Research Insights

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Truck 2030

Digitally reinventing
for the long haul

IBM **Institute for Business Value**

IBM

How IBM can help

Automotive companies today are dealing with a magnitude of enterprise, vehicle, and consumer data never experienced before. They need the ability to manage these disparate sources of data across the enterprise and ecosystem in a highly secure way. Using such data, IBM helps automotive executives provide new services that the connected consumer needs and expects from the vehicle experience.

Our combined strength in manufacturing and depth of global automotive expertise can help address consumer concerns about safety and quality. Innovative technologies such as Watson for analytic capabilities can meet original equipment manufacturer (OEM) and supplier needs, including products and services that are more secure and reliable, to help enable higher brand loyalty and customer satisfaction. Please visit ibm.com/industries/automotive.

By Daniel Knoedler
and Ben Stanley

Key takeaways

Data insights

With an abundance of data, truck companies must leverage meaningful, actionable insights in strategic decision making, operations transformation, and targeted customer experiences.

Platform plays

Platforms facilitate purposeful collaboration and generate additional value for participants in the truck ecosystem. Trucking companies are participating in a variety of platforms, including to manage their assets, business processes, data, fleets, and technology. The ability for companies to quickly engage in platforms is a benefit.

New technologies

Intelligent automation is changing the way enterprises operate by using advances in technology to optimize processes, personalize customer experiences, and enhance decision making. It is one of the most significant drivers of enterprise digital reinvention as businesses move beyond routine process automation to AI-powered automation to transform how work gets done.

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The truck company of 2030

As Bob Dylan so eloquently put it, “The times they are a-changin’.” For the truck industry, this couldn’t be any truer.

What previously was a very singular, manual, labor-intensive process of picking up and delivering a package has been replaced by truck companies implementing logistic processes called capacity-as-a-service, crowdsourced delivery, truck platooning, optimized predictive maintenance, driver/truck/road specific routing, smart cargo, automated driver assist, and the list goes on and on. And this doesn’t even include the transformation that is happening with powertrain and emissions through the electrification of the vehicle.

Thanks to digital technologies such as cloud, artificial intelligence (AI), Internet of Things (IoT), advanced analytics, and machine learning, these and many other truck capabilities and mobility services are available today or are expected to be readily available by 2030.

Many predictions about 2030 support this vision:

- Every person will own 15 connected devices[1]
- The truck-as-a-service market is anticipated to surpass $99.2 billion[2]
- One billion lines of code will be needed for a fully autonomous vehicle[3]
- The universe of sensors will reach 100 trillion[4]
- 80% of commercial vehicles will be connected.[5]

Key findings

$465 billion
of annual revenue will likely shift from **sales to services** by 2030

64%
of truck executives say their organization's future success depends on **digitally reinventing themselves**

$118 billion
will likely be spent to continuously **reskill employees** by 2030

For the next 10 years, technology advancements and customer expectations are the top truck industry influencers (see Figure 1). The availability to tap into a global workforce with the right skills at the right time is also consistently top of mind.

Sustainability requirements are driving the need for green powertrains. Also, green goods transportation concepts integrated into increased virtual shopping experiences are having a direct impact on the truck industry. And new concepts in goods mobility being introduced by non-traditional, outside competition will likely impact current and future revenue streams.

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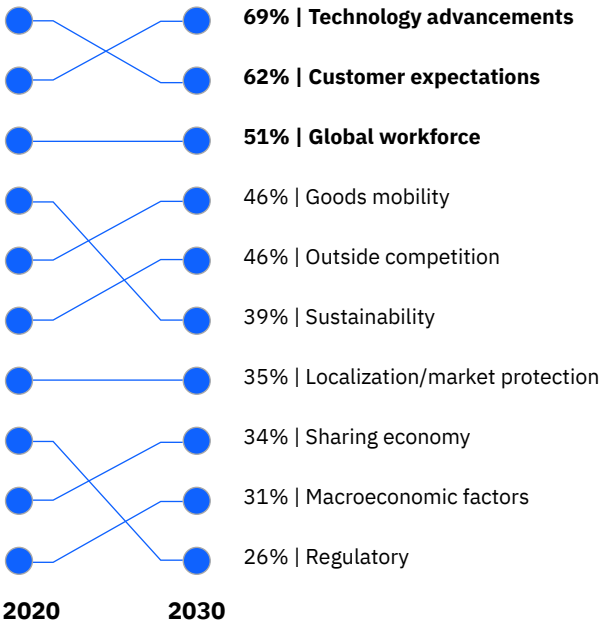
Figure 1

External influencers

Technology advancements, customer expectations, and the global workforce are expected to be the top truck industry influencers for the next 10 years.



Note: lines indicate change in priority
Q: What are the most important external influences that will impact the industry today and in 2030?

Regardless of how quickly the future materializes, one thing is certain—digital technologies, coupled with data, are creating entirely new ways to foster seamless touchpoints with customers, enabling new mobility services for fleet managers and drivers, and uncovering unimaginable opportunities for truck organizations.

The truck company of the future will be different than those of the past. But there are serious questions truck executives need to answer. How can a truck organization reinvent itself like a high-tech company that centers its business on digital and data? What role will truck companies play in goods mobility beyond their traditional role of simply moving freight? How will truck companies attract, retain, and continuously reskill their workforce to deliver on the promises of the future?

To answer these and many more questions, the IBM Institute for Business Value (IBV) conducted the Truck 2030 Executive Survey of executives from companies that include commercial vehicle manufacturers and ancillary manufacturers (bodies, trailers, engines, utilities, and the like). Included in this survey were 1,320 executives from 1,188 companies. (see "Methodology" on page 23).

Within this group of executives, we identified a subset called the Visionaries (see "Perspective: The Visionaries"). These executives have a strong understanding of their business and digital strategies, and their companies have performed better than their peers in revenue growth and profitability over the past 3 years (2017-2019). This group demonstrates a higher level of understanding and need for the digital reinvention of their organizations compared to the rest of the survey population we call the Others.

64% of all respondents surveyed say that digital reinvention is required to succeed—or even survive—today and in the future (see "Perspective: Digital reinvention"). The Visionaries, like the Others, are early in their digital reinvention journeys, with both groups saying they are about 36% complete.

But what sets the Visionaries apart is their sense of urgency and readiness. 53% more of the Visionaries have a high degree of urgency compared to the Others. And 112% more believe their organizations are ready to digitally reinvent their enterprises.

For the Visionaries, the time is now—for the Others, it's time to catch up.

Perspective: The Visionaries

This group makes up 12% of the total survey population.

- 60% are commercial vehicle manufacturers
- 40% are ancillary manufacturers
- They represent 29% of the total revenue of surveyed companies
- They represent 27% of total employees of surveyed companies

Perspective: Digital reinvention

Digital reinvention provides a path for commercial vehicle organizations to create exceptional experiences, innovative strategies and business models, new ways to work, and new expertise, either in-house or through ecosystem collaboration.

- *New experiences:* Powered by digital and data, consumer desires are driving new expectations and business models in goods mobility, new capabilities for fleet management, and new personalized experiences for the operation of the truck itself.
- *New focus:* Digital innovation continues to be paramount for truck companies to differentiate and will open up new routes to growth and brand loyalty.
- *New ways to work:* Platforms, intelligent automation, and data and digital technologies such as artificial intelligence (AI), cloud, and Internet of Things (IoT) will power responsive operations leveraging new work strategies.
- *New expertise:* The race to digital reinvention requires a strategy that addresses the need to reskill internally. Organizations could fill skill gaps through new hires, outsourcing, and even purchasing technology companies—all while leveraging an extended ecosystem.

