008. In Brazil, and indeed in South America as a whole, Daimler Trucks and Buses is already the market leader. In India, we have established a joint venture with our local partner Hero, while in China we are engaging in active negotiations with Foton." Since this statement was made, Hero has withdrawn from the said joint venture. Daimler has nevertheless decided to go ahead and establish a production presence in India on its own. At the end of 2008, Daimler also acquired a 10% stake in Russian truck OEM KAMAZ in order to gain access to this fast-growing market.

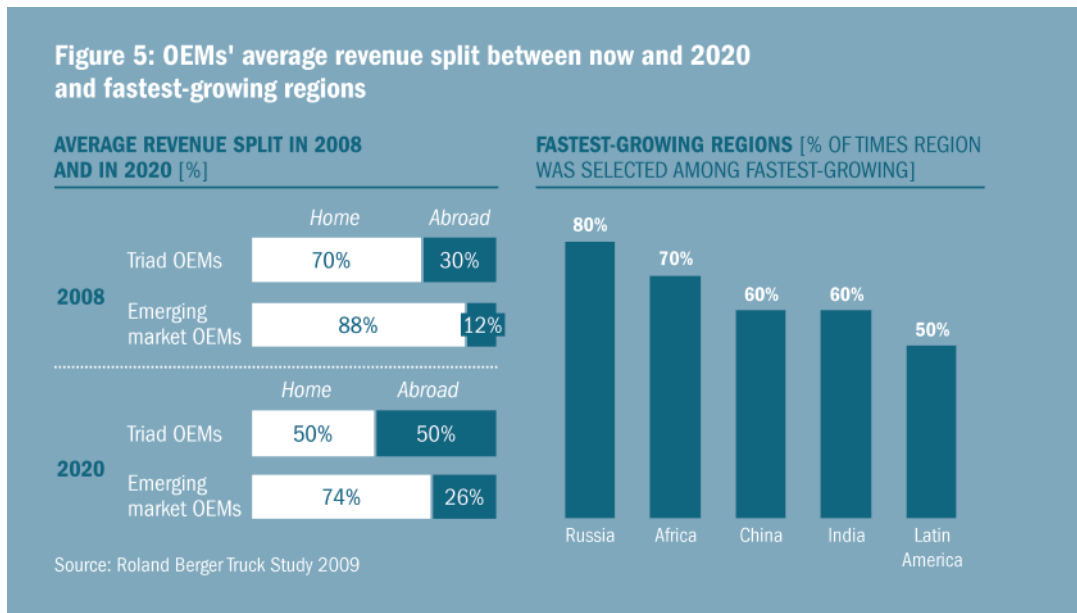
The BRIC markets are expected to show ongoing growth in the years ahead. Figure 4 shows how the trend has developed since 2005 and how we – and the top executives we interviewed for this study – expect it to continue in the period up to 2020. Scania, for example, plans to double the share of revenue it generates outside its European home market from its current level of 30% to 60% by 2020. Much of this projected growth will be focused on the BRIC economies.



### 2.3 The advance of globalization – No longer one-way traffic

As we saw earlier, established triad OEMs are increasingly pursuing a strategy of globalization in the hope of compensating for the lack of growth on their domestic markets. But they're not the only ones to have noticed that there is money to be made in emerging economies. Local OEMs – especially those in India and China – have also picked up the trail. These manufacturers are steadily increasing their global market share.

Traditionally strong in the low-cost segment of the truck market, they are now gradually building capacity and entering the higher-standard segments. Many acquire the necessary technology by committing to joint ventures with triad market manufacturers and/or key suppliers. The number of such partnerships is growing almost by the day: Examples include the joint venture between Volvo and Eicher in India and between IVECO and SAIC in China. As Figure 5 clearly shows (see below), both triad and emerging market OEMs plan to sharply increase the revenue they generate outside their home markets between now and 2020 – primarily in the world's fastest-growing regions.

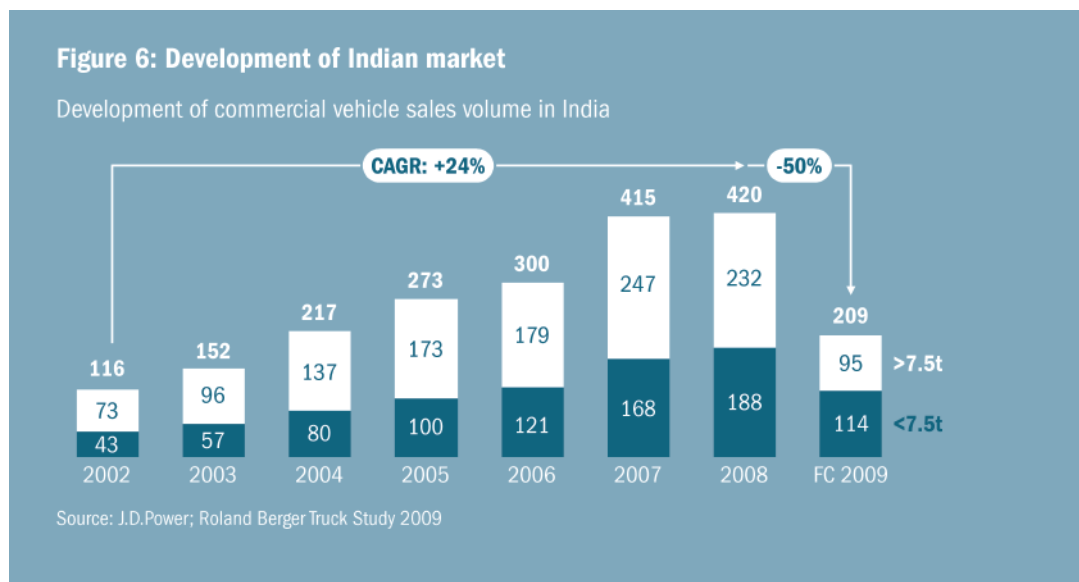


Increasing globalization in the truck industry also brings a new risk for established triad OEMs. A number of manufacturers from emerging countries have already entered, or are on the point of entering, more mature markets such as Russia. Their aim is to take on established truck producers in markets with potential for budget and premium trucks (see the discussion of developments in individual segments below). Some examples of this development are already visible: Indian manufacturer Tata now delivers higher-end vehicles to South Korea and South Africa. AMW does the same to South Korea. Moreover, both companies are considering further international expansion.

The reshaping of the global landscape is still at an early stage. For the time being, leading global OEMs remain in the driver's seat. However, the challenge from their emerging market rivals is very real and growing. Leading OEMs must move swiftly to find a path through the maze of globalization. To do so, they need a clear understanding of what the markets look like today and where they are headed. This is all the more important in light of one important finding of our study: Some of the key differences that exist at present are diminishing in importance. Both the drivers of change and, in some cases, OEMs' responses to these changes are leading to convergence in the world's truck markets.

## Case study: The Indian truck market – Downsized engines, upsized profits

The Indian truck market grew at the decidedly impressive rate of 24% per annum between 2002 and 2008, reaching 420,000 vehicles by the end of last year (see Figure 6). In 2009, the truck market has also been hit by the financial crisis, and a volume reduction of 50% is expected. Freight carriers in the under 3.5 ton class occupy the largest segment of the market. The second most important segment is the 7.5 to 25 ton class. Only 6% of trucks in India carry loads of more than 25 tons.



