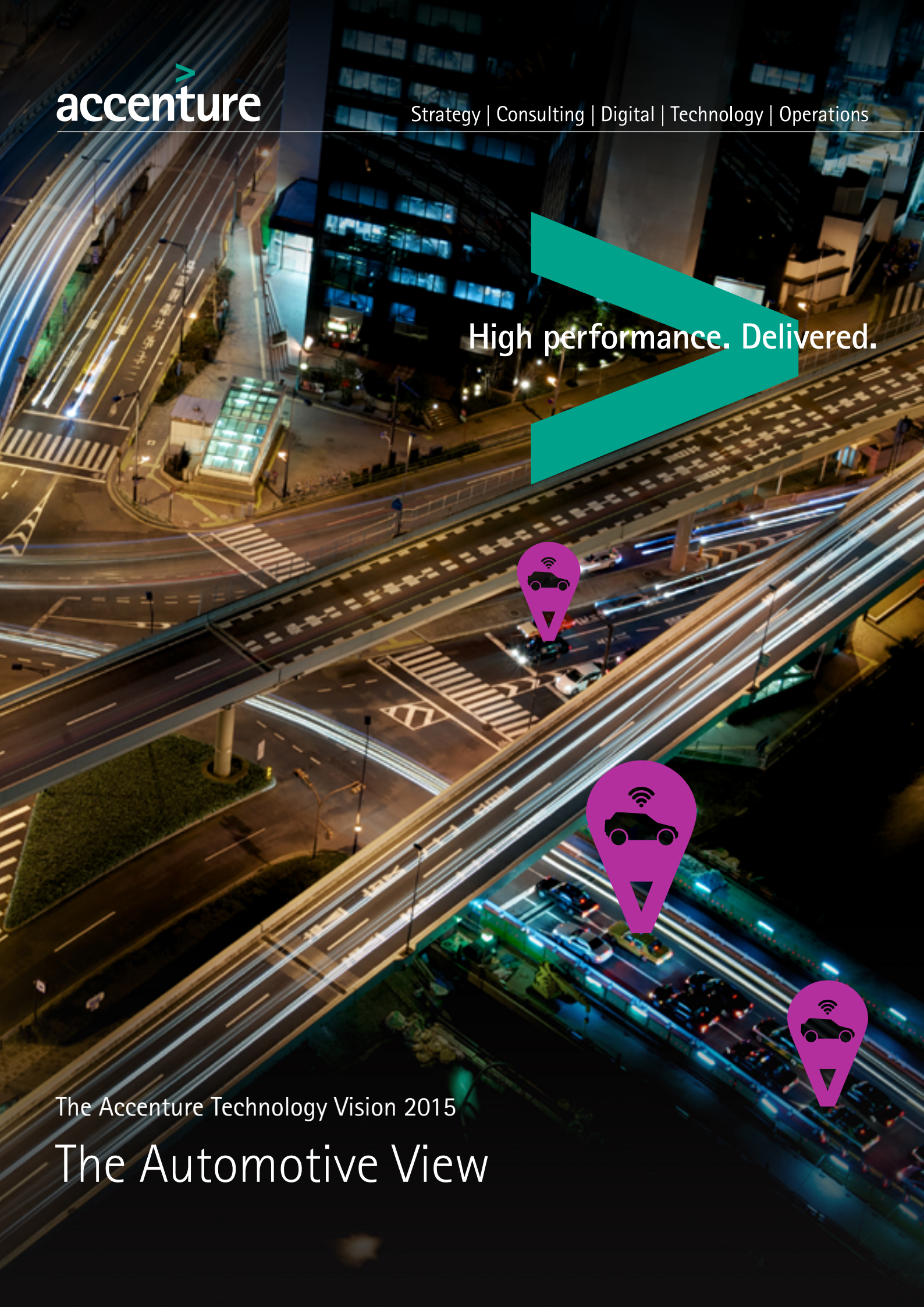
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The Accenture Technology Vision 2015
The Automotive View