"Digital reinvention will lead us in this new era of technology and help us in obtaining relevant measurements for continuous improvement."

Sr. Executive, Digital Services, Japan

New experiences

Current global freight volumes are estimated to grow by 70% over the next decade.[6]

New logistics concepts, such as truck platooning, driver/load share, and capacity-as-a-service are giving fleet owners new opportunities to optimize their fleets and improve their operating performance. Smart freight can self-identify and self-monitor, which is important for product tracking, environmental sensing, and problem detection and resolution.

In-vehicle digitization coupled with AI is enabling optimization capabilities such as booking and route optimization, remote diagnostics and predictive maintenance, and vehicle and driver monitoring. These smart capabilities improve asset utilization and driver behaviors.

In-vehicle digitization and AI also enable new personalized experiences for drivers. Mobility services like driver assist and emergency services, natural language digital assistants, and integration with the driver's personal devices can elevate the experience of driving. The role of the driver may even evolve to include other logistical operations of successfully transporting and delivering freight as the vehicle takes over more of the driving responsibility.

Finally, the maturation of automated and autonomous vehicles could address such industry challenges as driver shortages, total cost of ownership (TCO), safety, and theft. Advancements in autonomous systems, inter-vehicle communications, and intelligent infrastructure integration can help improve traffic congestion and flow, reduce delivery delays, and provide the ability to anticipate and respond to changing customer requests.

This means that truck companies have to live and breathe the business of their customers. They must think more in categories of ecosystems and transport or logistics platforms. For example, Mercedes-Benz's digital sales assistant, VanSeller, provides an intuitive configuration for new light commercial vehicles, based on customer requirements, at the point of sale.[7]

Customer loyalty

49% of surveyed executives say customized customer experiences, enabled by digital technologies, will be an important competitive differentiator for 2030. The challenge truck executives face is satisfying expectations from two customer segments—fleet owners and individual truck drivers.

Experiences that address fleet owner needs could include fleet services, vehicle efficiencies, and driver performance, while driver experiences might include automated driving features, mobility services, and personalized vehicle configurations. Providing exceptional experiences for both groups is important for company success.

The Visionaries isolate brand value and a diversified product and services portfolio as competitive differentiators that will contribute to fleet owner loyalty. 26% more of the Visionaries see brand value as a way to differentiate and 22% more are focused on diversified products and services as a way to separate from their competition.

Vehicle, driver, and fleet management capabilities and services are differentiating attributes expected to contribute to fleet owner loyalty, according to industry executive we surveyed. Digital technologies such as AI, IoT, and cloud can fuel many features and services that address these areas. Figure 2 shows the priority of differentiating attributes that executives identified.

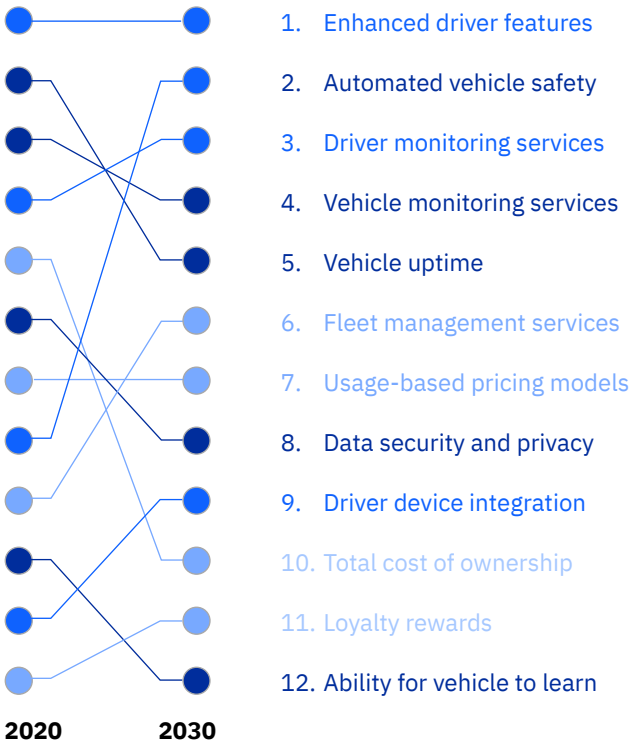
Enhanced driving features are the top priority for both 2020 and 2030. Vehicle-focused attributes such as monitoring and uptime tend to have a higher focus in 2020. Automated vehicle safety significantly increases as technology advances over the next 10 years. And the total cost of ownership decreases as vehicle reliability and efficiency improves and the industry moves to more usage-based models.

Drivers will continue to be critical participants in goods mobility. 62% of the Visionaries and 46% of the Others expect delays in the rollout of truly autonomous commercial vehicles.

Figure 2

Fleet owner loyalty

Enhanced driving features are a top priority for creating fleet owner loyalty in both 2020 and 2030.



Note: lines indicate change in priority
Q: What will be the most important differentiating attributes for creating fleet owner loyalty to a vehicle brand by 2030?

To meet driver expectations, truck companies will likely need to deliver digital products and services that focus on vehicle usage and driver personalization (see Figure 3).

Industry executives indicate that vehicle usage capabilities are the highest priority. At the top of the list for both 2020 and 2030 is vehicle features that promote driver safety. Value-added mobility and emergency services are also a high priority today. From a driver personalization perspective, data security and privacy and integration with the driver's personal devices are important.

Looking out to 2030, automated driving features and digital assistants with natural language capabilities will likely increase as digital technologies mature. Emergency services, which had the second highest priority in 2020, drops in priority in 2030, mainly due to the introduction of more automated technologies designed to make trucks safer.

Trucks will be able to "recognize" drivers and personalize content displayed to them. Trucks will also continuously learn and offer new suggestions based on driver interests. For drivers who are health conscious or have a medical condition, the truck can monitor their health, alert them of issues, and share the information with other health-related devices.

It is interesting that executives prioritize the driver personalization features in the lower half of the list in 2030. As we learned in our Automotive 2030 study, personalized capabilities and integration into other aspects of the driver's life are critical to future driver loyalty.[8] Truck executives may want to put more emphasis on the driver experience features for the future to enhance driver loyalty.

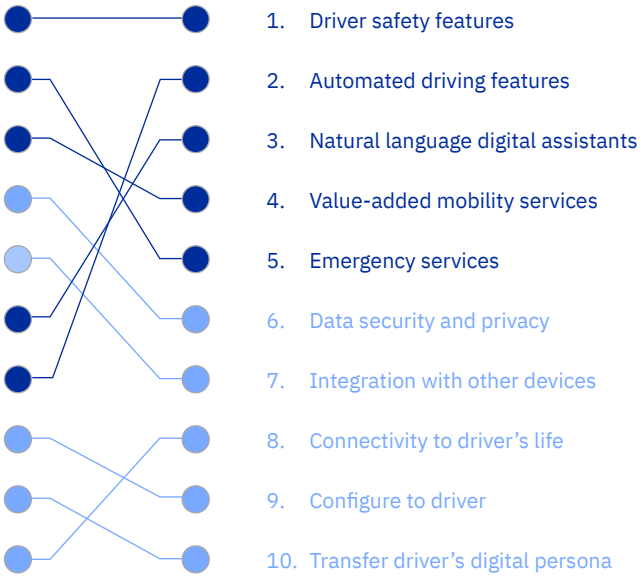
"Customization can provide a better customer experience and be the competitive edge for business. Loyal customers play a major role in business success."

Chief Marketing Officer, United States

Figure 3

Driver owner loyalty

Features that promote driver safety are a top priority for creating driver owner loyalty in both 2020 and 2030.



Vehicle usage focus | **Driver personalization focus**

Note: lines indicate change in priority
Q: What will be the most important differentiating attributes for creating driver loyalty to a vehicle brand by 2030?