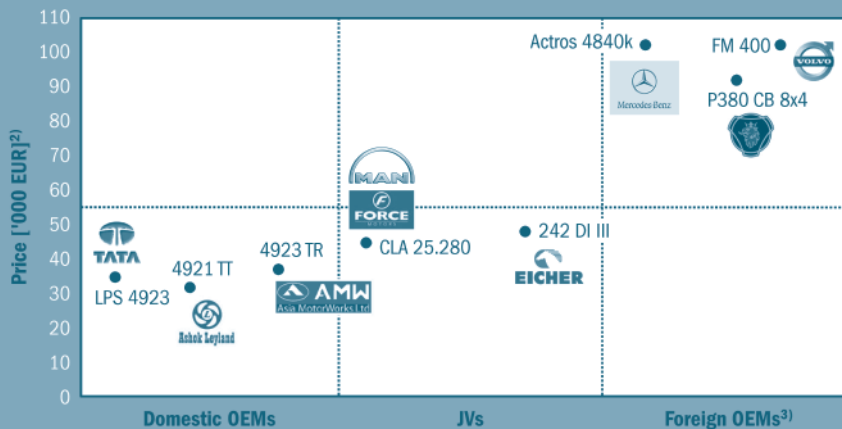
The segmentation of the market into very small trucks (under 3.5 tons) on the one hand and large trucks (over 7.5 tons) on the other, with not much in between, is attributable quite simply to local road and traffic conditions. The huge infrastructure network known as the "Golden Quadrilateral" connects India's four leading cities. The roads in this network are at least of sufficient quality and safe enough to facilitate the professional transportation of goods in long-haul trucks. Road freight is carried from major ports to the cities (and vice versa) along these routes. Agricultural products too are transported from hinterland regions to India's cities and ports via this infrastructure. Since 2002, this development, coupled with rampant industrialization, has boosted sales of medium and heavy commercial vehicles to compound annual growth rates (CAGRs) of up to 50%.

The second mainstay of the Indian truck market is the small vehicle segment for inner-city transportation. In the past, this segment was occupied primarily by the cheap three-wheeled rickshaws that could be seen, often grossly overloaded, all over the subcontinent's city streets. In this segment, local champion Tata has scored a remarkable success with its Tata Ace – remarkable above all because the Ace was priced 25% higher than the typical motorized rickshaws. Demand for a small inner-city truck that was still only half as expensive as a typical commercial vehicle was strong. Tata also cleverly marketed the vehicle only in white, so as to eliminate color changing time in the paint shop and thereby increase output. Although margins for the vehicle were low, the volumes and corresponding economies of scale made it highly profitable, allowing Tata to build a new plant in Northern India to ramp up production to 250,000 units a year.

Broadly speaking, price levels in India are well below those in Europe. However, there is a measure of variation on price between local manufacturers' brands, vehicles marketed by joint ventures run by local and triad OEMs, and vehicles imported from triad manufacturers (see Figure 7). Indian manufacturers are upgrading their trucks, moving away from the traditional wooden cabins and high emissions to more professional, environmentally friendly trucks. Conversely, OEMs from the triad regions are effectively downgrading their trucks to provide simpler and more robust versions. Given local road conditions and the fact that many commercial vehicles are used in construction, robustness is a must-have feature on this market.

**Figure 7: Truck models and price positioning in India**

Overview of truck models in the Indian market<sup>1)</sup>



1) Selected commercial vehicles > 12 tons 2) Ex. showroom price 3) Import prices, including taxes, tolls, transport

Source: Roland Berger research

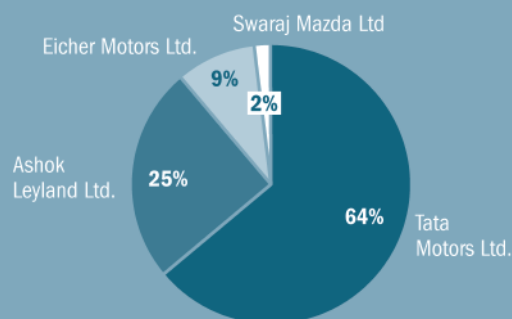
Costs can be reduced by scaling down engine sizes, for example, as traffic conditions make speeds of over 60 km/h almost impossible anyhow. Powertrains must be muscular and durable as Indian commercial vehicles are routinely overloaded and heavy loads put a major burden on the clutch (the maximum weight limits recommended by OEMs are treated more as indicators than imperatives). Even so, there is no real need for engines that deliver more than 200 bhp. Local production and sourcing help facilitate lower prices, too. 100% sourcing enables vehicles to be produced at a markdown of around one third relative to manufacturing in Europe.

In general, Indian commercial vehicles can be considered relatively low-tech by Western standards. All the same, India introduced its first emissions limits as far back as 1989, and in 2003 the country announced that EURO norms 2 through 4 would be introduced by 2010 under the aegis of the National Auto Fuel Policy. For medium- and heavy-duty trucks, the EURO 3 norm will become binding throughout the country in 2010. EURO 2 has already been in force for light commercial vehicles since 2005. In passing this legislation, the Indian government aimed to replace the old vehicles on the roads today with new ones that satisfy modern emissions and safety standards. ECE norms were introduced back in 2000 and are being tightened constantly to improve road safety. While such regulations will not bring technology into line with Western standards, they will still lead to a significant improvement on today's very basic level.

#### Players on the Indian market

In the 7.5 tons and over segment, Tata and Ashok Leyland are the two dominant players. They are also the fastest-growing companies on the market, boasting market shares of 64% in the case of Tata and 25% in the case of Ashok Leyland.

Figure 8: Sales of trucks > 7.5t in India in 2008



Source: Press information; Roland Berger Truck Study 2009

Other important players include Eicher Motors, which has a 6% share of the overall truck market, and Swaraj Mazda. Of the international truck OEMs, Volvo currently sells a few vehicles in the medium- and heavy-duty segment. Scania, too, produces robust heavy-duty commercial vehicles for the construction segment that are basic and technologically less sophisticated versions of its existing models.

In 2006, MAN formed a joint venture with Force Motors, building a plant in Pithampur (between Mumbai and Delhi) with the capacity to roll out 24,000 light to heavy-duty commercial vehicles. The plan is to export 50% to Asia, Africa, the Middle East and Eastern Europe. MAN plans to pair its leading-edge technology with the low-cost capabilities of Force Motors, thereby building vehicles that satisfy MAN's high quality standards at a significant cost advantage. At about the same time, IVECO signed a memorandum of understanding with Tata. The aim here was to explore options for cooperating on production and development.

Another new player on the market is Daimler. Unlike MAN and IVECO, however, Daimler's plans to work with a local partner – in this case India's Hero Group – have been thwarted by Hero's withdrawal from the planned joint venture. Even so, the German company remains committed to local production in India and now intends to go it alone, producing light, medium-duty and heavy-duty commercial vehicles as of 2010. Initially, slimmed-down versions of Daimler's premium Axor heavy-duty and Fuso Canter light duty models will be launched for the local market.

