

IBM Institute for Business Value

# Truck 2020

*Transcending turbulence*



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### **IBM Institute for Business Value**

IBM Global Business Services, through the IBM Institute for Business Value, develops fact-based strategic insights for senior executives around critical public and private sector issues. This executive report is based on an in-depth study by the Institute's research team. It is part of an ongoing commitment by IBM Global Business Services to provide analysis and viewpoints that help companies realize business value. You may contact the authors or send an e-mail to [iibv@us.ibm.com](mailto:iibv@us.ibm.com) for more information.

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*By Sanjay Risbi, Kalman Gyimesi, Connie Burek and Michael Monday*

**The truck industry** faces the dawn of a new era. The changes surrounding it are daunting, the need for transformation immediate and the challenges multidimensional. Brand faces the risk of a slow death, sustainability concerns have brought hybridization front and center, and increased urban development is driving ever-increasing regulation. The industry is at a crossroads, unsure of its next steps toward globalization. Tomorrow's winners must take decisive actions today in the areas of globalization, brand development, technology integration, partnerships and workforce transformation.

Well before the global economic crisis gripped the world, change had become a norm for most industries. It is certainly the reality for today's truck industry, which faces fundamental shifts to business models and uncertainty about the best paths to navigate the future.

While adapting to change is difficult for most industries, it can be especially painful for well-established ones. Less mature industries are often not impeded by a long-term history and constraining traditions. They are, in some ways, better equipped to adapt to new ideas and adopt changing business models. The truck industry, burdened with heavy regulation and excessively cyclical market demands, has found it difficult to embrace major transformation. However, that is exactly what must happen to achieve a healthy, prosperous truck landscape by 2020.

The march toward globalization has left few untouched. The truck industry is no exception. While some in the industry are on the path to becoming global enterprises, others question whether this is the right move for them and struggle with how to best optimize investments and capitalize on globalization. As a result, there are still many unresolved issues, including the need to consolidate portions of the industry. In fact, globalization is among the top external forces impacting the industry today – and will be in 2020 as well.

Urban growth and development will increasingly challenge industry leaders. City populations will continue to grow, constraining urban infrastructures and increasing road congestion. Regulations impacting the movement of goods and people continue to mount, as does the government's involvement in shaping environmental policies and enforcing regula-

tions. Technological advances continue at an even stronger pace, with technology becoming increasingly pervasive throughout the truck. In fact, technology will be at the heart of solving another issue facing the industry – that of sustainability.

The challenges facing the truck industry are complex, and overcoming them will take a significant transformation – one that will require strong leadership and decisive actions. There is little time to waste. The impact of the recent economic crisis will subside, but it could have longer-term implications for those who fail to invest in the future.

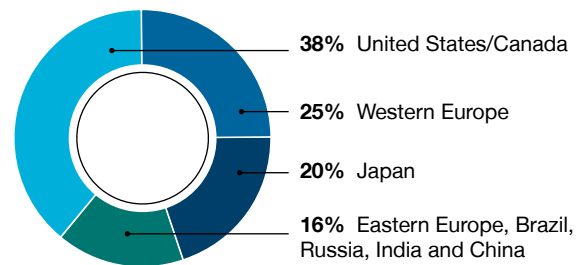
To adapt to these changes and emerge victorious in 2020, tomorrow's winners must act today. Five industry imperatives define the path to prosperity:

- **Resolve the globalization dilemma.** Globalization is not the only strategy that truck manufacturers can follow. Companies must pick a path to profitable growth – comprehensive global integration or regional specialization – and recognize that either path requires major transformation.
- **Redefine the brand.** Identify future brand characteristics and develop a framework to support them.
- **Enable technology.** Innovation in technology is redefining all facets of the industry. Leaders must assess, prioritize and integrate technologies across the value chain.
- **Enrich partnerships.** Traditional partnerships will not suffice. Companies must evaluate and embrace partnerships both within and outside the industry. The truck ecosystem will thrive because of – rather than in spite of – a chaotic introduction of new players.
- **Transform the workforce.** Assess the workforce, identify gaps and prepare the organization for the transformation ahead.

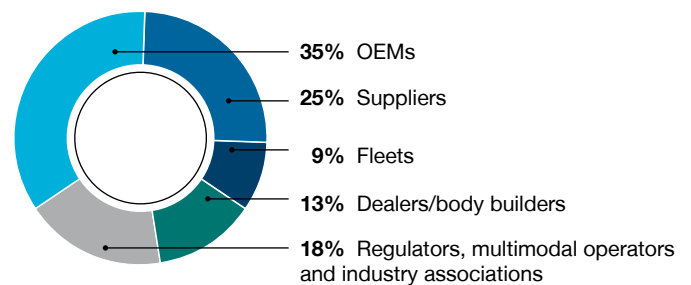
### The IBM Truck 2020 Global Study methodology

**Research overview:** IBM conducted interviews with 91 executives in 13 countries from organizations representing the entire truck value chain, including truck and bus original equipment manufacturers (OEMs), suppliers, multimodal operators, regulators and industry associations.