There are significant opportunities for fleet owner and driver loyalty through the generation and use of vehicle data. One estimate has an autonomous vehicle, driven an average distance, generating more than 300 terabytes (TB) of data per year.[9]

For most of the Visionaries, the importance of data is high. 76% compared to 51% of the Others say truck data will directly contribute to vehicle diagnostics and maintenance. For instance, Volvo Group uses the vast amount of data it collects to predict truck parts and repair needs before a truck arrives for service.[10] Fleet management services will also be a significant beneficiary of data according to 72% of the Visionaries and 57% of the Others.

60% more of the Visionaries in our study indicate data will significantly contribute to driver assist features. And for creating a more personalized in-vehicle experience for features such as personalized configurations and personal device integration, 52% more of the Visionaries than the Others say data is very important.

Truck companies will also benefit from vehicle data. The Visionaries (77%) have a higher expectation compared to the Others (52%) that data will provide high value to uncover new revenue streams. And adjacent industry products and services will be greatly enhanced by data according to 65% of the Visionaries versus 47% of the Others.

New focus

For the truck industry, traditional truck sales and aftersales have been the industry mainstay. Truck companies have built large and successful businesses supporting the transportation industry. Over the next 10 years, the global trucking industry is expected to grow at a modest 5% compound annual growth rate (CAGR) to reach a market value of $5 trillion.[11]

Overall truck freight tonnage in the US alone is expected to grow 21.4% to 14.2 billion tons between 2019 and 2030.[12] Increased desire for consumer online shopping, vehicle technology advancements, and innovative goods mobility models are contributors to this.

While the traditional truck sales model continues to be a valid option in 2030, there are growing opportunities for truck companies to exploit new routes to growth through fleet services, goods mobility, and other emerging revenue channels. These alternatives can help truck companies diversify their revenue portfolios and reduce the reliance purely on truck sales. They also help truck companies tap into new sources of revenue that digital technologies have enabled and nontraditional companies are exploiting.

Innovation is the differentiator

For truck companies to differentiate their brands, innovation continues to be of paramount importance. 67% of respondents say innovation is one of the most significant attributes for defining their competitive advantage, both today and in the future.

The Visionaries and the Others say the importance of innovation drives reinvention across multiple aspects of the business, although the Visionaries have much higher expectations. The largest difference of opinion was the need for *industry model innovation.* 52% more of the Visionaries believe this is important to redefine or even create new industries, which the use of digital technologies offers them.

Enterprise model innovation produced the smallest gap in thinking between the two groups. 39% more of the Visionaries say it is highly important for companies to determine what is core to the busines and identify the different roles they want to play in the multiple ecosystem networks.

In other areas, 45% more of the Visionaries say s*trategy innovation* is critical to creating the agility to address rapid change and opportunities. Strategy innovation is also critical as companies explore and pilot new business models for fleet services, mobility services, and data.

39% more of the Visionaries say *process and operations innovation* is very important for companies working to create more operational efficiencies. Of course, *products and services innovation* remains high, with 42% more of the Visionaries identifying it as a key driver of success.

Finally, 42% more of the Visionaries than the Others say innovation will play a strong role in new *revenue model innovation*. This is especially true as truck companies expand their portfolios beyond traditional truck and aftermarket sales.

"Innovation will help us to strive through rapidly changing environments, making it the biggest competitive advantage by 2030."

Chief Financial Officer, Brazil

New routes to growth

Technology advancements are creating new customer expectations, and alternative goods mobility models and the sharing economy are enabling new opportunities for growth. At the same time, new nontraditional competition is entering the trucking ecosystem, leveraging digital technologies to create new business models and new ways to move goods around. For instance, MacroPoint is a freight visibility platform that provides carrier sourcing and capacity matching capabilities.[13]

The Visionaries have taken notice and now realize if they don't reignite their entrepreneurial passion, they might be left in the dust. 75% say an entrepreneurial mindset is required for developing new ideas that significantly contribute to the success of their company, compared to 58% of the Others.

When asked which routes to growth are most viable, the Visionaries rate targeting new customer segments and creating new fleet services offerings at the top (see Figure 4). They also see investing in new business models—and for global companies continuing their push into growth markets—as critical. And conversely, truck companies based in growth markets are making their presence known globally.

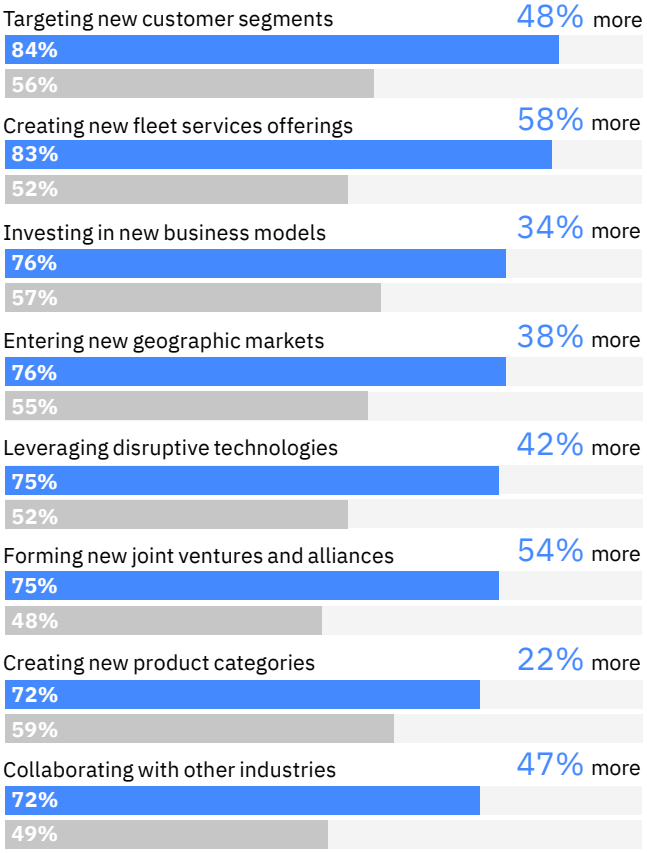
When we analyzed responses in specific locations, executives in Brazil (75%), Germany (68%), and Sweden (65%) rated "targeting new customer segments" as their top opportunity for growth. "Creating new product categories" was the top opportunity for Japan (76%), the US (69%), China (63%), and Italy (50%). Finally, India (62%) rated "investing in new business models" as its best choice for growth opportunities.

The explosion of on-demand goods mobility and associated services over the past several years—and the expectations for other services in the future—is creating new revenue stream possibilities for truck manufacturers. To determine the potential impact on overall revenue pools, we asked truck executives how their revenue portfolios could change between now and 2030.

Figure 4

Routes to growth

Targeting new customer segments and creating new fleet services offerings are the top routes to growth.



Q: To what extent do you agree that the following represent growth opportunities for your organization looking toward 2030?

We delineated the revenue portfolio into four groups: traditional truck sales; aftermarket sales; fleet services; and other services (for example, captive finance and insurance).

Truck executives predict a significant shift between annual sales and services revenue over the next 10 years (see Figure 5). Of the $5.8 trillion in total annual revenue of respondents in our survey, $4.5 trillion (78%) is attributed to truck and aftermarket sales with the remaining $1.3 trillion (22%) coming from fleet and other services in 2019.

By 2030, executives expect their fleet services revenue to be 32% greater than today, and other non-sales services to be 43% greater. This would result in a $465 billion shift from annual traditional sales to new services (not including any industry growth or decline) by 2030. While this shift to services creates opportunities for new revenue streams, it also attracts competition from nontraditional companies looking to tap into this market.