Local players, too, are expanding both within India and internationally. Tata, for example, has extended its reach to other emerging countries by acquiring Daewoo Commercial Vehicle Company in South Korea and the Brazil-based bus and coach body maker Marcopolo Motors Ltd. (TMML). Meanwhile, one of Ashok Leyland's plans is to invest around INR 60 billion (nearly EUR 900 million) in the commercial vehicle segment. Part of this money will be used to expand annual production capacity from 83,000 to 100,000 units. At the same time, the company is stepping up internationalization with a view both to other emerging markets and the triad markets. In 2006, Ashok Leyland snapped up Avia's Prague-based truck business. Two years later, it committed to a joint venture with Nissan Motors Co. Ltd, Japan, whose mission is to develop and produce light commercial vehicles for both domestic and export markets.

**Market drivers**

India's general economic development, combined with large-scale infrastructure projects such as the Golden Quadrilateral, hydropower projects, port development and mining projects, have driven strong growth in the truck industry in the past. Even before the financial crisis struck, however, a slowdown in demand for medium- and heavy-duty commercial vehicles was foreseeable. Rising diesel prices and high interest rates pushed up freight prices and thus eroded profit margins on transporters. As a result, fleet customers postponed the purchase of new vehicles. Concurrently, changes in the regulatory environment (including bans on HCVs within some city boundaries at certain times) and innovative products (such as the Tata Ace) have encouraged a discernible shift toward LCVs. The market for medium- and heavy-duty trucks thus shrank by 6% even in 2007, when India's economy was still expanding at 9% per annum. Now that the global economic downturn too is making itself felt, stagnation or at best slow growth can be expected in these segments.

On the other hand, the LCV market is benefiting handsomely. Changes in legislation, the affordable initial investment and low operational costs for these smaller vehicles is driving brisk demand, especially for trucks under 3.5 tons. This segment will also profit from the spread of urbanization and increased cargo shipment possibilities.

**Summary**

It is hardly fair to call a market of 1.1 billion people a microcosm. For the purposes of this study, however, this is precisely what India is: a microcosm that reflects all the key developments currently taking place in the macrocosm of the world's rapidly globalizing truck industry. While international players are targeting India with slimmed-down versions of their models for specific usages, local manufacturers are building up their knowledge and low-cost production capabilities to expand into other emerging countries and even triad markets.

### 3. Convergence in a world of differences

#### 3.1 Where the world's markets differ...

As we have seen, our research reveals significant differences between the markets in industrialized countries and those in developing countries. These differences relate primarily to technical requirements, environmental legislation and safety regulations. We also find variations between markets in terms of what customers expect of products and what drives purchase decisions. To take just one example, while TCO considerations are gaining rapidly in importance in the triad economies, in emerging markets purchase decisions seldom come down to the total cost, surprising though this may seem. In fact, the price tag on the vehicle is still the dominant factor in the majority of cases. Emerging markets themselves also currently present a varied picture, and to some extent will continue to do so in the future (see Figure 9).

Other differences relate to the features customers expect in different classes of vehicle. Particularly in emerging markets, driver comfort has a powerful influence on purchase decisions for heavy-duty long-haul trucks, but is less important for the medium-duty trucks that generally cover shorter distribution radii. The same goes for service packages and maintenance issues.

**Figure 9: Converging markets**

Convergence of markets – Criteria per region (example heavy duty, long distance)

Legislation	2008						2020					
	EURO2	EURO3	EURO4	EURO5	EURO6	EURO7	EURO2	EURO3	EURO4	EURO5	EURO6	EURO7
Emission standard <sup>1)</sup>	In	Br, Cn, Ru, In <sup>2)</sup>	Cn <sup>3)</sup>					In	Br, Cn, Ru, In <sup>2)</sup>	Cn <sup>3)</sup>		
CO <sub>2</sub>	No regulations		Regulations				No regulations		Regulations			
	Br, Cn, Ru, In						Ru, In		Br, Cn: Taxes coupled to CO <sub>2</sub> emissions			
Safety	Low		Medium		High		Low		Medium		High	
	Br, Cn, Ru, In						Br, Cn, Ru, In					
Investment-driven versus TCO-driven	Investment			TCO			Investment			TCO		
	Br, Ru, In			Cn			In			Br, Cn, Ru		
Driver comfort	No decision criteria			Important decision criteria			No decision criteria			Important decision criteria		
	Br, Cn, Ru, In						In			Br, Cn <sup>4)</sup> , Ru		
Maintenance	Self-repair		OEM repair		Independent		Self-repair		OEM repair		Independent	
	Cn, Ru, In		Ru		Br, Cn, In		Br, Cn, Ru		Br, Cn, Ru		Br, Cn, In	
Service packages (Warranty, FS, fleet service, insurance, etc.)	No		Partly		Full service		No		Partly		Full service	
	Cn, Ru, In		Br, Cn				Br, Cn, Ru, In		Br, Cn			

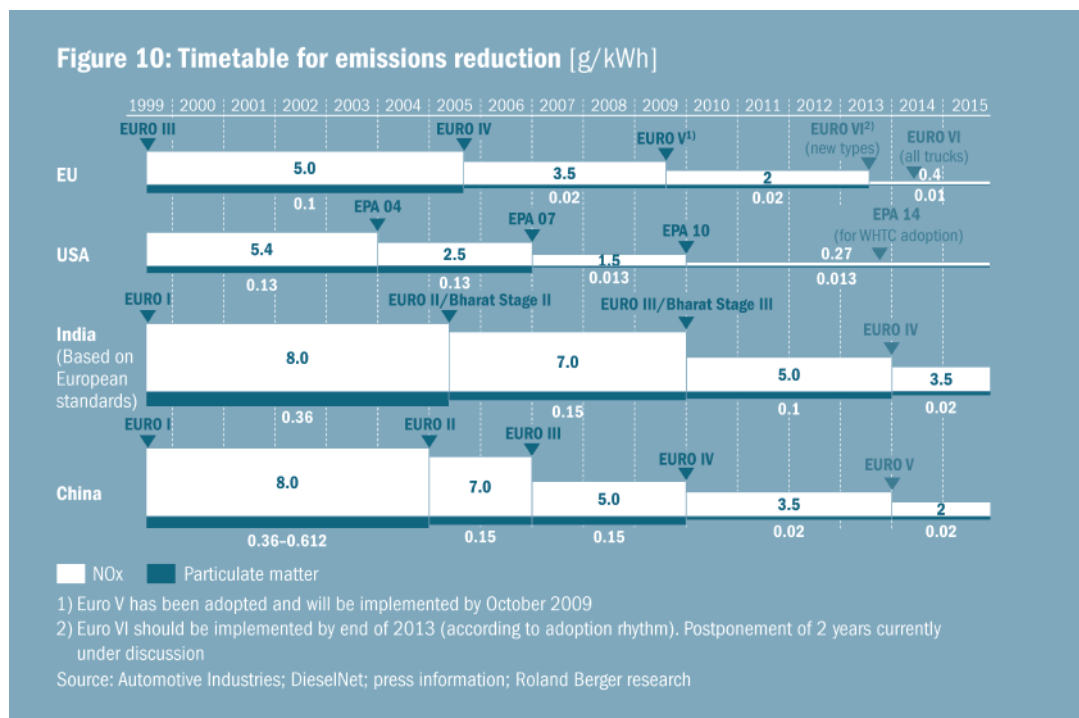
Br = Brazil Cn = China Ru = Russia In = India FS = Financial services

1) 2020 estimate based on planned legislation 2) Selected cities only 3) Beijing only 4) Lack of professional drivers

Source: Press information; Roland Berger Truck Study 2009

### 3.2 ...and how they are converging

Despite these differences, industrialized and developing markets are gradually – and, it seems, inexorably – converging. This is clearly the case with regard to environmental standards. Global standards in environmental regulation such as EURO 1-7 and government commitments to meet these standards are bringing truck markets ever closer together. Figure 10 gives an overview of the timetable for emissions reduction in the European Union, the US, India and China.