#### Interviews by region



#### Interviews by industry segment



**Study scope:** Truck classes in scope for this study ranged from Class 4 medium duty category trucks with gross vehicle weight ranges from 14,001 to 16,000 pounds (such as large walk-in trucks, conventional vans and city delivery trucks) to Class 8 heavy duty category trucks with gross vehicle weight ranges over 33,000 pounds (such as dump trucks, cement trucks, heavy conventional trucks and cab-over-engine sleepers).

## Change breeds change

The truck industry is in for an interesting ride over the next ten years. Macroeconomic factors, such as globalization and economic stability, are forcing nations, industries and enterprises to reexamine policies and business practices to survive. The global labor force is changing profoundly in age, location and the way people work.

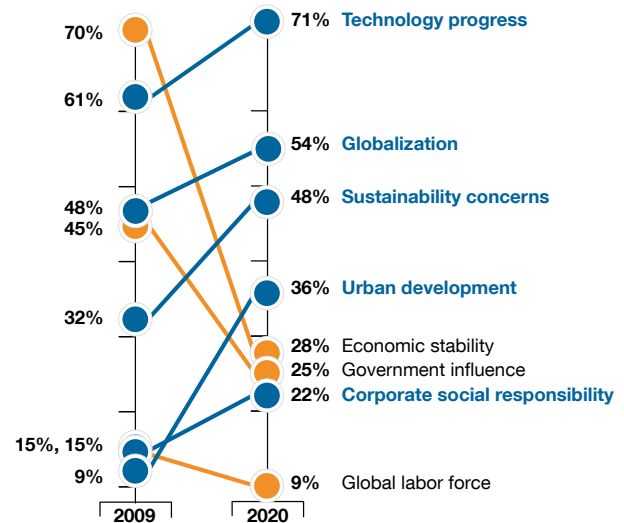
Truck companies face changes in the very environments in which their products function. Urban centers are developing rapidly, and space – or lack thereof – is a considerable concern. At the same time, government entities are exerting more and more controls over the movement of people and goods. Truck companies must tread carefully in this ever-evolving ecosystem, all the while keeping in mind the growing focus on corporate social responsibility.

In addition, technology continues to progress at breakneck speeds. The truck of 2020 will function in ways vastly different than today's vehicle – and telematics and hybridization will be at the heart of these new functions. Furthermore, technology progress is not limited to the vehicles themselves but extends to capabilities that will increasingly be embedded in roads, traffic signals, etc., allowing them to interact with trucks.

In fact, technology progress is rated as the second most important external force impacting the industry today and will rise to the most important in 2020 (see Figure 1). Sustainability, ranked as high as it is, further reinforces the importance of technology. Environmental concerns will force the industry to develop solutions enabled through technology.

Urban development is the external force with the largest projected increase in impact through 2020. Truck manufacturers recognize that continued urbanization will have rippling

What are the most important external forces impacting the industry today and in 2020?



Source: 2009 IBM Truck 2020 Global Study.

Figure 1: Most important external forces impacting the industry today versus 2020.

effects across all segments of the industry, including a continued push for increased regulations. In fact, urban growth will introduce even greater variations between regions, as metropolitan areas create new regulations on noise, multi-modal and restricted usage of heavy vehicles, restrictions on delivery times and routing, tolling and road charges, and limitations on vehicle sizes in various cities.

The truck industry faces monumental change due to a convergence of transformational forces: competition from emerging markets, an evolving workforce, new technologies (from alternative power trains to telematics) and an exponential growth of embedded software.

### Government influences

Among external factors impacting the truck industry, the influence of government is rated among the top four areas today but moves down to six in 2020. This movement is somewhat misleading. Government influences will not diminish in 2020 but rather will be focused on sustainability and urban development, which is reflected in respondents' increased ranking of both of these areas. In essence, today's perceptions of governmental influences are focused on issues of economic stability and emissions and, by 2020, they will shift specifically to sustainability and urban development.

### Long-term consistency, short-term caution

A comparison of data from this study to that of IBM's 2008 light vehicle study, "Automotive 2020: Clarity beyond the chaos," reveals that longer-term views on external influences have not changed substantially.<sup>1</sup> The same categories increase in importance, despite the fact that the automotive survey was conducted prior to the height of the economic crisis.

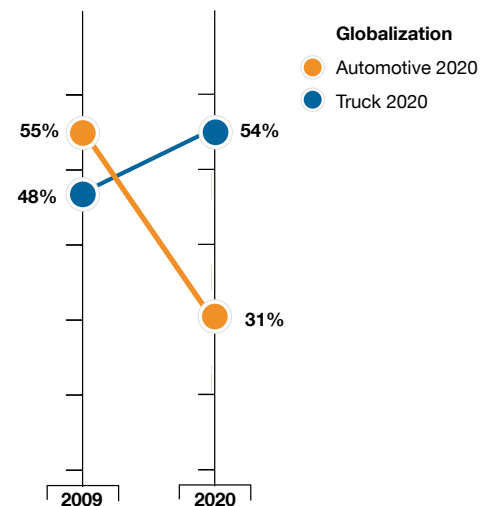
Truck industry executives largely agree that the negative impact of the recent economic crisis will abate and the industry will focus on future growth – but there could be residual effects. Companies that defer investments today leave themselves at risk when growth resumes.