New ways to work

Today's truck manufacturers face intense competition. Successful organizations are adapting new business models, agile processes, rapid releases, and a laser-sharp focus on the customer.

75% of the Visionaries say incorporating new ways to work will be important for the success of their companies compared to 56% of the Others. These include integrating design thinking, co-creation, agile processes, and data-driven decisions into their organizations' cultures. And 76% of the Visionaries agree that promoting agile and flexible business processes and technical architectures are critical to their success, while 55% of the Others agree.

The ability to build dynamic cross-functional teams that can quickly learn from market experiences is important for 78% of the Visionaries and 52% of the Others. 81% say agile teaming will foster the ability to rapidly transfer skills and knowledge development as an idea transitions from pilot to production—53% more than the Others.

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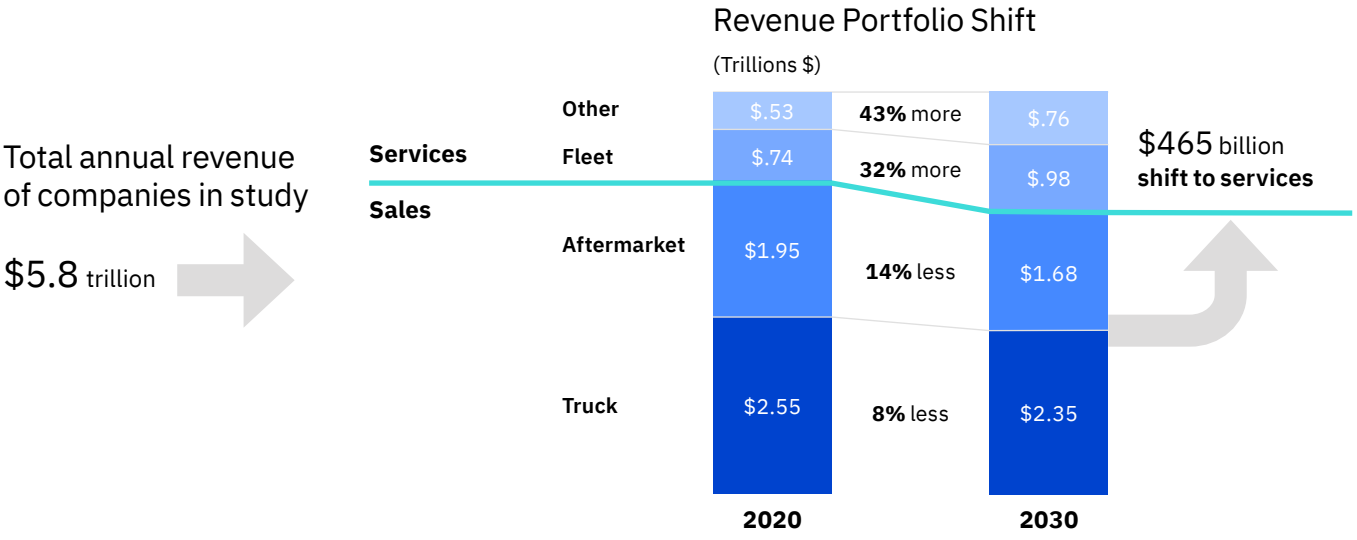
Figure 5

Revenue pools on the move

By 2030, truck executives expect their fleet services revenue to be 32% greater than it is today.



Dynamic, cross-functional teams are not bounded by the organization. In today's world of rapid development and co-creation, these teams need to expand beyond the organization into the ecosystem and even cross-industry. Companies that have traditionally been fierce competitors are now collaborating to quickly bring new fleet and mobility products and services to market. Often, these products and services would be too time-consuming and costly to pursue separately.

Partnering through platforms

The Visionaries have a greater sense of the value digital platforms can bring to their organizations. 80% say platforms enable greater innovation of products and services versus 58% of the Others, while 78% say platforms enable greater personalization for the consumer, 42% more than the Others.

77% of the Visionaries (58% of the Others) say platforms facilitate greater value from data and information, and 73% believe platforms contribute to lowering industry barriers of entry. Finally, the Visionaries (75%) say digital platforms drive greater collaboration and trust between partner organizations, compared to the Others (57%).

Five types of digital platforms are providing value today (see "Perspective: Driving new growth with five types of digital platforms"). Business, technology, and fleet platforms are the most active digital platforms (see Figure 6). This fits with the product-focused business model that the industry currently embraces but also supports the desire to create more services.

As we look toward 2030, we see that fleet platforms continue to grow, and data and asset platforms become more relevant. This supports the shift to a greater digital focus that creates customized experiences with customers—and takes advantage of the huge amounts of data accessible to truck companies.

Perspective: Driving new growth with five types of digital platform

- *Business platform.* Creates integrated environments that support and enable ecosystems to operate.
- *Asset platform.* Provides or manages physical assets used for production either within supply chains or networks or other critical activities within ecosystems.
- *Technology platform.* Provides technological capabilities that cannot be sourced affordably elsewhere.
- *Experience platform.* Creates and orchestrates the end-consumer experience.
- *Data platform.* Provides critical or essential data in the ecosystem.

“Creativity, technology, and data will become the foothold of our marketing culture and will lead to value creations in the next 10 years.”

Senior Executive, Marketing/Sales, India

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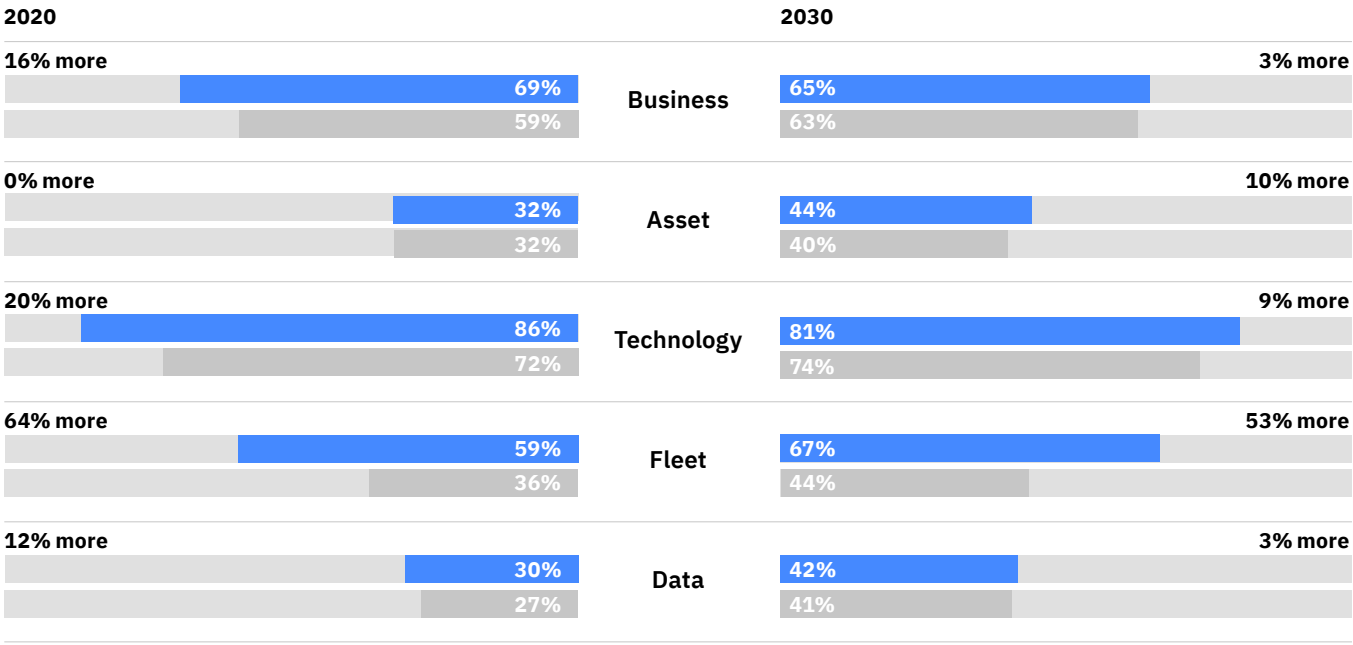
Figure 6

The platform play

Business, technology, and fleet platforms are the most active digital platforms.