For historical reasons, convergence in the NAFTA market will be limited. Many large fleets in this region have their own maintenance infrastructures, for example. Nevertheless, tighter emissions standards will push the convergence of powertrain concepts.

In many ways, the convergence of environmental standards and safety regulations is a boon for those OEMs that are seeking to globalize, as it alleviates some of the difficulties associated with global expansion. As more and more major emerging markets follow the lead given by triad markets in emissions legislation, this will also affect technological requirements concerning exhaust aftertreatment, alternative drives, and so on.

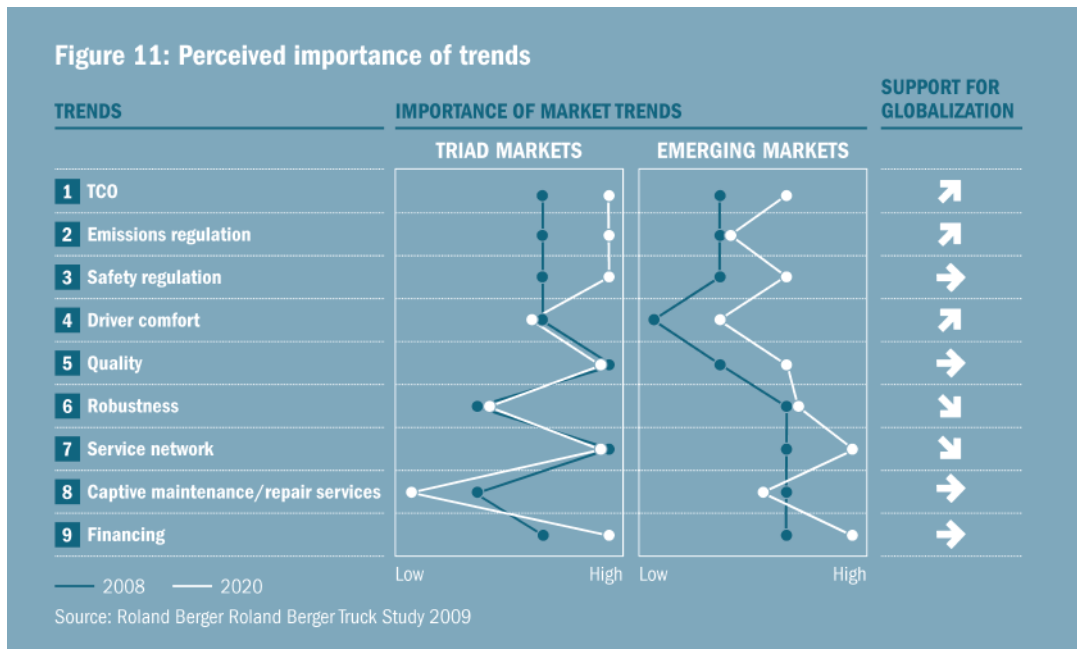
The convergence of legal frameworks already entails a convergence of relevant product technology. For example, the emergence of selective catalytic reduction (SCR) technology and the success of aftertreatment systems point to an increased focus by all OEMs on emissions legislation.

Even in individual countries, the introduction of a new emissions standard can create fresh demand in the period prior to its enforcement. Such is the case with the introduction of EPA10 in the US in 2010, for instance. This change is expected to generate stronger demand for compliant vehicles in 2009 and 2010. Similar phenomena can be observed in many countries around the world.

In the short term, however, emissions improvement will remain a tricky sell in all emerging markets. As one manufacturer says, "Clients are interested in, but not willing to pay extra for 'clean' technology." The expectation is that this attitude will change over time.

The trend toward convergence is apparent in many other areas too:

- > **TCO:** Attitudes toward the total cost of ownership are changing. TCO is already of crucial importance to buyers in triad markets. All our interviewees – without exception – thought that it would gain in importance in emerging markets too in the period to 2020
- > **Emission regulation:** Views differ on the relative importance of emission regulation. In the triad markets, however, this issue is clearly gaining in importance. In future, the regulation of emissions is expected to give a powerful boost to globalization
- > **Safety regulation:** Stricter safety regulations are expected in both markets, although the changes are likely to be more pronounced in emerging markets. This development too will definitely have some influence on globalization in the truck industry
- > **Driver comfort:** Long established as a prerequisite in triad markets, driver comfort is considered one of the least important qualifications for truck purchase today in emerging markets. Our interviewees agreed that driver comfort is currently a nice-to-have feature, as long as it doesn't compromise the cost of the vehicle. The survey nevertheless showed a major leap in this category between now and 2020, indicating a gradual shift toward a global expectation for comfort (see Figure 11).



- > **Quality:** The survey points to a very similar, high level of expectations regarding quality in both triad and emerging markets. While expectations are slightly lower in emerging markets, quality appears to have become a global standard already
- > **Robustness:** Our respondents were very clear about the relative importance of robustness, which is expected to remain more or less unchanged in future
- > **Service networks:** Views differ on the relative importance of service networks for triad and emerging market OEMs. Manufacturers in both regions agree that service networks play a vital role in the triad markets. However, while emerging markets already attach great importance to providing a strong service network in their home markets, triad OEMs do not view this as a critical offering in developing offshore markets. This finding highlights the difficulty for triad manufacturers of establishing service networks in emerging markets. Here again, however, the differences of opinion tend to disappear in projections for 2020
- > **Captive maintenance/repair services:** Perception of this issue is closely tied to the importance of the service network. Triad-based manufacturers currently consider handling repairs for their own installed base as very important in emerging markets. However, the global consensus is that the importance of captive maintenance and repair will wane by 2020

- > **Financing:** All our interviewees believed that the triad markets today set much greater store by financing considerations than emerging markets. This difference too evaporated in interviewees' perception of the market in 2020
- > **Technology:** Technology continues to be a differentiating feature between triad and emerging markets. Whereas triad manufacturers compete on technology, manufacturers in emerging markets must first master quality and affordability. Once they do – and it is expected that they will by 2020 – they too will increasingly focus on technology

As we will see below, the changing importance of these factors significantly affects the future development of the various segments. For example, as TCO becomes a more important consideration in emerging markets, the budget and premium segments will gain ground at the expense of the low-cost segment.




To summarize, at present the differences between emerging and developed markets are largely reflected in the relative strengths and weaknesses of the companies they produce. On a whole range of issues, we still see clear differentiation between triad and emerging market OEMs. However, these differences will gradually disappear in the context of a globalizing truck industry. For a comparatively brief interval, this fact gives triad OEMs an opportunity to expand into new markets and exploit global synergies. As markets converge and global standards gradually become established, customers in emerging countries will increasingly expect the same technical features as their peers in the West. The ability of indigenous OEMs to satisfy this demand will remain limited for some time to come.