## Resolving globalization

For decades, the truck industry has been both regionally focused and vertically fragmented. Despite efforts to geographically expand and vertically integrate the industry, these trends essentially continue today. Consequently, while the industry is feeling a push toward globalization, the path and speed of that transformation is less certain.

An interesting contrast between this study and the IBM Automotive 2020 Global Study relates to globalization. While both industries identify globalization as an important external force today, the automotive industry sees its impact decreasing by 2020.<sup>2</sup> Truck industry executives, on the other hand, believe its impact will increase (see Figure 2).

*What are the most important external forces impacting the industry today and in 2020?*



Source: 2008 IBM Automotive 2020 Global Study; 2009 IBM Truck 2020 Global Study.

*Figure 2: Globalization's impact on the truck and automotive industries today versus 2020.*

Truck manufacturers are just beginning to establish their global footprint, while light vehicle OEMs have fought the hard battles of platform creation, process standardization and the development of global supply chains. Light vehicle manufacturers predict globalization will be a force with which they will largely have come to terms by 2020 – the blueprint to expansion into emerging economies complete and execution made easier through experience. Truck manufacturers, on the other hand, recognize they have gaps in these areas (see Figure 3).

While some truck industry executives believe they grasp the magnitude of tackling the globalization dilemma, they also believe the majority of industry participants haven't come to grips with the changes required. Global expansion requires consistency of strategy, high levels of investment and, most important, the readiness and financial ability to fail before succeeding.

#### Rate your progress to becoming a globally integrated enterprise



Source: 2009 IBM Truck 2020 Global Study.

Figure 3: Truck industry organizations' progress toward becoming globally integrated.

*“The industry doesn't realize yet how much it needs to change.”*

U.S. truck industry organization

Not every participant in the industry has the resources to iterate through expensive forays into globalization. Product, cultural and customer diversity; divergent regulatory mandates; and industry ecosystems in various stages of development make it a viable roadmap for only a few. To succeed in 2020, today's truck manufacturers must first realize that comprehensive globalization is not the only path to profitable growth. Two discrete options exist: global integration or regional specialization. It's important that industry participants select one of these paths and clearly understand the efforts associated with that choice.

#### Global integration

Much work is ahead for those who seek to achieve a global footprint and realize its benefits. In fact, the expense and effort required to successfully become a global enterprise are substantial and will require enormous investments. Creation of common platforms, a goal that has in large measure eluded the industry, becomes a necessity. Component reuse across all operating units, standardization of designs, an optimal supply chain, global access to talent, and efficient management and financial systems are only the beginning of a list of “must haves.”

Organizations with the resources to successfully implement a globally integrated enterprise can reap big benefits. They can potentially cut costs while optimizing resources and capital productivity on a global basis. In a full-fledged globally integrated enterprise, work flows to places where it can be done best.<sup>3</sup> Such operational efficiency positions an organization to identify and enter new and emerging markets.

To get to this point, however, an enterprise must have a comprehensive operations strategy; piecemeal approaches no longer suffice at this level. Business leaders often stumble when establishing the operational capabilities needed to support global integration.

IBM analysis of diverse leading practice cases reveals a set of clear, replicable strategies to operationalize global integration. This framework emphasizes repeatable processes, optimized assets and integrated operations – all on a global basis and supported by strong leadership, organizational structures and technology.<sup>4</sup> Genuinely globally integrated enterprises consistently deliver against the framework.

### **Regional specialization**

Some in the industry have already made their choice toward all-out globalization. However, there is another path to profitable growth for those who forego global integration. Regional specialization enables OEMs to strategically integrate vertically in the select markets in which they participate. This approach allows them to develop decided regional advantages over global companies.

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*“It is much more difficult to manage between global sites; there is lots of local inertia... this is very difficult.”*

European Truck OEM

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Regulations around sustainability issues remain disjointed across the globe. While the development of economic unions (e.g., European Union, Association of Southeast Asian Nations, etc.) has led to improvements in harmonizing some regulations, disparity prevails at multiple levels. Urbanization, as an example, is driving even greater variation in requirements. Such discrepancies, combined with challenges in aligning organizational cultures, make it difficult and expensive for truck executives to manage dispersed global organizations. As such, regional specialization is very much a winning strategy.

Today’s highly fragmented industry (with dispersed regional and local operators) is fertile ground for specialization. By concentrating efforts toward vertical integration with select suppliers, strategic bodybuilders, dealers and other value-added service providers, manufacturers could obtain a distinct advantage in specific areas.

Bottom line – the key difference is on priority and focus. The question to ask is straight forward: Should one “major” in product rationalization, process commonization and efficiency or in agility and speed to market? By making the choice, truck industry participants subordinate competing priorities. That by no means implies they can ignore them – it merely determines the scope of investments and decisions that flow from a clearly articulated philosophy.

For example, truck OEMs may choose a few distinct markets in which to specialize and then concentrate their efforts on becoming more vertically integrated within those markets. Investments will be focused on a relatively narrow set of markets, fulfillment processes sharply tuned to those markets, enhanced collaboration with regulatory bodies, and product requirements and business models that can be rapidly adapted. For these regional specialists, while component piece price may not be the lowest in the industry, value will be delivered through speed.

**Inevitable transformation**

Regardless of which path is chosen, leaders must be prepared for an organizational transformation. Each path requires clear communication and unwavering commitment, and each path has its own set of challenges.