Q: On which platforms do you operate today and which do you expect to operate on in 2030?

But today, the use of multiple platforms remains relatively immature for the Others. While 62% of the Visionaries are operating or participating in three to four types of platforms, only 35% of the Others are. The Others need to accelerate their use of multiple platforms to take advantage of the products, services, and expertise that a greater number of partners in a broader ecosystem can provide.

Total revenue flowing through platforms for companies in our survey is $1.1 trillion (see Figure 7). Business and technology platforms account for about two-thirds of the revenue today, with asset, fleet, and data platforms making up the other one-third.

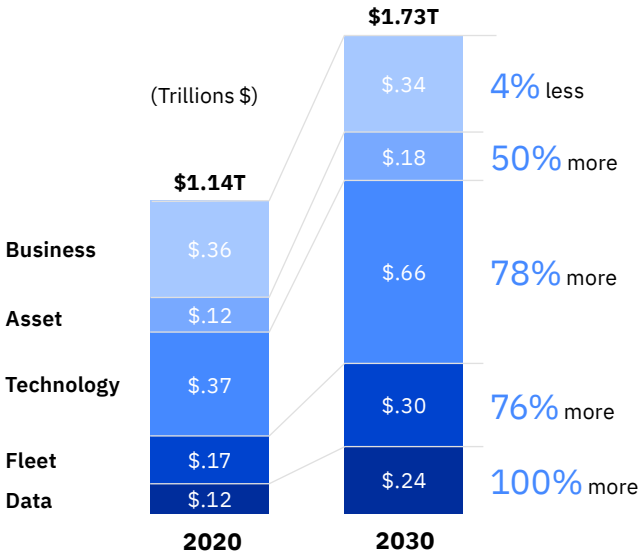
By 2030, executives expect platform revenue to grow by 51% to $1.7 trillion. Data platform revenue will likely double, and technology and fleet revenue will grow three-fourths more. Business platform revenue will likely decline slightly as more emphasis is put on the platforms associated with the vehicle and mobility services.

To enable this, executives estimate the total annual IT budget dedicated to platforms to be $10.4 billion by 2030. This is a 46% increase in the investment budgets for platforms today.

Figure 7

Revenue split by platform type

By 2030, truck executives expect platform revenue to grow by 51% to $1.7 trillion.



IBV analysis based on Q: What percentage of the revenue you derive from platforms comes from each platform type?

"Data insights can reduce the chances of risks and is excellent in understanding customer requirements and making informed decisions."

Chief Financial Officer, Sweden

Intelligent automation

Today's operations must be dynamic, responsive, and interconnected to an organization's ecosystem and workflows. This requires end-to-end enterprise visibility, real-time insights, and decisive actions.

Truck manufacturers that leverage intelligent automation to build these capabilities are poised to address challenges today in workforce productivity, supply chain challenges, and customer service disruptions. At the same time, intelligent automation also positions them for the future with operational efficiencies through intelligent workflows.

Intelligent automation allows employees to focus more time on customer-related priorities and dramatically enhances an enterprise's ability to respond, adapt, and thrive in an everchanging competitive landscape.

Organizations that build a robust automation program combine a broad set of technologies—including robotics, bots, and devices—with AI capabilities such as machine learning, natural language processing, augmented intelligence, and computer vision and hearing. A blend of the appropriate technologies for the task at hand supports intelligent workflow efficiencies but can also help drive revenue and profit.

Both groups of survey respondents agree that intelligent automation provides customer experience benefits as well, with 63% of the Visionaries compared to 56% of the Others agreeing. Improved decision making is another beneficiary of intelligent automation according to 65% of the Visionaries versus 56% of the Others.

When asked which use cases would contribute most to their company's success, executives could see applications in multiple areas of the business (see Figure 8). For instance, automated workflows can impact revenue by enabling businesses to proactively meet customer needs seamlessly and consistently.

Automated workflows can also impact operational costs by eliminating redundant work and errors due to lack of governance. Mahindra & Mahindra streamlined and automated its electrical and electronics engineering process, enabling seamless management of product innovations from requirements definition to delivery.[14]

Field service and training with augmented reality can be achieved with real-time delivery of instructions and visual aids to technicians when scheduled maintenance on trucks is required. And connected products with intelligent assistants can provide insights and guidance to shippers, fleet managers, and drivers.

Obviously though, an important strategic outcome of automation is the ability to reduce operational costs. 56% of the Visionaries and 49% of the Others strongly agree with this. Executive estimations of the accumulative amount that annual operating costs can be reduced is $638 billion by 2030.

“Digital reinvention gives a new strategic focus, builds new expertise, and establishes new ways of working—it will be the most important competitive advantage in 2030.”

Sr. Executive, Marketing/Sales, Japan

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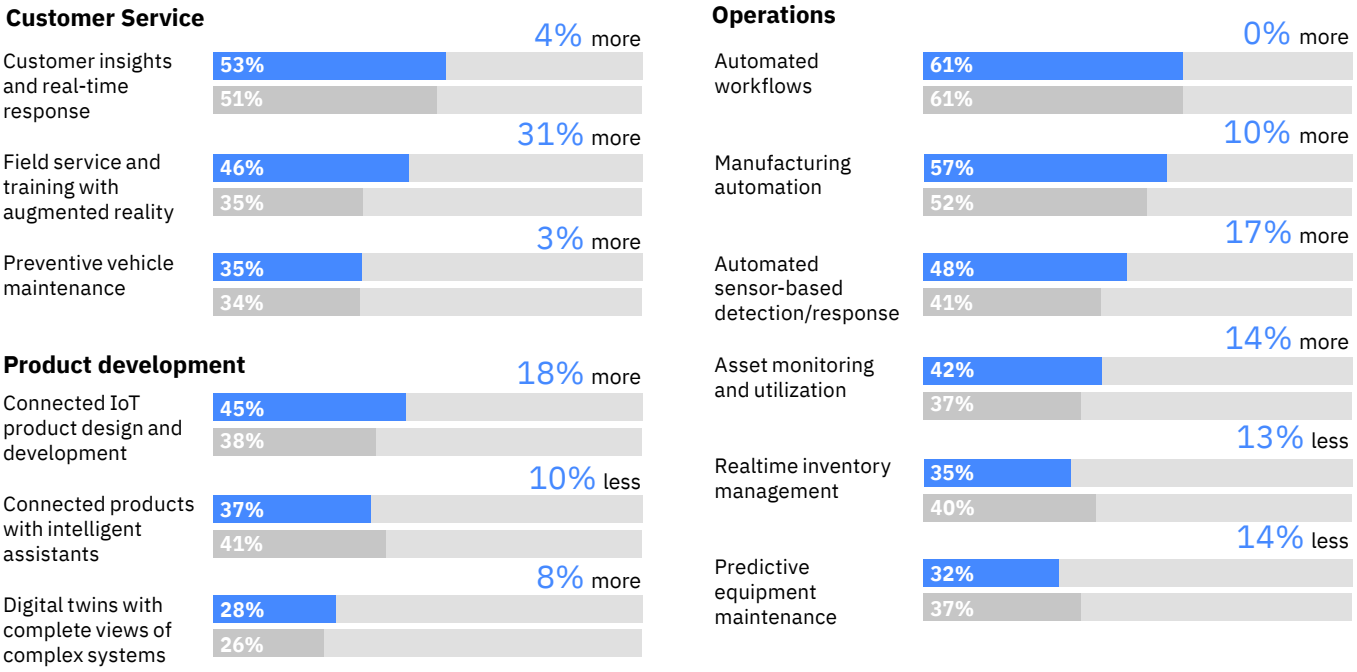
Figure 8

Potential automation use cases

Automated workflows, customer insights along with real-time response, and manufacturing automation rank the highest for company success.