Betwixt and between. That phrase describes the automotive industry's predicament at this point in its evolution into a digital business. On the one hand, 45 percent of automotive industry executives who responded to Accenture's 2015 Tech Vision survey report that the pace of their company's technology adoption has increased steadily in recent years, and 83 percent say that companies in their industry will move toward real-time platforms and systems as enterprise adopts mobility and Internet of Things (IoT) solutions. Nearly as many—78 percent—say that the next generation of platforms will not be led by large tech companies, but by industry players and leaders.

83%
say that companies in their industry will move toward real-time platforms

Yet many of these executives also admit they are not fully prepared for the transition to a digital business model. Only 33 percent of auto industry respondents to Accenture's survey say they are comprehensively investing in digital technologies as part of their overall business strategy, and a startling 12 percent admit that they do not have a formal digital business strategy.

These findings suggest that even as automobiles evolve from closed mobility systems to connected devices, automotive industry players are struggling to shed their identities as self-contained manufacturers and reconceive themselves as vital components of digitally-enabled business ecosystems collaborating across company and industry boundaries.

In the Accenture Technology Vision 2015 report, we make the case that becoming a digital business is no longer simply about incorporating digital technologies into an organization—it's about using them to weave businesses into the broader digital fabric that extends to customers, partners, employees and other industries. That is the top item on the technology agenda for 2015. But the responses of automotive executives to our survey underscores the scale of the challenge confronting the industry.

How We Performed Our Survey

The survey data presented in this report was taken from a larger global survey, Accenture Technology Vision 2015, of 2000 executives representing companies in nine industries, including automotive, as well as the public sector. More than three-quarters of respondents (76 percent) were C-suite officers, while roughly 24 percent were functional or business unit heads in nine countries—Australia, Brazil, China, France, Germany, India, South Africa, the UK, and the United States. An overwhelming majority—83 percent—of the companies represented reported annual revenues of $1 billion or more, including 803 companies, or 40 percent, with $10 billion or more in 2015.

More than 10 percent of respondents—220—represented companies in the automotive industry. Like the other respondents, they completed a detailed, 28-question survey designed to capture insights on emerging technologies that organizations are actively exploring and to pinpoint the priorities for adoption and investment, with the intent of better understanding the business value that executives expect from the next wave of technologies.


220 automotive industry executives across 9 countries:
Australia
Brazil
China
France
Germany
India
South Africa
UK
United States

Technology Trends Reshaping the Automotive Industry

In this report, *The Accenture Technology Vision 2015—The Automotive View*, we isolate the responses of automotive industry executives to identify the technologies that will have, probably, the greatest impact on the automotive industry over the next three to five years. The industry is already experiencing some of those impacts. For example, boundaries between formerly distinct industries are beginning to dissolve, changing the way automobiles interact with their manufacturers, drivers, and service technicians. No wonder then, that 81 percent of automotive executives surveyed agree that industry boundaries will dramatically blur as platforms reshape industries into interconnected ecosystems.

That's just one of the findings that leaps out form the survey data. In the following pages we highlight some of the survey's most striking and suggestive findings, filtered through the prism of five overarching technology trends, which we refer to as:


The Internet of Me


Outcome Economy


Platform (R)evolution


The Intelligent Enterprise


Workforce Reimagined

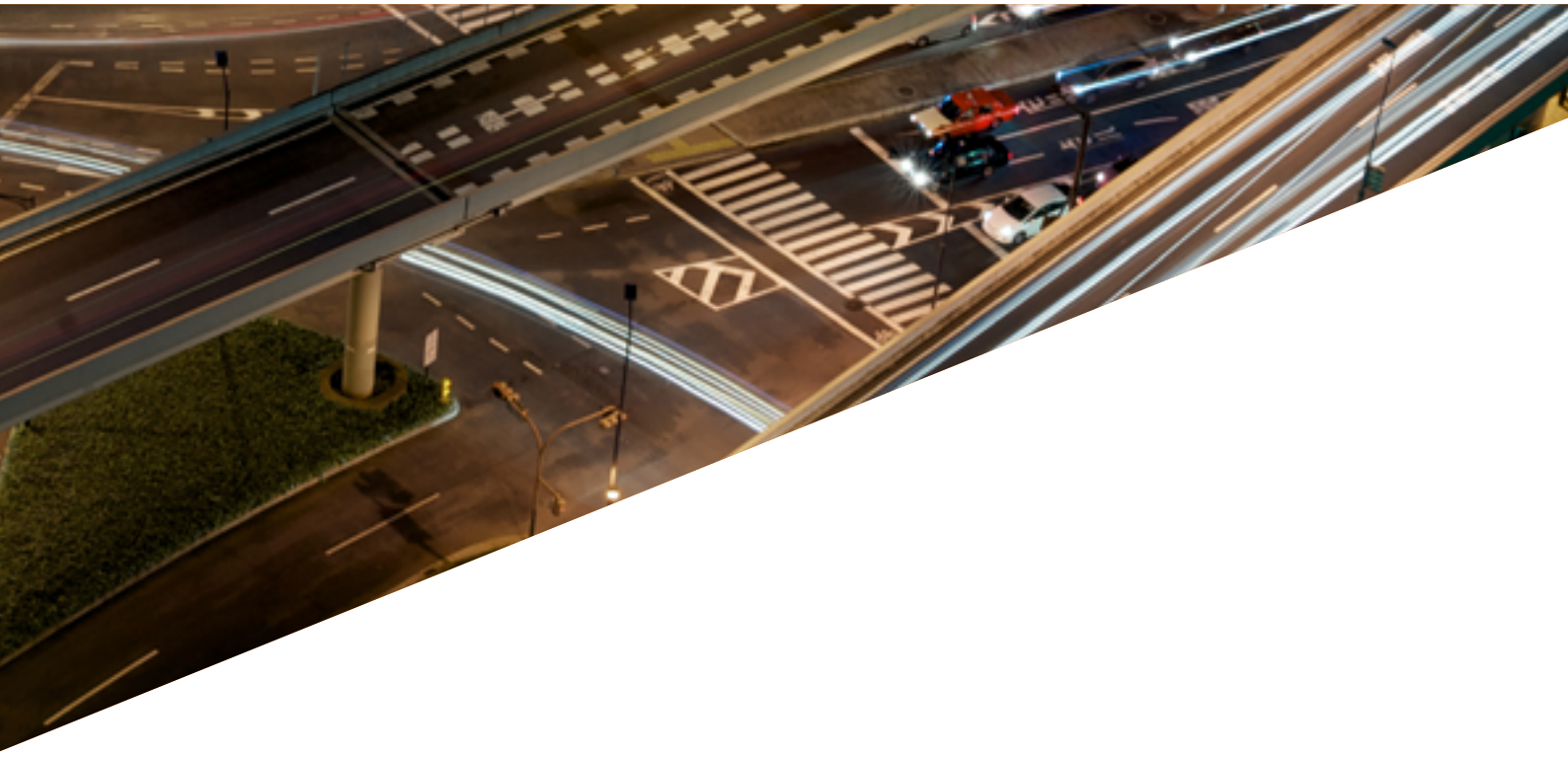
81%
agree that industry boundaries will dramatically blur as platforms reshape industries into interconnected ecosystems

How the Internet of Me Will Transform Driving—and the Auto Business

The Internet of Me places the end user at the center of every digital experience—a radical change that enables people and businesses around the world to interact through technology. The digitally connected car opens up a particularly powerful new channel for businesses to engage with their customers in authentic, meaningful ways.