In addition, all industry leaders need to collaborate to take a proactive stance in shaping the industry. They must work together toward a comprehensive transformation:

- Pursue uniform or harmonized regulations across regions.
- Proactively develop workable regulations for hybrids (before they are developed without sufficient industry involvement).
- Retrofit older, less efficient fleets.
- Work collaboratively with environmental organizations to seek solutions.

**Redefining the brand**

Today’s trucks are becoming increasingly commoditized, due in large part to increased regulations and evolving buying patterns. The actual brand of the vehicle is becoming less and less important as a product differentiator.

OEMs are investing heavily in areas related to regulatory compliance, the result being expensive vehicles that are less differentiated. Ever-increasing financial resources are being spent to create and produce vehicles that are in compliance, which leaves little to invest in product distinction.

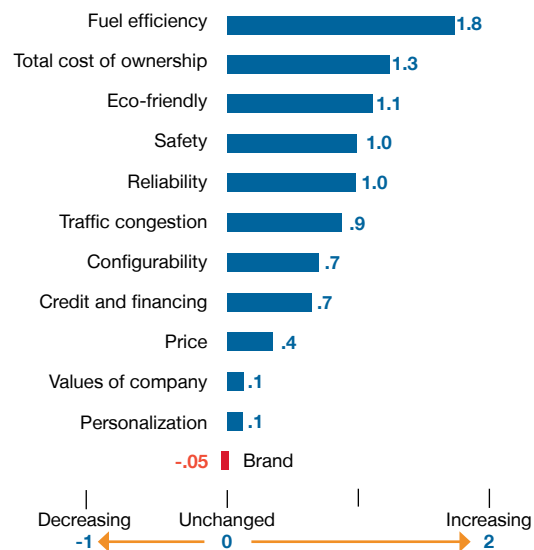
The purchasing patterns of large fleet operators also play a role in the decreasing importance of brand. As the owner/operator becomes less common on the world stage, more and more trucks are purchased by fleet buyers who focus on capability over brand.

*“We spend a lot of money being green and efficient.”*

Indian truck OEM

In fact, brand is the only buying criteria predicted to decrease in importance by 2020 (see Figure 4). And while there are variations in vehicle buying criteria by geography, all geographies are increasingly indifferent to brand.

Rate the change in vehicle buying criteria, 2008 - 2020



Source: 2009 IBM Truck 2020 Global Study.

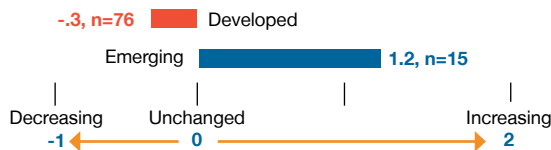
Figure 4: Change in vehicle buying criteria from 2008 to 2020.

There are stark differences in how the emerging and developed markets view brand. Emerging market companies, which are working hard to establish their brand names in the marketplace, rate brand much higher than their counterparts in developed markets (see Figure 5). Developed markets, with established brands, recognize the vehicle is being commoditized and consistently highlight the ongoing difficulty in brand differentiation.

When broken down by industry segment, brand importance still scores low. Fleets, which represent the customer base, are firmly indifferent and see brand importance decreasing by 2020. Suppliers and even the OEMs in developed markets rate brand as a less important buying criteria. This decline in brand value means OEMs must differentiate themselves in a new manner.

To succeed in 2020, truck manufacturers must establish their brands around customer solutions, transitioning from a brand image centered on the vehicle to one that addresses larger transportation challenges. The industry needs to determine how to move from a transactional to a relational model with their customers. Customers want transportation solutions – not simply a truck. This shift provides the avenue through which manufacturers can differentiate themselves. Three areas will play an increasingly prominent role in defining the brand of the future: telematics, serviceability and the creation of specialized bundled services.

#### Breakdown of brand by market



Source: 2009 IBM Truck 2020 Global Study.

Figure 5: Rating of brand by developed versus emerging markets.

*“The current OEM mindset has to change. Customers don’t just need trucks... they want a solution for their business needs.”*

Indian industry group

#### Telematics

Telematics will be an indispensable element of 2020’s truck, impacting everything about the vehicle and its usage. Truck OEMs that effectively integrate telematics to build solutions for their customers stand to successfully differentiate and redefine their brands. These solutions should focus on the areas that most concern customers: service, safety, driver assistance, regulatory compliance and sustainability.

#### Service

Telematics will reduce service time by allowing faster remote diagnostics, prognostic capabilities and proactive servicing. There will be an evolution of sorts in terms of their usage and impact. Today’s vehicle diagnostic techniques typically require the technician to physically connect to the vehicle. However, future telematics capabilities will enable remote diagnostics of a vehicle’s condition and remote patching of software, which will reduce time spent in service bays.

Telematics technology also holds the promise of uptime optimization solutions. OEMs will offer performance analyses and uptime maximization procedures as a service to their customers. New business models will emerge, enabling usage-based revenue opportunities – both for ownership as well as service of vehicles.

### **Safety**

Safety has traditionally been addressed through manual methods and training. However, connectivity to the vehicle will greatly enhance safety by allowing for driver navigation assistance and speed control. Examples may include automated speed control linked to the navigation system to slow a truck down as it approaches a blind curve or application of automated braking. Use of these safety-related features will help fleet owners reduce expensive damage to vehicles, as well as potential exposure to litigation from accidents.