Q: Which of the following intelligent automation use cases are most important to the success of your company over the next 10 years?

Data-driven strategies

Truck companies are sitting on a treasure trove of data—data generated by their businesses, products, services, customers, and other external sources. The potential uses of this data are tremendous—from greatly improving industry and company practices to customized customer products and services.

For the Visionaries, the strategic value of data is high. 75% agree that data provides high value in defining the enterprise strategy and vision compared to 56% of the Others.

The Visionaries see many other areas where data can deliver high value—both in revenue growth and operational efficiencies (see Figure 9).

From a growth perspective, sharing data among ecosystem partners can uncover previously undetectable opportunities. Data can expose new insights that can be used in defining and testing new business models, such as how drivers engage with trucks while driving them, and new services that fleet owners could offer.

Data can also be used to create opportunities in other industries. As trucks move around, they can collect data on road conditions, weather, and traffic. This data could be used by other industries to develop new products and services. And creating customized services for customers can drive brand loyalty.

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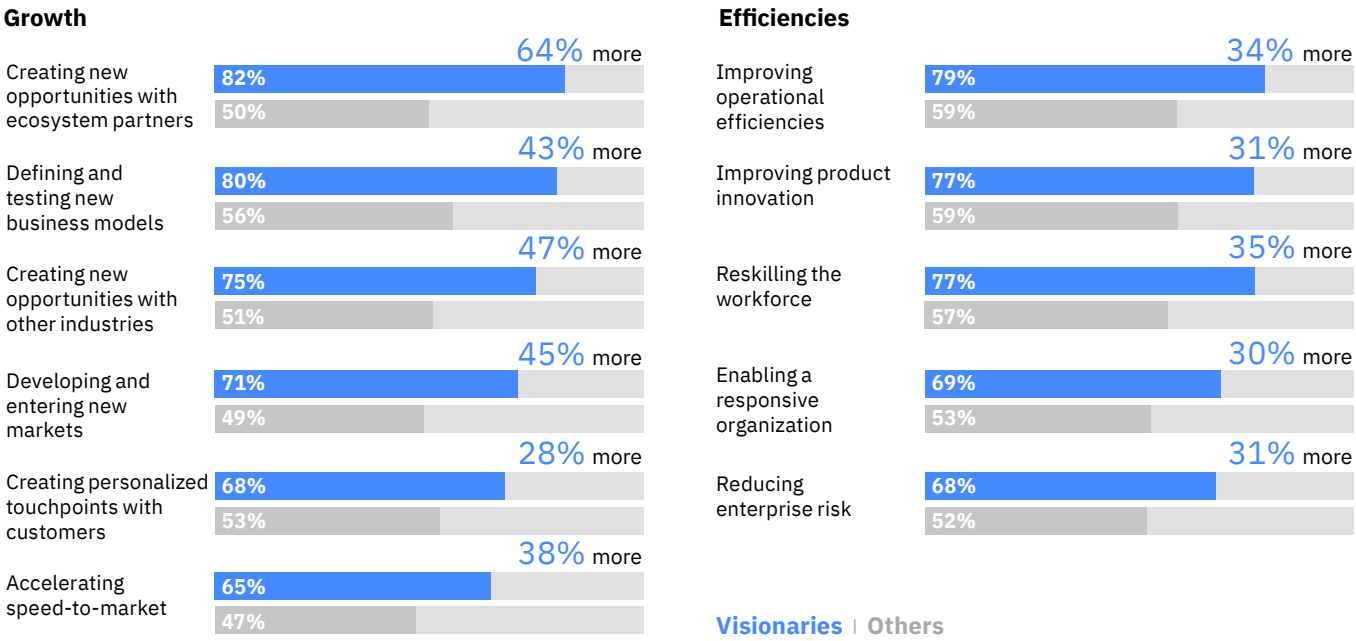
Figure 9

The power of data

Data can deliver high value, both in revenue growth and operational efficiencies.



Q: To what extent will data help your enterprise create a strategic advantage in each of the following areas?

"With manufacturing automation, we are reducing our operating costs and optimizing workflows so it will be the most significant value creation for us in the next 10 years."

Senior Executive, R&D, Japan

Data can also enable efficiencies. AI-derived insights can drive efficiencies in manufacturing, such as improved workflows, predictive maintenance, and supply chains issue detection and response. Product innovation can be enhanced through performance data being fed back to engineers.

Data can also be valuable in uncovering skill gaps and providing personalized training for skills enhancement. And timely, actionable data insights can help an organization be more responsive to business and customer needs.

The Visionaries are having greater success in accessing different types and sources of data for creating actionable insights. 77% strongly agree that their company extracts and links data from multiple sources—43% more than the Others. These sources could include IoT devices in plants, vehicle sensors, and cameras or dealer technician reports that include handwritten analysis.

72% of the Visionaries believe their companies are instantly accessing data in real time—31% more than the Others. 70% say their organizations access both structured and unstructured data from a variety of sources, which is 46% more than the Others.

Also, 77% of the Visionaries say they are finding ways to monetize their data, compared to 44% of the Others. Finally, the Visionaries see data as a strategic asset and are protecting it. 72% are applying data governance and security practices versus 48% of the Others.

Powered by data, truck organizations can reinvent themselves through digital technologies. Organizations can mine data insights from virtually all business facets, including data that describes how products and services are used and data provided by customers, to facilitate deep context and insights. These can support new growth for companies and new experiences for both employees and customers.

Dominance of digital

Six out of ten of the Visionaries agree that some truck OEMs will significantly outsource their vehicle production operations to focus on becoming digital companies, versus five out of ten of the Others.

Digital initiatives are expected to bring high value across the business functions of the organization and those functions directly impacting the customer. 59% of respondents say digital technologies will drive high value in deploying customer experiences. Business processes and workflows will benefit according to 57% of our survey respondents. 55% indicate manufacturing automation is a perfect candidate for technologies such as IoT, AI, and software-based robotic process automation.

Digitized products and services enable the brand transition from functions and features to experiences for 51% of respondents. New personalized products and services can be offered in a subscription or pay-as-you-use model, for instance.

47% of survey respondents expect new business models to be enabled through digital initiatives. The opportunity to integrate the truck with other aspects of a driver's life opens the door to new business models in industries such as insurance, finance, and health.

Actionable insights into the movement and condition of materials and goods throughout the supply chain allow companies to proactively predict and respond to issues—instead of reacting after the fact. And technologies such as virtual and augmented reality and wearables assist workers in finding new ways to improve and optimize the plant floor.