Leading automotive companies are already moving in this direction. In our Vision survey, 81 percent of industry respondents placed the personalized customer experience in their top-three priorities for their organization, with 36 percent reporting it as their top priority. But turning this aspiration into reality poses particular challenges for automotive companies. It requires them to develop expertise in creating experiences to match their skill and discipline at manufacturing things.

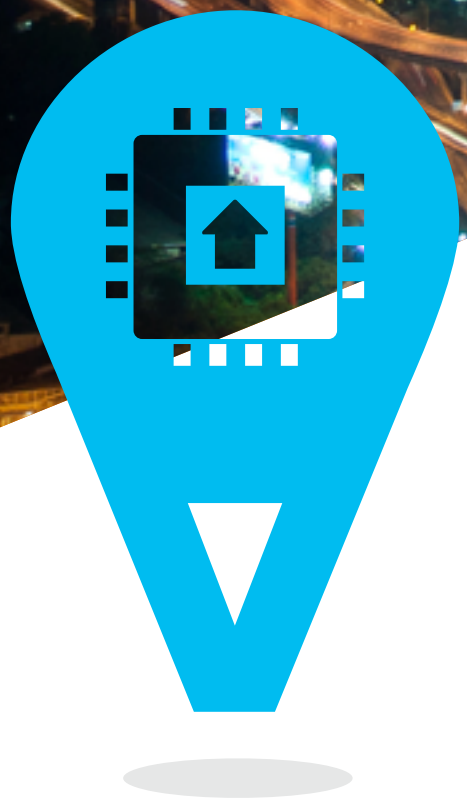
The industry has already made some progress in this direction, for example by developing cars that can fine-tune their performance by learning the driver's habits, warn drivers that they're drifting into another lane, and slow the vehicle when they sense that the vehicle just ahead is decelerating. Mercedes-Benz, meanwhile, is exploring another way to personalize the driving experience, introducing a new connected car that comes pre-loaded with application programming interface (API) connections to Nest thermostats at the driver's home.[1]



81%
place the personalized customer experience in their top-3 priorities for their organization; 36% report it as their top priority

How Technology Improves Automotive Outcomes

The outcome economy is one in which highly connected hardware components—the Internet of Things—are used to give customers what they really want: not more products or services, but more meaningful and satisfying outcomes. This development is the result of the widespread deployment of increasingly intelligent hardware, commonly referred to as the Internet of Things (IoT), in automotive control, monitoring, and diagnostic systems. Most automotive companies recognize that IoT may be the most powerful tool ever devised for gaining end-to-end insights into the outcomes that their customers are trying to achieve. Of the automotive executives responding to our survey, 83 percent say they plan to move toward real-time platforms and systems as their companies adopt mobility and IoT solutions.



They also recognize this technology's capacity for discovering the metrics, or measures of value, by which their customers define success. In effect, these metrics enable businesses to identify, measure, and aim for their customers' desired outcomes. Automotive industry respondents to our Vision survey are alert to the potential value of leveraging the data generated when intelligent hardware is placed at the point where digital and physical worlds intersect—the point we call the edge. Nearly nine in ten—88 percent—agree that the industry will move toward selling outcomes rather than products and services.

The automotive industry offers numerous examples of companies using hardware on the edge to deliver safety outcomes to consumers in ways previously unimagined. For instance, in 2013 luxury electric carmaker Tesla learned that the battery packs in some of its Model S cars equipped with the Smart Air Suspension option caught fire after being punctured by road debris at highway speeds.

Instead of following the traditional—and costly—auto industry protocol of announcing a recall and waiting for customers to bring their vehicles in for service, Tesla made use of the intelligent hardware in every car to distribute a firmware update to the affected cars that increased their minimum ground clearance and prevented them from automatically lowering at freeway speeds.[2] When Tesla devised a longer-term solution, it restored the original functionality to the affected vehicles and gave owners the option of bringing their cars in for a free retrofit of sturdier undercarriage armor. The diagnosis of the problem and improved safety outcomes for Tesla customers were possible only because the manufacturer had end-to-end feedback from the computer systems in those drivers' cars and the ability, via the IoT, to update those systems.