### **Driver assistance, regulatory compliance and sustainability**

Solutions relating to driver assistance, regulatory compliance and sustainability are closely linked. Emerging urban regulations are sure to impose increasing amounts of restrictions on zones accessible to trucks. Notification and management of vehicles to assure compliance to these limits will be enabled by telematics.

The goal to optimize time on the road will also benefit from sense-and-respond mechanisms to locate, route and notify customers. Concepts like geo-fencing – remote and dynamic creation of virtual fences to detect and notify customers of a truck's proximity – will help improve route management and ensure compliance. Efficient navigation, reduction in idle time, use of alternative propulsion mechanisms and methods to achieve optimum speeds all contribute to increased sustainability.

### **Serviceability**

Ever-increasing use of technology in the vehicle is making serviceability an even greater challenge. This challenge provides another opportunity for OEMs to differentiate themselves by offering specialized service options.

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*“There are so many regulations that OEMs are having trouble integrating into the vehicles. It’s creating a service nightmare.”*

U.S. dealership group

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The top three vehicle buying criteria in 2020 – fuel efficiency, total cost of ownership and eco-friendly – all require improved serviceability. Fuel efficiency and eco-friendliness are often at odds, as additional regulatory components add weight to the vehicle, while total cost of ownership considers not only fuel costs, but service and up time.

Dealers are concerned about their ability to service increasingly complex vehicles – and the growth of hybridization, electrification and embedded software will only add to this concern. A transformation of the service domain is necessary as the industry moves toward 2020. OEMs need to build service competencies and become a service outsourcer for their customers. Telematics will play a large role here, with the level of computer-driven diagnostic capability dramatically increasing.

Today's parts management processes are relatively basic, with the overwhelming majority of service done at the dealerships. The future will require a more optimized and flexible network that allows broader visibility and increased service opportunities. OEMs offering services such as mobile diagnostics and service and consignment parts will need more sophisticated parts inventory systems that allow easy access to the right parts in the right locations. As an overwhelming percentage of the

aftermarket business will migrate toward fleet customers, managing a network of consignment parts at distributed locations will increasingly become a requirement. Without a comprehensive redesign, current spare parts management and optimization processes and technologies will become more complex, resulting in lost profit opportunities and decreased competitiveness.

### **Specialized, bundled services**

Tomorrow's OEMs will creatively bundle numerous other services into comprehensive solution offerings. These bundled services will fall into several categories:

- Consulting in the areas of driver education, small business efficiency or carbon management.
- Retrofitting existing fleets for greater fuel efficiencies, hybridization, auxiliary power sourcing, regulatory compliance and engine rebuilds.
- Aligned products relating to alternative energy installations, security services, distributed energy sources, etc.
- Leasing of trucks, trailers, tires, batteries, etc.
- Telematics data providing realtime health monitoring, performance analysis, etc.

This brand transition will require a radical change in how product is sold, as well as a new set of capabilities and skills in the workforce. Truck manufacturers must prepare for improvements in product planning and system integration to bring these solutions to the market.

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*“The industry is just learning how to invest in technology.”*

North American supplier

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### **Enabling technology**

With the substantial role technology increasingly plays in the truck industry, it is somewhat obvious that enabling technology is an industry imperative. More than 75 percent of truck industry executives selected it as the most important external factor impacting the industry by 2020.

The use of telematics undoubtedly requires technological innovation, as do areas relating to sustainability, such as hybridization and alternative fuel. The industry's relationship with the environment will continue to be complicated and high profile. Truck OEMs must be able to respond to the rising demands for environmental accountability – and technology will enable this.

### **Improving efficiency**

Improving efficiency in the vehicle will be a significant focus area for the industry that will require innovative technology. Efficiency-related areas, such as engine and auxiliary systems and powertrain, are rated extremely high among aspects of the vehicle requiring innovation (see Figure 6). To develop tomorrow's alternative propulsion methods – such as hybrid and plug-in hybrid trucks – and improved braking systems, truck OEMs must utilize the latest technologies.

Rate the level of innovation in various aspects of the vehicle by 2020

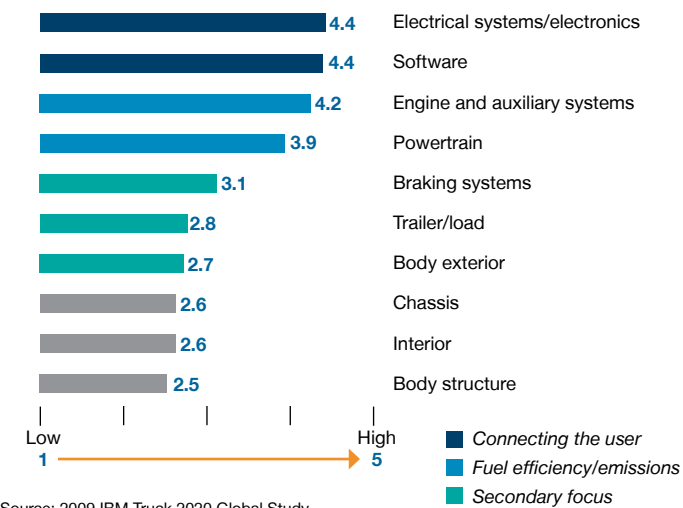


Figure 6: Innovation in the vehicle by 2020.