### 3.3 Clearly delimited market segments...

Our research leads us to split the global truck market into three major segments: premium, budget and low-cost. The premium and low-cost segments represent the upper and lower ends of the market. The budget segment is the area in between – trucks produced by established triad OEMs specially adapted for emerging markets, with fewer electronic features or a reduced comfort level in the vehicle, for example.

Figure 12 describes these three market segments in terms of relevant legislation, product features and price.




Figure 12: Segmentation criteria for the global truck market

SELECTED SEGMENTATION CRITERIA		PREMIUM	BUDGET	LOW-COST
Legislation	Emission standard	≥ EURO 4 / ≥ EPA 07	< EURO 4	≤ EURO 3
	Safety	Airbags, EBS, etc.	EBS, etc.	-
Product features	Electronic features	High variety	Low	-
	Comfort	High	Low	Low
	Durability	High	High	High
	Robustness	Medium	High	High
	Multiuse	-	-	Important
	Easy repair	-	-	Important
	Overload capacity	-	-	Important
	Price	Decision criteria; price range [EUR]	TCO; > 50,000	TCO/Purchasing price; 30,000-50,000
Example OEM				

Source: Company information; Roland Berger Truck Study 2009

A comparison of specific vehicles, as in Figure 13, makes the differences between the premium and low-cost/budget segments all the more apparent. Product features differ substantially between premium trucks manufactured by triad OEMs and low-cost/budget trucks produced by Indian or Chinese OEMs, say. The vehicles also contrast sharply in terms of their emissions, safety, product features and, of course, price. All these issues reflect varying customer requirements in different markets at the present time.

Figure 13: Comparison of premium, low-cost and budget products

OEM/ Product	 <b>Mercedes Actros</b>	 <b>Tata Novus</b>	 <b>Golden King (ZZ4251M3241W)</b>
Segment	Premium	Low-cost/budget	Low-cost
Legislation	<b>Emission standard:</b> EURO 4/5; <b>Safety:</b> ABS, ASR, Airbags, Active seat-belts, lane assistant, non-flammable materials	<b>Emission standard:</b> EURO 2/3; <b>Safety:</b> ABS, ALSV (auto load sensing valve) to prevent skidding, reverse alarm	<b>Emission standard:</b> EURO 2; <b>Safety:</b> Safety belts, ABS (optional)
Product features	<b>Powertrain:</b> V6/V8, KW 235-440; <b>Gross vehicle weight:</b> > 18t; <b>Features:</b> Towel holder, shaving mirror, heatable mirrors, light rain sensors (opt.), adaptive cruise control (opt) etc.	<b>Powertrain:</b> Inline 6/V8, KW 180-308; <b>Gross vehicle weight:</b> > 18t; <b>Features:</b> Driver seat with suspension, radio, central locking (opt.), electric cab tilting system (opt.) air conditioning, cassette (opt.), etc.	<b>Powertrain:</b> KW 196; <b>Gross vehicle weight:</b> > 18t; <b>Features:</b> Driver seat with hydraulic shock absorbers, adjustable steering wheel, radio, air conditioning (opt.), etc.
Price [EUR]	> 90,000 (prices vary by regions)	~40,000 (prices vary by regions)	~22,500 (prices vary by regions)

Source: Company information; Roland Berger research; press information; Oanda

### 3.4 ...becoming increasingly blurred

Yet again, the static view of "as-is" market segmentation differs considerably from what our interviewees expect to see in 2020. We found that triad OEMs and manufacturers from emerging markets are already pursuing similar patterns in terms of their strategies for target segments. There are, however, a number of differences between different regions and countries. For example, one Chinese OEM disclosed that "Chinese OEMs will try to touch the premium segment while maintaining their advantage in budget and low-cost products." Conversely, one European OEM is expecting to enter three emerging markets with a premium product, adapting its vehicles to meet the needs of local markets. Our interviewee from the company in question was disarmingly frank: "This is our only option to quickly enter the market, as we don't have the portfolio of products today."

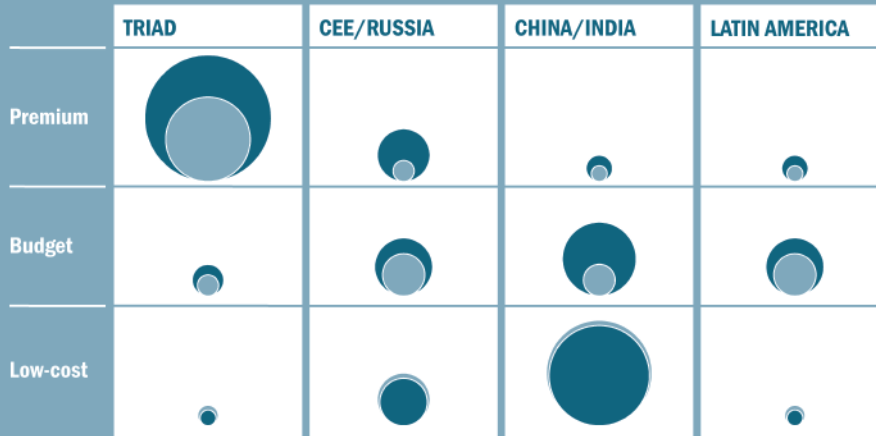
Clearly, OEMs in emerging and triad markets alike are waking up to the implications of globalization for the industry, even if they approach the issue from different angles. The key question is: What exactly does the future hold for the different market segments?

At present, the low-cost truck segment predominates in emerging markets and will continue to do so at least in the medium term. However, we expect to see shifts in the development of market segments as markets gradually mature between now and 2020. In response to these changes, OEMs from triad markets will enter emerging markets or ramp up their local presence, first with budget trucks and later also with premium trucks. At the same time, OEMs from emerging markets will start producing higher-quality products. A gradual progression toward higher-end vehicles will ensue. By 2020, the relative importance – and geographical coverage – of these three truck segments will be very different to what we know today.

The transition will not be identical everywhere. Partly due to their close proximity to Western Europe, the markets of Central and Eastern Europe (CEE) will relatively quickly develop a greater share of premium vehicles. Russia and China are already moving upscale, and India will follow suit, albeit with a certain time-lag (see Figure 14). In the medium term, the low-cost segment will experience slower growth and thus lose market share. In the long term, 2020 and beyond, we even expect this segment to shrink.

**Figure 14: Shift in segments**

Market development by region and segment – 2020<sup>1)</sup>



○ 2008 ● 2020

1) Schematic diagram; bubble size indicates unit sales; Triad: USA, Western Europe, Japan; CEE/Russia incl. Turkey

Source: Roland Berger Truck Study 2009

Manufacturers need to be aware of the big picture – the broad brushstrokes of globalization – but must also pay close attention to the fine details and differences. They must position themselves very carefully if they wish to become winners in the process of globalization, rather than victims. An array of strategic options are theoretically open to OEMs in both emerging and established markets. But not all of them will work for every player in every context.