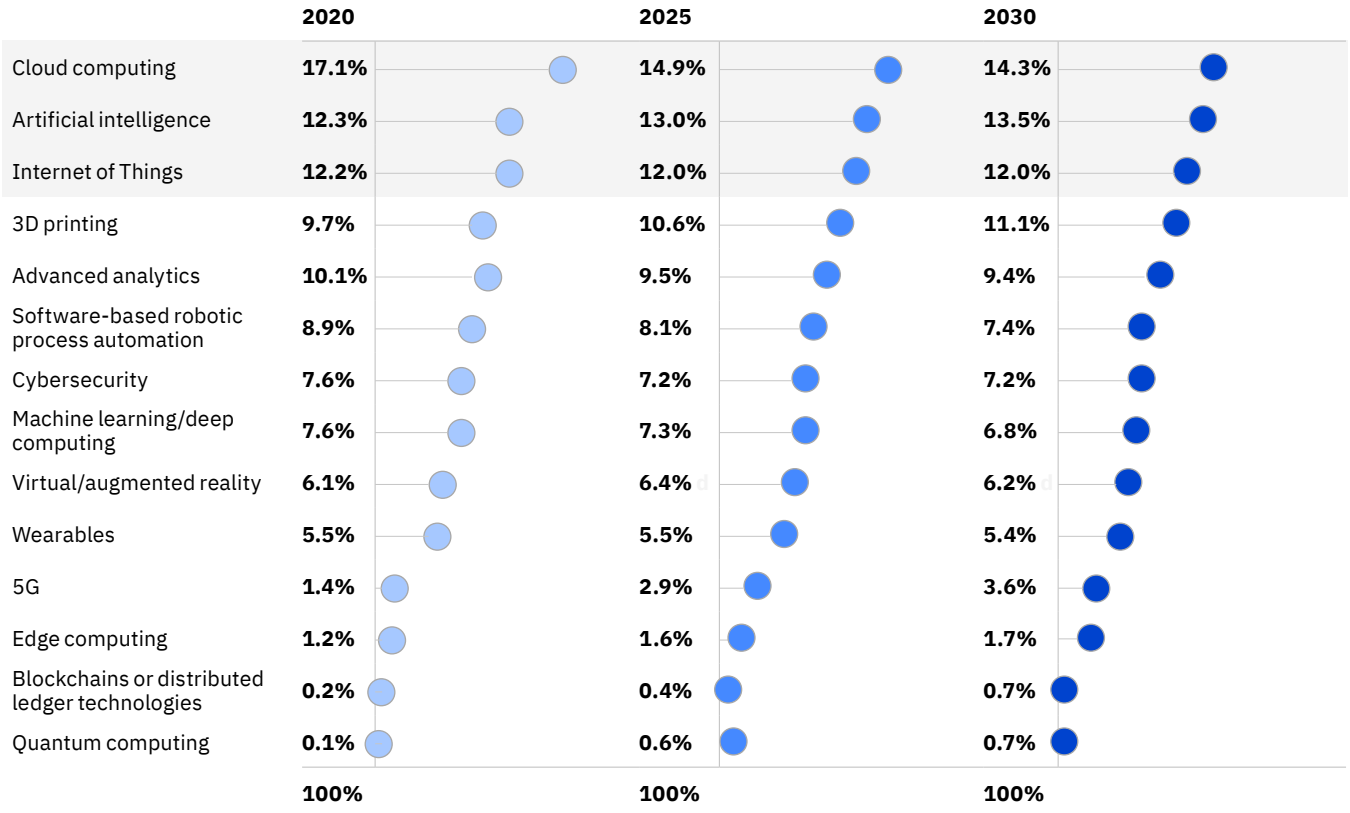
When asked how they see their organizations allocating their investments in digital initiatives over the next 10 years, executives cite cloud computing, AI, and IoT among their highest investments (see Figure 10).

In addition, with improvements in printing technologies and materials, interest in 3D printing is growing. Its potential for use is expanding beyond just creating prototypes for low-volume production and re-manufacturing. For instance, Volvo Truck's Vulcan project looked at how the design of a truck engine can be improved through 3D printing.[15]

Figure 10

Digital investment

Cloud computing, AI, and IoT are cited as the top digital technologies demanding investments.



Q: Of the total amount of investment planned for the following digital technologies, what percentage will be applied to each to enable your strategic goals?

The arrival of 5G technologies means faster vehicle connectivity and the facilitation of high-speed video that demands heavy bandwidth. Even an emerging technology, quantum computing, is expected to see an increase in investment over the next 10 years.

One surprising area where planned investment is very low is blockchains. With its ability to track material source, part traceability, and vehicle lifecycle usage, blockchains should be an essential element in a company's digital strategy.

This is especially important for sustainability. Having a trusted record of truck components and hazardous materials, such as batteries, can make the dismantling and disposal of the truck much easier.

Executives expect their digital technology investments to deliver a financial return, with an anticipated average return of 35% over the next 10 years. This could lead to investments in other strategic initiatives that support the digital reinvention of the company.

New expertise

With the fast pace of industry change, skills grow obsolete quickly. Recent analysis shows the half-life of skills is now only 5 years.[16] This means the skills learned today are only half as valuable 5 years from now—and we don't even know what we don't know yet.

The pace at which new jobs are added, especially in the autonomous mobility ecosystem, will have many truck companies scrambling to fill them. Imagine a "Mobility Traffic Controller" to help navigate autonomous trucks in complex scenarios. Or a "Human-Machine Interface Manager" that identifies tasks, processes, systems, and experiences that can be upgraded by newly available technologies and new approaches, skills, interactions, and constructs.[17]

Reinventing the digital truck enterprise requires new skills, and not just skills that help workers do things faster. These new skills enable the workforce to perform the digital tasks that can support—and create—new ways to work.

Understanding and anticipating skill needs and matching skills to demand can be a challenge. 72% of the Visionaries report that using AI-enabled insights to understand skill needs and drive workforce management and learning would contribute to the organization's success, compared to 56% of the Others. Using digital platforms to match skills and demand is also an important consideration for 77% of the Visionaries versus 57% of the Others.

Reskilling the workforce—repeatedly

On average, truck executives estimate 27% of their workforce will need to be reskilled by 2030 to meet the digital needs of their organizations. One out of four executives report that more than one-third of their workforce are candidates for re-skilling. These numbers do not consider the 5-year half-life of skills and the probability of new types of jobs emerging. So, the final numbers are probably much higher.

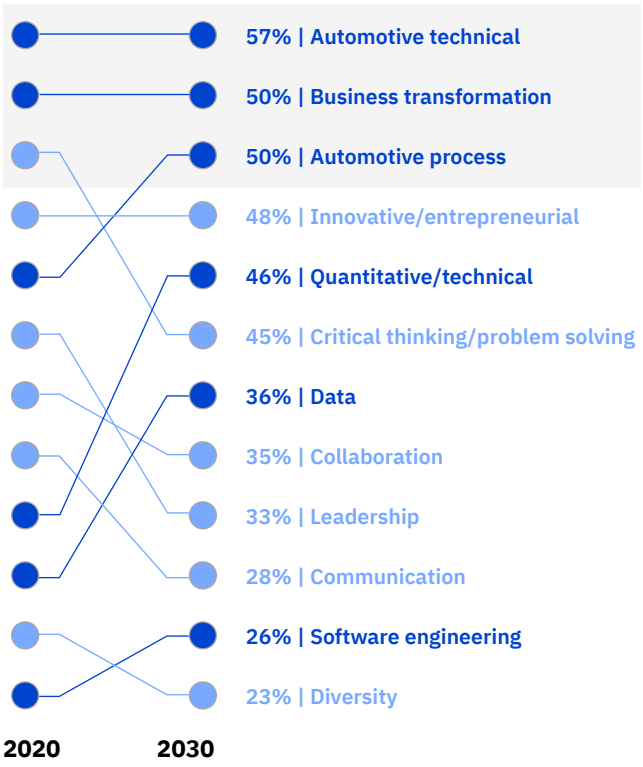
To put it into perspective, consider the workforce population of the companies surveyed, which is 16.7 million people. Truck companies would spend over $118 billion throughout the next 10 years to bring their workforce up to digital speed. To achieve this, executives expect their training/reskilling budgets to increase by 70%.