A combination of technologies in areas like anti-idling, alternative powertrains and retrofitting will lead to improvements in greener truck transport. Today's low-hanging fruit of attaching stand-alone auxiliary power units (APUs) to vehicles to address anti-idling is not the long-term solution. The industry must continue to work aggressively toward hybrid integration to address the needs of 2020 and beyond.

The predominance of technological advances related to hybridization is projected to occur in developed markets. Research in hybrid electric truck technologies is a major focus in the United States, and the progress is promising. The European Union and Japan lead in industry-government collaboration to reduce carbon emissions and are expected to substantially contribute to innovation as well.<sup>5</sup>

Emerging market players have started to move into alternative propulsion and power technologies, but the need to satisfy immediate demand and its drain on resources will limit their ability to lead in the near term. On the other hand, alternative fuels are being introduced rapidly in markets like India.

In the march toward reduction of carbon emissions and dependence on fossil fuels, it is clear that hybridization is here to stay. In fact, plug-in or pure electric powertrains are also emerging in limited perimeter applications, such as ports and in-city deliveries. While it has great promise as a practical alternative, hybridization does have challenges and limitations. Energy density (in batteries) is less of a concern for the truck industry (since packaging is less restrictive than for light vehicles). However, the cost-per-kilowatt-hour challenge will affect the rate of penetration. As cost hurdles are conquered, hybridization and regenerative braking technologies will help redefine the industry.

Alternative fuel technologies will also continue to develop. The use of both compressed natural gas (CNG) and liquefied natural gas (LNG) is growing in many markets, though the refueling infrastructure requirements for both continue to constrain their use. To broaden their application, truck manufacturers must be able to create vehicles that can switch between technologies depending on their location and fuel status.

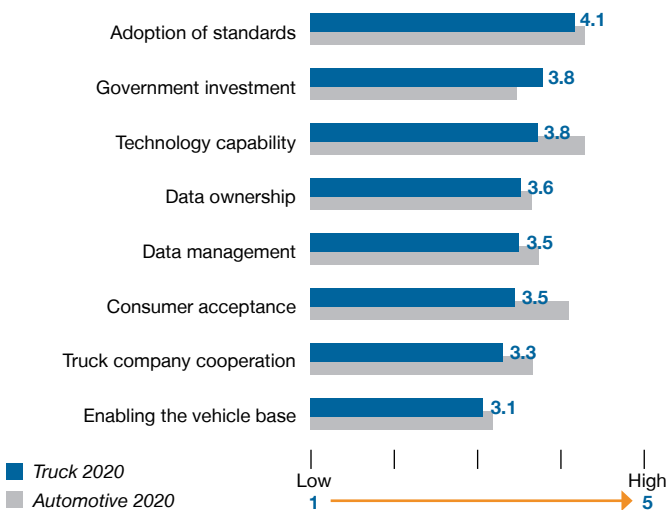
Retrofitting of existing fleets will also require OEMs to utilize the latest technologies, including more advanced particulate cleaners, aerodynamics packages and hybridization. Retrofitting existing fleets is just as important as developing new green vehicles. The industry will not improve its environmental image if it does not demonstrate efforts to clean existing fleets. The perceived lack of environmental responsibility is a reality – and will remain even if it's a disproportionate amount of trucks causing pollution.

**The connected vehicle**

The connectivity of the vehicle and the embedded systems monitoring of its operations will be primary focus areas for OEMs in 2020. That said, there are still barriers to delivering the full potential of the connected vehicle. One of those barriers is technological capability itself – underscoring again how vital embracing technology will be to an OEM’s success.

Much of the promise in making the connected truck a reality is in the hands of the OEMs. Advancement can only be achieved through extensive collaboration. Those in the automotive industry rate the factors in the adoption of the connected vehicle in much the same way as their truck counterparts (see Figure 7).<sup>6</sup> Since they face similar challenges, truck industry leaders and their automotive counterparts must collaborate more aggressively to invest in developing standards and conducting testing where appropriate and practical.

Rate the factors in the adoption of a connected vehicle



Source: 2008 IBM Automotive 2020 Global Study; 2009 IBM Truck 2020 Global Study.

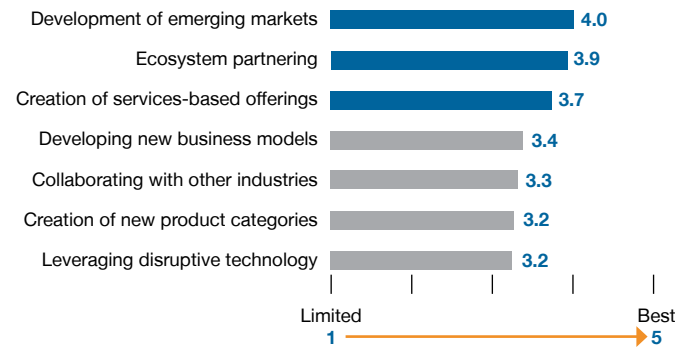
Figure 7: Factors in the adoption of a connected vehicle.