## 4. The future is global – Conclusions, options and actions

The clear consensus among the experts we interviewed was that the future of the truck industry is indeed global. We must now ask: What are the strategic options that are open to today's OEMs? To begin this discussion, we need to differentiate between the strategies available to established triad manufacturers and those available to OEMs in emerging countries. Moreover, as we have seen, we must distinguish between the varying product requirements that prevail in the premium and low-cost segments. In other words, OEMs must adapt their business models and strategies for every segment in which they operate.



Figure 15 illustrates several possible strategies for OEMs. Our survey revealed three basic strategies that are open to established triad manufacturers. However, it will be quite possible – and in some cases desirable – for OEMs to pursue more than one strategy at a time.

#### 4.1 Where the world's markets differ...

Triad-based OEMs that are looking to globalize can essentially choose between three strategies:

1. **Enter the emerging market in the higher budget (or lower premium) segment, adapting premium products to local market requirements.**

Before local OEMs have developed the technical capabilities they need to compete, acquire market share as the basis for further growth once this segment becomes more important. This will initially impact the long-haul segment, where quality, fuel economy and robustness count for more. The effect will then gradually spread into the construction and distribution segments.

**Examples:** Having established its own manufacturing base in Resende, Volkswagen/MAN is currently the market leader in Brazil's heavy-duty truck segment. Daimler has entered the Indian market, where its first locally made trucks rolled out of the plant in Pune (CKD production of Actros). A similar development can also be observed in the Russian market. Until 2005, this market was dominated by local players whose combined market share topped 90%. Since then, global truck manufacturers have arrived and the situation has changed markedly. Today, foreign brands already account for approximately 20% of total market sales. The long-haul segment in particular is completely dominated by triad OEMs. Volvo, for example, has started work on a 15,000 unit p.a. plant in Kaluga. Scania too has announced plans to build an additional 10,000 unit plant in Russia. Both companies have developed special models for the Russian market – Scania the P114GA Griffin and Volvo the FM12 Region. These models are scaled-down versions of existing products, assembled in low-cost countries, with minimal engine power, no choice of trim or equipment, and so on. With its TGA WorldWide version, MAN is also offering a model adapted for emerging countries. This vehicle is primarily exported to Russia, Southern Africa and the Middle East.

2. **Enter the emerging market in the low-cost (or lower budget) segment by means of local engineering, sourcing, and production or sales.**

Meet the current market requirements and grow into higher segments over time as the market evolves, perhaps launching a second brand. OEMs must remember that this strategy implies certain risks, as it involves penetrating both a new segment and a new market/region at the same time. Careful analysis of the market and selection of a suitable local partner are therefore essential. The partner in question should enjoy high brand recognition and a strong reputation at home.

**Example:** What was to be Daimler's new joint venture with the Hero Group will now be Daimler's stand-alone production facility on the ground in India. This facility will develop a new range of low-cost commercial vehicles for the Indian market.

Branding issues will always require careful consideration where strategic options 1 or 2 are considered. One Chinese OEM succinctly encapsulated the difficulty faced by triad OEMs: "Triad OEMs will not lower their product positioning with their own brands. They will choose to cooperate with local OEMs to enter the budget or low-cost segment."

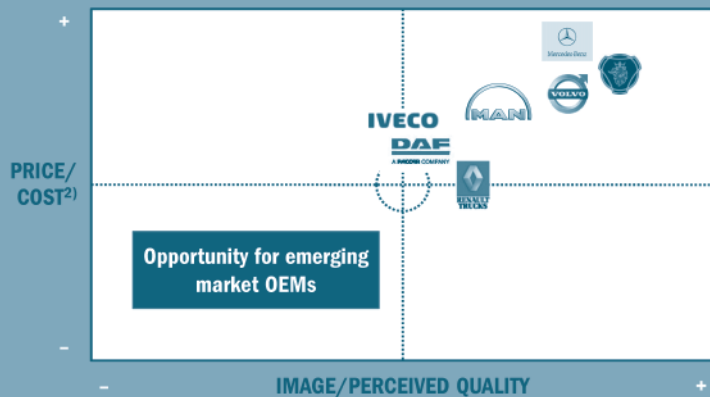
**3. Enter the emerging market in the low-cost (or lower budget) segment, meeting current market requirements only.**

Follow up by exporting the low-cost truck or a second brand to other emerging markets. This is an extension of strategy 2.

**Example:** Once it has gained a foothold on India's low-cost market, the Daimler enterprise mentioned above also plans to export the vehicles produced in India to other emerging markets.

**Figure 16: Opportunities for emerging market OEMs to enter triad markets**

Positioning in Western Europe<sup>1)</sup>



1) Commercial vehicles > 6 tons      2) Based on model price/cost analysis; reference market: Germany  
 Source: Lastauto omnibus; expert interviews; Roland Berger Truck Study 2009

#### 4.2 Three winning strategies for OEMs in emerging markets

The strategies open to OEMs in emerging countries differ from those of established triad manufacturers. Here again, combinations of more than one strategy are possible:

1. **Export a successful low-cost truck model to other emerging markets.**

Benefit from the economies of scale and diversify risk.

**Example:** The largest Russian truck producer KAMAZ already exports approximately 25% of its total production to markets such as India, South America and Africa.

2. **Grow with the domestic market as it develops in terms of technology, gradually moving into the budget segment.**

**Example:** Most local OEMs in emerging countries currently pursue this model. In some cases, they have established partnerships with global OEMs. Examples include Dongfeng/Renault and SAIC/IVECO in China. More recently, Daimler too has acquired a 10% stake in Russia's KAMAZ group. In return, KAMAZ will benefit from new technology, thus shoring up its position in the Russian low-cost segment and protecting itself against new entrants from China and India.

3. **Grow with the domestic market as it develops in terms of technology, entering more developed markets – but not yet those of triad countries – as soon as the necessary requirements can be met.**

This is an extension of strategy 2 (e.g. Africa, Russia).

**Example:** The majority of emerging market manufacturers do not yet satisfy the product requirements that would let them export large volumes of vehicles to developed markets. Some are, however, following this path. Tata, for example, sells trucks in South Korea via its subsidiary Tata Daewoo Commercial Vehicle Co., Ltd. Cost and price advantages could even create opportunities for emerging market players to enter triad markets (see Figure 16). First, however, the quality expectations of triad market customers have to be met, along with local regulations on emissions, safety standards and so on. Manufacturers in emerging economies will hardly be able to do this in the medium term. To accelerate this process, they could, for example, commit to technology or production joint ventures, share sales activities, establish new brands and products in collaboration with triad OEMs, or – as in the case of Tata/Daewoo – acquire established OEMs.

For all the many differences, nuances and preferences, one thing is abundantly clear: Each of the strategies outlined above involves globalization. Globalization is not an option, it is an imperative.

It is the key factor that is currently shaping the development of the truck industry. And it is what will drive the future strategic decisions of truck manufacturers in both industrialized and emerging countries. Although full convergence of the global markets is unlikely to occur within the next decade, for the truck industry, the future is undeniably global.