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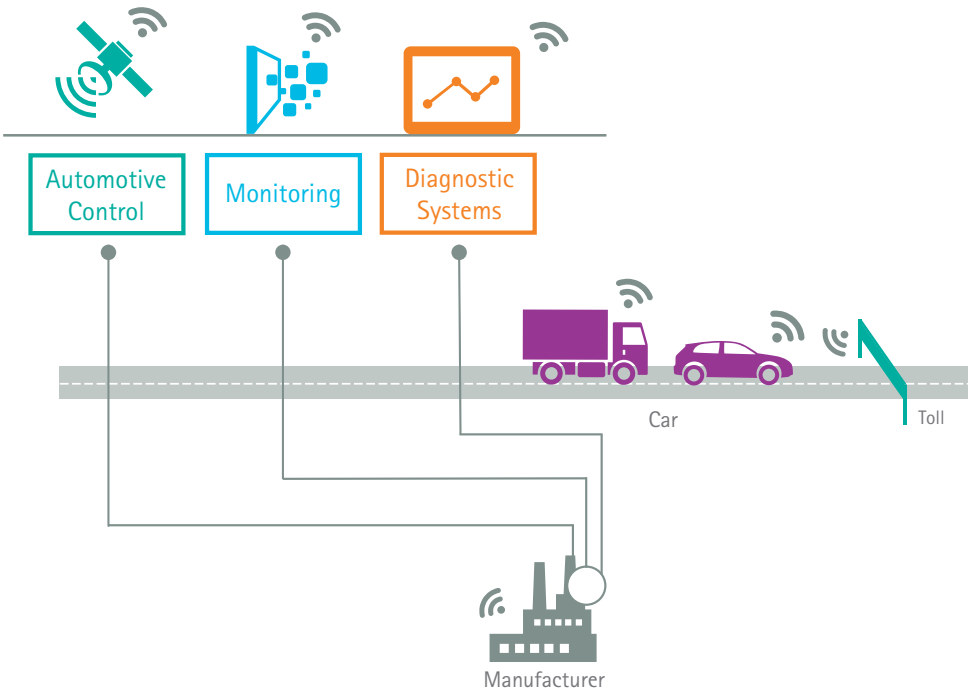


A New Breed of Platform for a New Breed of Carmaker

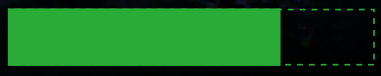
The first thing to say about the platform revolution is to make clear what it is not. The platform in question does not consist of the frame and foundational components of a car or truck. The platform we're talking about is an industrial technology platform that will increasingly create new kinds of products, value and differentiation for buyers and sellers across the entire supply chain. And not incidentally, such a platform will revolutionize the automotive business by changing the way industry players pursue strategically-important innovations. During the past two years, automotive IT departments have generated most of the industry's strategically-influential innovations. But industry executives see their role waning amid the growing prominence of open innovation initiatives, academia, and especially startups, which industry respondents to the Vision survey say will generate twice the innovations as IT departments. Industry executives also see great promise from open innovation initiatives, which 54 percent of industry respondents to the survey are using to collaborate with customers, suppliers, and partners. An additional 33 percent of automotive organizations are experimenting with such initiatives.

Forty-one percent of automotive executives we surveyed are using industry platforms to integrate data and applications with digital business partners and collaborate, while 35 percent are experimenting with industry platforms. Underpinned by the latest wave of digital technologies—social, mobile, analytics, cloud, and the IoT—this platform is essentially a well-defined technical architecture, firm governance, and set of technology services all focused on enabling the creation of new industry-specific applications.