Truck OEMs must not shy away from investing substantially in technological capabilities. It’s these capabilities that will make the connected vehicle a reality and help address the various sustainability issues tied to the industry.

**Enriching partnerships**

Three strong growth opportunities emerge as truck OEMs look to the future: development of emerging markets, ecosystem partnering and creation of services-based offerings (see Figure 8).

Rate the best opportunities for growth by 2020



Source: 2009 IBM Truck 2020 Global Study.

Figure 8: Opportunities for growth by 2020.

**The growth horizon**

The emerging markets (Eastern Europe, Brazil, Russia, India and China) are a complicated area for the truck industry. While numerous sectors and industries are targeting emerging markets as a key growth engine, many truck executives are conflicted about the opportunities in this area.

*“Rushing to emerging markets is less attractive to technology companies, as low cost locations aren’t willing to pay.”*

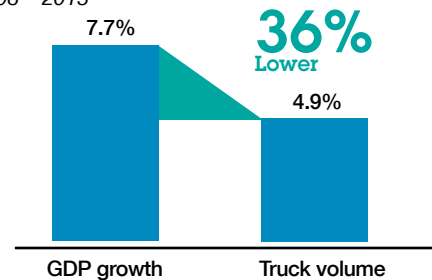
North American supplier

While there is recognition of the economic growth in these markets, not everyone is convinced this is the best growth strategy for many in the industry at this time. Most of the emerging markets face infrastructure challenges that make trucking a less than ideal transportation alternative. Furthermore, because these countries generally don’t have the high levels of regulation that most major markets do, there is no desire or need for buyers to pay for the more sophisticated, expensive trucks that are required and manufactured elsewhere.

However, many of these countries are making investments in infrastructure that will affect the landscape in 2020. China, in particular, is making major investments in both highway and rail infrastructure, with its latest focus on rail. Its large investment in high-speed rail will allow existing tracks to increase freight traffic, which will likely increase commercial traffic.<sup>7</sup> While there certainly will be growth in trucking, it will not be at the same pace or as great as the country’s overall economic growth (see Figure 9).

Services-based offerings are listed as the third-highest-rated opportunity for growth by 2020, further underscoring their importance. Not only is this area key to brand differentiation, it will also serve as a growth driver across all markets, especially the emerging ones. Second-ranked ecosystem partnering will also be extremely important – both as a growth driver and in addressing environmental, regulatory and customer concerns.

China’s projected GDP percentage versus truck volume percentage growth, 2008 – 2015



Source: *BRICs and Beyond*. Goldman Sachs Global Economics Group, 2007; *Strategic Analysis of the Chinese Commercial Vehicle Market*. Frost & Sullivan, October 2009; IBM Institute for Business Value analysis.

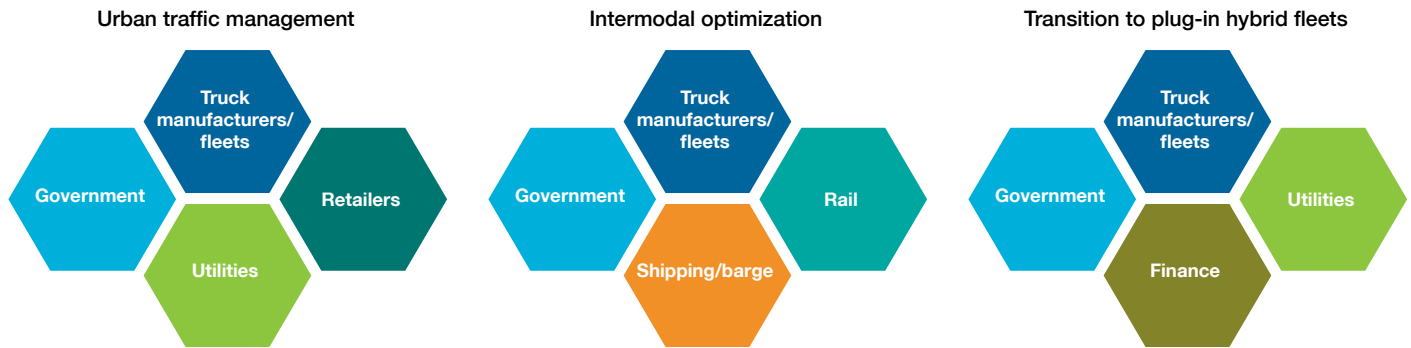
Figure 9: China’s GDP growth versus truck volume.

#### Ecosystem partnerships: Key growth engine

Truck OEMs must step outside their own ecosystem and tap into the innovations that exist in other industries to enable new business models and revenue streams. In fact, new industries will develop to serve as the gears between those industries traditionally not used to working together.

Today’s truck industry recognizes this need to develop cross-ecosystem partnerships. The challenge is to bridge the difference between recognition and execution. During our interviews, many executives struggled with how partnering applies beyond traditional industry boundaries.

How and with whom to build these partnerships will become clearer as organizations decide on their growth strategies and look at some of the prevalent issues facing their industry, such as urban traffic management, intermodal optimization and the transition to hybrids (see Figure 10).



Source: IBM Institute for Business Value analysis.

Figure 10: Industry ecosystem partnerships.