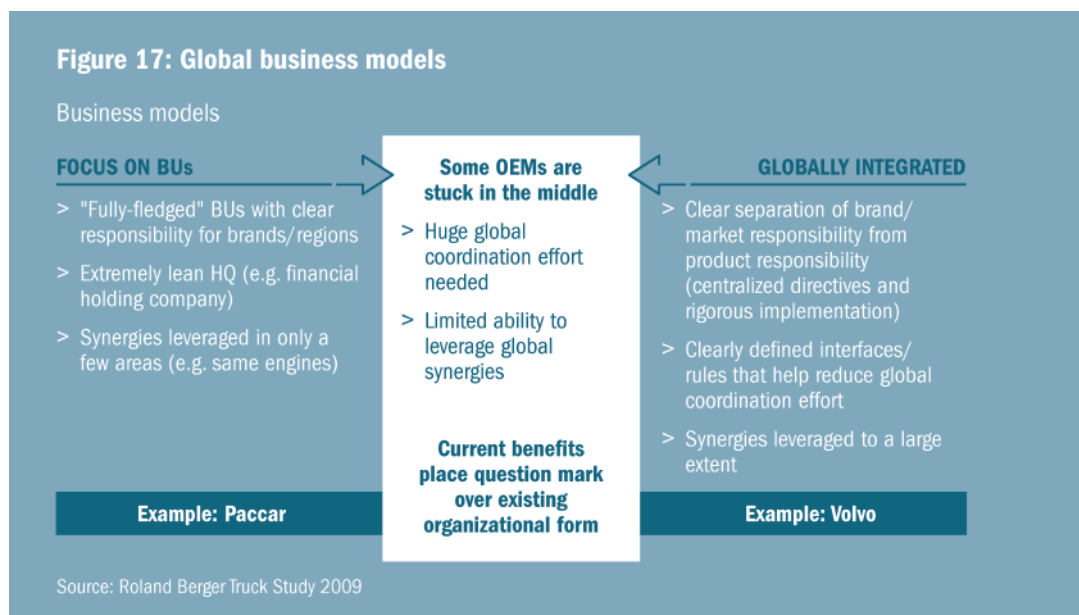
#### **4.3 Going global – Final remarks**

For the truck industry, the writing is on the wall. The responses gathered by our study show that OEMs have, by and large, understood where the industry is heading and the challenges that lie ahead of them. To address these challenges, it is important to understand where OEMs stand today and what strategic issues they must resolve. Furthermore, they must be willing and able to adapt their business models.

First, however, they must respond to the challenges thrown out by the financial and economic crises. The short-term implications of these developments for OEMs include liquidity issues and capacity reduction. Most OEMs, including some in emerging markets, have already implemented or announced plans to reduce capacity, lay off temporary workers and take other such steps. Those manufacturers who take sufficiently radical action now and show themselves to be highly flexible in terms of workforce and inventory adjustments as well as overall cost reduction will best master the capacity challenge.

While addressing these immediate and pressing concerns, however, manufacturers must not lose sight of their long-term strategic focus. As severe as the current economic downturn is, it will be followed by a recovery three to four years from now. Bearing in mind that future growth potential is likely to be realized in the medium term, OEMs must prepare their business now to exploit these upcoming opportunities. Consequently, truck OEMs are well-advised to start defining cost-efficiency programs, reviewing their product and brand portfolios, and clarifying their technology and R&D priorities. Indeed, all this is only the point of departure. For many, restructuring sales and service networks and initiating support programs for strategically important suppliers, dealers and/or repair shops can be equally important. OEMs should carefully consider investing in anti-cyclical activities, such as diversifying their regional sales focus (especially with a view to the BRIC markets), extending their value chain, introducing new technology (hybrid technology, aftertreatment systems, lighter materials, etc.) and stepping up aftermarket activities (by extending truck stores on highways). At the same time, they can increase their long-term flexibility by exploiting low-cost locations, optimizing their global footprint, making their workforce more flexible, improving overhead efficiency and optimizing engineering operations.

Globalization, as we have seen, presents different sets of challenges to triad-based manufacturers and manufacturers based in emerging markets. Accordingly, the players in each market must respond differently. We have also seen that established OEMs in triad countries currently have the edge in terms of their capability to reshape the industry. This window of opportunity will gradually close, however. Triad OEMs, having adapted their strategies to the dictates of economic necessity and the demands of future trends, must also adjust their business models in a number of ways if they are to exploit their advantage over their challengers in emerging markets.

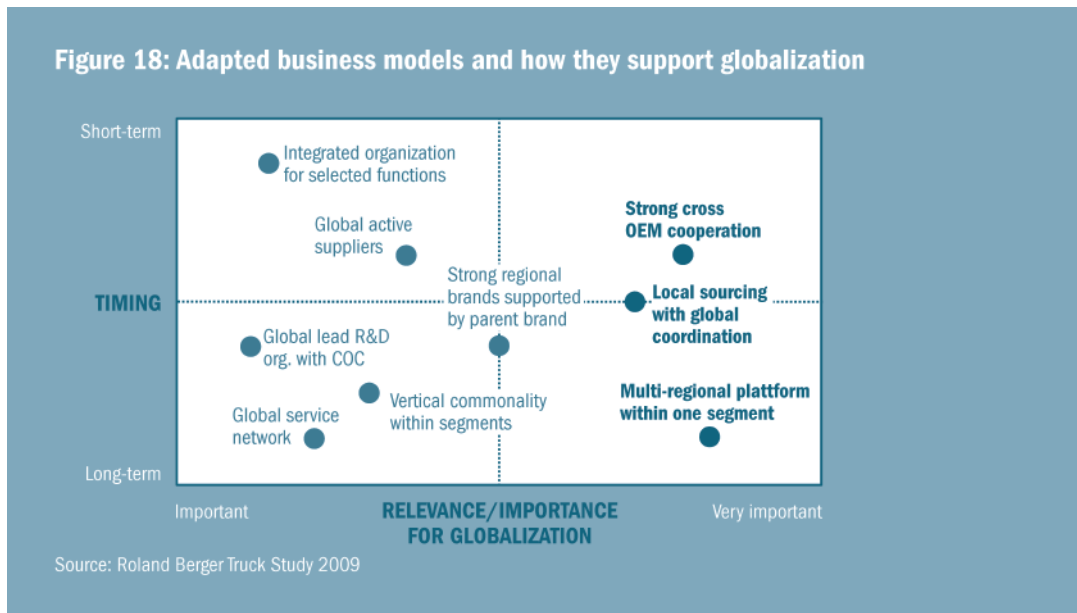


The general business models operated by OEMs must be aligned with the requirements of globalization. Effectively, however, some OEMs now find themselves stuck in the middle between the two. As things stand, their business models necessitate a huge global coordination effort but promise to yield only limited synergies (see Figure 17).