Five of the top seven critical needs today are "soft skills," but as we move to 2030, this ratio shifts to "hard skills" (see Figure 11). Top priorities for both time periods are automotive technical skills, which are necessary to design and build high-quality trucks, and business transformation skills, which will likely be crucial to take advantage of new business models, intelligent automation, and enterprise innovation strategies to name a few.

Figure 11

Critical skills for business success

The top 3 workforce skills needed by 2030 are automotive technical, business transformation, and automotive process.



Note: lines indicate change in priority
Q: What workforce skills are/will be most critical to your organization's success?

"We must prepare our workers to enhance their skills in order to gain strategic benefit over other companies."

Senior Executive, Aftersales, Brazil

Innovation/entrepreneurial skills are equally important for both time periods. But as digital technologies continue to mature and are implemented, many soft skills, such as collaboration, leadership, and communication, are reprioritized with automotive process, quantitative/technical, and data skills.

The low prioritization of software engineering skills is puzzling. With the exponential growth of software in the vehicle and the use of AI, analytics, and automation in the business, it is surprising that more emphasis is not put on software engineering.

Companies face a critical decision: which skills to keep in-house and which to achieve by outsourcing and partnering. The strategic value of having the skills on staff, the urgency of the need, and the length of time the skills are needed can dictate which strategies companies use to fill skill gaps.

For the Visionaries (69%) and the Others (65%), hiring directly is most preferred. Next, the Visionaries look to purchasing other companies to quickly acquire skills—63% compared to 41% of the Others. As a matter of fact, 60% of the Visionaries and 44% of the Others believe an automotive company will purchase a technology giant to quickly acquire the needed skills. Conversely, six out of ten of the Visionaries and four out of ten of the Others believe a technology giant will purchase an automotive company for their expertise.

Outsourcing resources from another company is another way to access sought after skills for the Visionaries (60%) and the Others (42%). And finally, 48% of the Visionaries will outsource the responsibility of the work itself to another company—30% more than the Others.

The race is on

Digital is dominant, customers are king, and truck companies realize the need to reinvent themselves as high tech companies within a vibrant ecosystem to stay relevant. Intelligent, automated, connected, and innovative is the mantra for the future.

The truck industry ecosystem is expected to be a mixture of technical, agile, high performance companies from multiple industries, each bringing its own specialization and value to the mix.

While both the Visionaries and the Others are at similar points in their digital reinvention journey, the Visionaries have the insight, urgency, and organizational readiness to speed ahead. By leveraging digital technologies powered by data, they can position their organizations for the long haul.

Are you ready for the digital future?

How will you instill an innovative, entrepreneurial mindset into the cultural fabric of your organization?

By what metrics will you determine your organization's desired platform participation level—participant, owner, or both? How will you set expectations accordingly?

How can you create a nimble organization that competes with new mobility startups and internet ventures? What is your roadmap for integrating design thinking, co-creation, agile processes, and rapid releases?

What is your plan to establish a data-driven culture? Remember, this includes a willingness to infuse insights into virtually every action, interaction, and decision.

What is your strategy to continuously re-skill your organization to take advantage of digital technologies that power new ways to work? How will you leverage business partners and other channels to fill skill gaps?

Action guide

Truck 2030

The industry is once again at an inflection point, but this differs from prior crossroads. Previously, the driving force for change came from the business itself. Expansion to new markets, optimization of global footprints, and sustainable operations caused truck companies to develop new strategies, products, services, and skills to succeed.

Now, digital technologies, goods mobility innovation, and customer expectations are having a profound impact on nearly all aspects of the business. Truck companies have a decision to make. They can seize the opportunity to reinvent their organizations through digital technologies—unleashing new experiences, new focus, new ways to work, and new workforce skills. Or they can continue down their current path, running down the clock and risking obsolescence.

We recommend executives consider taking the following actions:

1. Pursue new growth

- Innovate beyond traditional truck products and services—especially new business, enterprise, and industry models.
- Instill a spirit of entrepreneurialism and new idea development. Use design thinking concepts to rapidly identify and bring ideas to the goods mobility market.
- Explore new routes to growth, especially where digital technologies (such as hybrid cloud and AI) and data insights uncover new opportunities.
- Digitize products and services to create differentiating customer experiences for fleet owner and driver loyalty.

2. Purposeful collaboration through platforms

- Identify what is strategically core to the business. But also embrace collaboration by crafting a value proposition for platform-derived ecosystems.
- Leverage deep expertise, open workflows, and data synergies to seize the expansion potential within that ecosystem.
- Create “fast and frictionless” entry points for traditional and especially, non-traditional industry platform participants, so they can quickly add value.
- Look for platform opportunities in other industries, such as insurance, transportation, and logistics, to create new product and services offerings.

3. Automate and get agile

- Digitize work and reengineer critical processes to create new intelligent workflows.
- Infuse AI technologies to enhance intelligent automation and improve customer responsiveness and experiences, employee skills and work, and partner collaboration and opportunities.
- Enhance resilience and operational responsiveness with agile operating model execution.
- Educate your employees in the growing capabilities of intelligent automation and engage them in the shift to new ways to work.

4. Exploit and share data

- Continuously uncover new data sources from virtually all facets of the business, the vehicles, mobility services, and customers to gain new insights and opportunities.
- Use AI technologies to curate and enrich data that “thinks” and “acts” to meet specific business needs. Remember, one view of the data does not fit all.
- Relentlessly share data and insights within your enterprise and across your ecosystem to co-create new business models and revenue streams.

5. Skill and reskill

- Reimagine the learning function powered by AI. Use artificial intelligence to create human intelligence.
- Create a learning platform ecosystem to allow all types of content, functions, and multiple parties to connect and interact. Add content to the learning platform at speed and scale, and dynamically personalize learning for every employee.
- Discover insights in your data to predict the critical skills of your business and drive new content creation.
- Develop strategies to fill skill gaps and have the right skills available at the right time.

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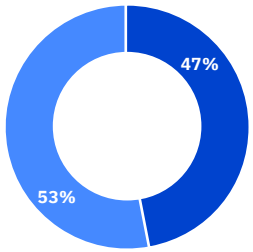
Methodology

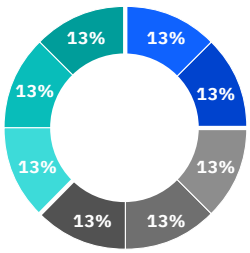
Truck 2030 Executive Survey

In collaboration with Oxford Economics, the IBV surveyed 1,320 truck industry executives equally distributed across 8 countries. The executives were from two industry segments—commercial vehicle manufacturers (including vehicle manufacturers with heavy truck responsibility) and ancillary manufacturers (including bodies, trailers, engines, utilities, and the like). The combined annual revenue for these companies was $5.8 trillion in 2019 and they employed 16.7 million employees.

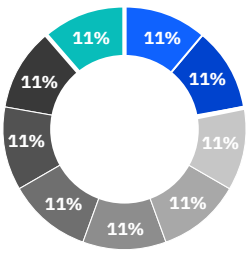
The objective was to better understand their vision of digital reinvention—a reinvention their organizations need to make in the next 10 years to be relevant in the world of future truck supported industries. These individuals included C-suite officers (CEOs, CIOs, CFOs, CMOs, COOs, CHROs, and others) as well as managing directors, executive VPs, senior VPs, VPs, and directors.



- Ancillary manufacturers
- Medium, heavy commercial vehicle manufacturers



- China
- India
- Japan
- Germany
- Italy
- Sweden
- Brazil
- United States



- Strategy/innovation
- Research/engineering
- Manufacturing
- Supply chain/logistics
- Marketing/sales
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