As urban traffic grows, so does the need and opportunity for truck industry leaders to work with city governments and municipalities to develop green transit corridors in urban areas. Truck industry companies should also embrace opportunities to partner with local ports and logistics companies to integrate telematics across transport modes. With regard to hybrids, OEMs should proactively work with government entities to codevelop regulations, while also investigating other potential partnerships, such as with utility companies to create vehicle-to-grid (V2G) systems (see “V2G solution example” sidebar).

Simply put, truck manufacturers need to work in extended partnership with other industries. Other transport modes require effective trucking to be successful – and the truck industry needs strong partnerships to foster growth opportunities. Multimodal transportation of goods is an opportunity – not a threat – to the industry.

#### V2G solution example

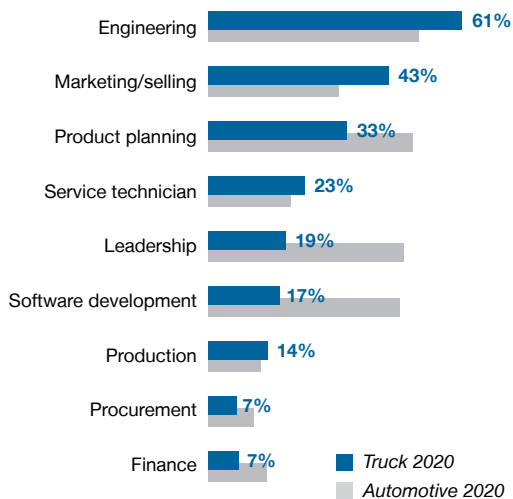
By 2020, trucks could help substantially in leveling daily energy loads through V2G connections that allow power to be sold to the electrical power grid from a hybrid vehicle when it is not in use. For example, school bus fleets that are parked every afternoon could sell energy stored in the hybrid battery back to the grid or, as they are parked all summer, they could harvest solar energy. Similar scenarios could occur with numerous fleets that are idle for predictable amounts of time, including urban delivery, municipal, utility, construction and rental/lease trucks. For this to become reality, truck OEMs must forge the necessary partnerships outside their ecosystem.

## Transforming the workforce

The major changes organizations must undergo to succeed in 2020 will require complimentary changes in workforce. To redefine their brands, OEMs need employees with new skills in the areas of service, electrical engineering and software. And to achieve the kind of partnerships required to drive growth, industry leaders need to drive changes in industry culture. Above all, the need for strong leadership to determine and communicate a path to profitable growth is imperative.

Truck industry executives predict the top three critical skills in 2020 will be engineering, marketing/selling and product planning. However, they overlooked two key areas: software development and leadership. Although they are among the most important future skills, they are not rated highly by truck industry executives. Conversely, automotive executives recognize how critical these skills are in transforming their industry and products (see Figure 11).

Rate the most critical skills for the industry in 2020



Source: 2008 IBM Automotive 2020 Global Study; 2009 IBM Truck 2020 Global Study.

Figure 11: Most critical industry skills by 2020.

Software capabilities will likely increase at a pace even greater than the truck industry anticipates. Organizations need talent to create flexible architectures, align their applications appropriately and keep pace with the evolving software applications required to produce the truck of the future.

Leadership is a basic component for a successful strategic transformation. It is also a key ingredient in fostering changes in corporate and industry cultures. According to a recent IBM study, top management sponsorship is the number one key factor for successful change, followed by employee involvement and honest, timely communication.<sup>8</sup> Strong leaders who will provide strategic direction, clearly communicate and influence change, and remain accountable to employees are essential to the industry's future.

Truck OEMs can take steps now to prepare for the future, such as assessing the workforce to identify skills gaps or limitations. For example, engineering skills remain important but are migrating from mechanical to electrical, which requires realignment.

There will be rough spots, as large-scale change is difficult in highly established industries. Typically, the “soft” factors of change, such as changing mindsets, attitudes and cultures, are much more challenging than the “hard” factors of structure, performance measures and incentives.<sup>9</sup> However, success is possible for those who embrace change – and then chart the bold steps and investments to implement it.

*“This is a very conservative industry that is slow to change.”*

European truck OEM

## An eye to the future

Crises tend to cloud the vision of enterprises. Survival drives tactical solutions to strategic issues. Investments shrink and get directed to urgent priorities. Fundamental change suffers.

Organizations that adapt to change and continue to invest in the future thrive. Those that don't adapt risk losing their competitive positions. These are unprecedented times for the truck industry – managing change across all dimensions is not a matter of choice. In addition to resolving the globalization dilemma, industry leaders must address gaps in brand, technology, partnerships and workforce transformation.

Resolving the globalization dilemma means decisively charting a path toward global integration or regional specialization. At the same time, brand redefinition requires bold moves to comprehend and respond to the needs of the future. Transitioning the brand around services and solutions may create short-term organizational discomfort, but it is a priority for long-term success. Technological innovation and a strong ecosystem of partners will enable the services and solutions at the heart of this new brand. Amid these vast industry changes, a transformation in culture and workforce will require strong leadership through all levels of a progressive truck enterprise.

An industry that has long struggled with both its image and recognition for its contributions to economic growth stands to transform itself. The promise is evident, the course unambiguous and the need unmistakable. Opportunity must not be lost; the time for reinvention is now.

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