Three elements of change in OEMs' business models stand out as the most powerful tools to advance truck OEMs' globalization efforts:

#### **Platform architectures**

- > As markets and segments increasingly converge, they must develop a one-truck concept that is valid for many markets. The US market is still seen as an exception by the interviewees



- > Many components/functions could certainly be interchangeable between regions, although several executives see regional differences in the foreseeable future
- > Minor regional differences will still be necessary to accommodate varying legal requirements, differences in infrastructure and customer/driver preferences. These differences should be catered to by an intelligent, modular kit and must be kept as small as possible
- > The synergies enabled by platform architectures must be leveraged in two dimensions: across regions (as OEMs move into new geographical territory) and across segments (as they increasingly cross the lines that hitherto divided the premium, budget and low-cost segments)

### Networks

- > Purchasing, for example, should no longer be centralized but must instead be regionally or locally based. One interviewee (representing an OEM) realized savings of over 30% by applying this policy. At the same time, strong global coordination is essential to ensure systematic exploitation of all benefits
- > Suppliers who have a global reach should deliver strategic parts worldwide. This policy should be combined with using regional suppliers for less critical low-value parts
- > Harmonized truck concepts necessitate harmonized global service networks. A global logistics provider that sources its worldwide fleet with a single OEM, say, will expect the same level of service in Mumbai as in Michigan

**Organization**

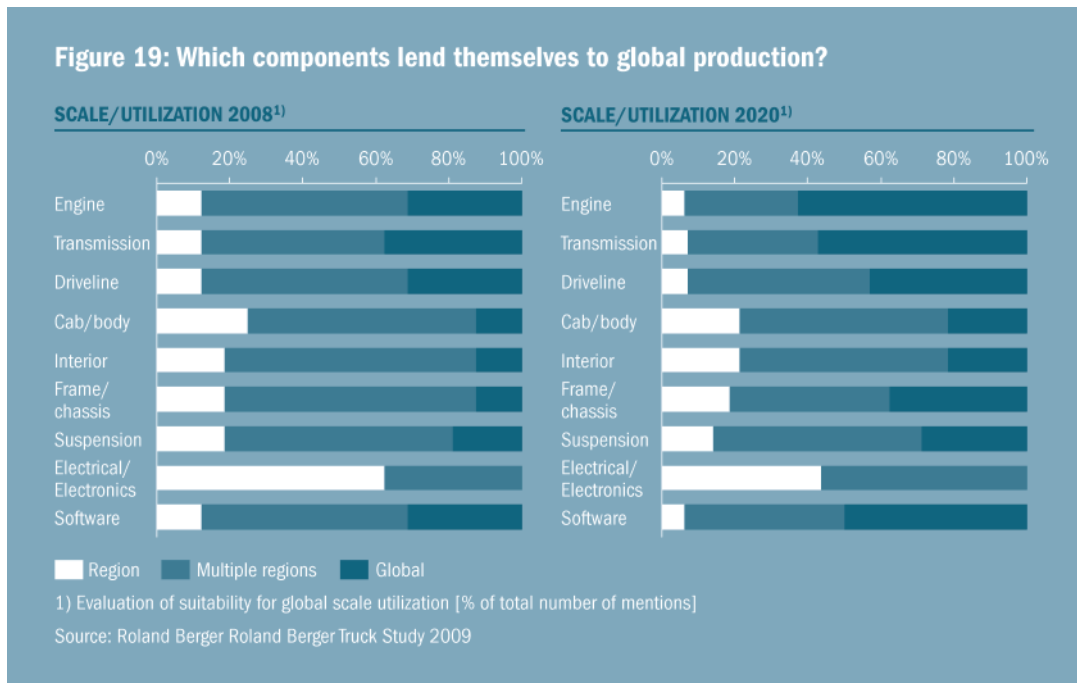
- > Collaboration between OEMs will increasingly be necessary to enable market players to complement in-house technology with local market expertise, say, as well as to help them cut costs
- > A global truck concept demands a global organization. In other words, engineering, purchasing and other key functions must be genuinely and fully integrated around the world
- > Resources can and must remain geographically distributed even where they are unified on an organizational level. Resources might be physically located in Japan, Europe and the NAFTA region, for example, but still belong to the same organizational unit. Closer integration and the exchange of staff are crucial in this context

At the same time, our interviewees indicated a clear regional focus in the area of manufacturing. This indeed makes eminent sense as a way to combine the benefits of the aspects of globalization outlined above with local preferences and requirements, specific content issues and varying legal requirements.

Branding is a more complex issue, one that must be addressed very carefully by every OEM that is committed to going global. The coordination between parent and sub-brand is essential for success. Brand platforms are necessary to consistently position all brands across regions.

Brand extension and endorsement rules that are standardized and implemented systematically will help optimize business while clearly differentiating brands and maximizing platform synergies (through batching, for example). Service offerings must be coordinated within each group. In particular, servicing different segments under one and the same brand will prove to be a stiff challenge. As a general rule, brand organizations that want to meet global requirements must become more professional and achieve a healthier balance between central guidance and regional authority. This will also impact component strategies.

Most components are already suited to multi-regional deployment. As shown in Figure 19, the share of truly global components will nevertheless increase significantly. This will happen mainly in relation to powertrains (engines and transmissions) and electrical/electronic and software components. Regional differences will diminish more slowly for cab/body and interior components.



The road to globalization will not be an easy one, either for OEMs based in the triad economies or for their peers in emerging markets. As this study clearly shows, however, there is little alternative. It is therefore expedient for manufacturers in the developed and the developing world to proceed with caution, giving due attention to the many issues they will need to resolve along the way, and calling on outside expertise as and when necessary.

An example: Most major established triad OEMs have entered developing markets with their own brands. To compete in all segments, they will need new brands as well. And as every seasoned OEM knows, multibrand strategies present their own unique challenges and must be extremely well thought through.

For triad OEMs, moving into the low-cost segment of an emerging market sounds – and is – an exciting prospect. Here too, however, a special business model is required. As we saw earlier, it is imperative to weigh the associated risks very carefully indeed. Targeting new segments and new regional markets while adapting one's business model at the same time is no mean feat by anyone's standards.

The business model that emerges should provide strategic solutions for the particular product requirements of the sector in question. It should also exploit low-cost sourcing, design and production. Above all, the OEMs concerned must be aware that segment convergence will diminish the importance of this end of the market in the long term. The costs and benefits should therefore be carefully weighed in advance.

Nor can all emerging markets be tackled in the same way. The Indian case study reveals a number of peculiarities that must be accommodated if a foreign OEM is to succeed on the subcontinent. At present, legal restrictions too can still vary from country to country. Strict ownership regulations prevail in China, for instance, and may therefore necessitate partnerships with local manufacturers in order to penetrate this large and lucrative market.

OEMs in emerging markets that are looking to penetrate triad markets must likewise bear a number of important factors in mind. If they are to survive (and thrive) in the sophisticated, quality-conscious triad markets, they will need to find Western partners (OEMs, suppliers, etc.) and benefit from their technology, production expertise and investment capital. Since only a few such potential partners remain, time is clearly of the essence.

Geographical considerations too will necessarily influence the strategies adopted by OEMs in emerging countries. Developments in those countries in close proximity to triad markets follow a clear pattern. In the case of Russia, international OEMs could enter the market early on with imported, budget versions of their trucks, assembled in other low-cost countries (Poland, Romania). Their rationale was to meet the market requirements, establish an initial presence in the country and so create a basis for building market share later on. Conversely, emerging markets further away from triad markets will have to pursue different development trajectories in line with their specific patterns of economic growth.

**As triad OEMs scramble to expand eastward and their counterparts in emerging countries prepare to go west, the truck market will become irrevocably globalized. When the current crisis recedes, this globalized market will hold out tremendous opportunities for those manufacturers that move now – actively and rigorously – to position themselves for the future.**

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