In a development with far-reaching consequences, established non-tech industry enterprises are pursuing major strategic initiatives to become platform-based businesses. In fact, 78 percent of automotive executives agree the next generation of platforms will not be led by large technology companies, but by industry players and leaders. This is a crucial shift that will enable automotive companies to combine the power of technology platforms with their industry expertise to develop new business models and organize new value chains.

These platforms will extend far beyond the boundaries of the automotive industry: 58 percent of automotive executives surveyed plan to engage new digital partners within their respective industries, and 47 percent plan to engage digital technology and cloud platform leaders. A further 40 percent plan to collaborate with digital partners outside their industry.

A prime example of this phenomenon is General Motors (GM). The diversified global OEM is making a broad cross-industry ecosystem play with its "connected car" platform, OnStar, which has evolved from a standalone safety and concierge service to a connected-car platform that embraces multiple partners and a wide range of innovators. This platform will feature real-time diagnostics, safety and emergency protocols, infotainment, navigation, insurance modules, multiple third-party apps, mobile connectivity, and much more. GM recently made a big move to bolster its platform when it teamed with AT&T to offer drivers and passengers access to AT&T's 4G LTE network as part of AT&T's next-generation connected-car platform.[3] All the established automakers are following GM's lead with connected car platforms that cross traditional industry boundaries.



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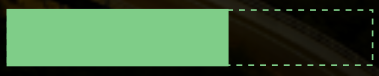

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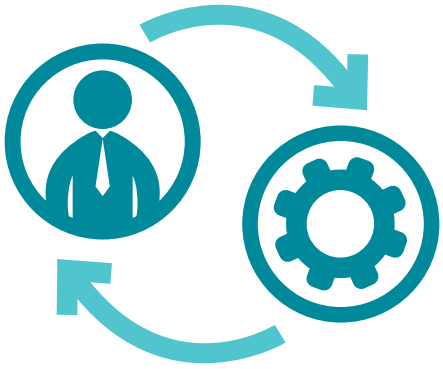
How Automotive Companies Become Intelligent Enterprises

Intelligent enterprises embed software intelligence into every aspect of a business to drive new levels of operational efficiency, evolution and innovation. Automotive companies were early adopters of increasingly intelligent software to help employees make better and faster decisions. Now, though, advances in processing power, data science, and cognitive technology, supercharged by an influx of big data, promise to make machines capable of even more, better-informed decisions. Harnessing that power to connect with customers and deliver better outcomes will be a key undertaking for automotive companies in the next three-to-five years.

Mastering the power of intelligent software will require automotive companies to master that many complexities of identifying, capturing, categorizing, analyzing, and sharing vehicle-specific information throughout the data supply chain. In doing so, automotive companies can expand the universe of decisions that software can and should make. With access to robust, disparate data and with cognitive reasoning capabilities, a connected car could sense that a driver is feeling rushed and stressed and therefore making ill-considered driving choices. It could then moderate the car's speed, block the driver from making a risky maneuver, such as an ill-considered pass or left turn, and initiate other defensive driving strategies as needed.

But even in this brave new world of intelligent software, the old adage about data holds true: garbage in, garbage out. Consider Street Bump, a smartphone app used in Boston, Massachusetts, to collect data on potholes using a phone's accelerometer and GPS and submitting the data to the city to initiate repairs. This smart concept was undermined by the narrow range of data the app collected. Because smartphone owners tended to have higher incomes, a majority of the potholes being reported were in more affluent sections of town—which was an inaccurate representation of road conditions across the city.[4]

The good news is that automotive companies can work around—and perhaps even overcome—these limitations by building new levels of collaboration between humans and computers. Machines can compute with exceptional precision and scale, and will get better and better at doing so. But humans excel at thinking creatively and in context, such that they can question and improve the conclusions of intelligent software. According to 78 percent of our survey respondents, successful businesses will manage employees alongside intelligent machines—ensuring collaboration between the two.



78%
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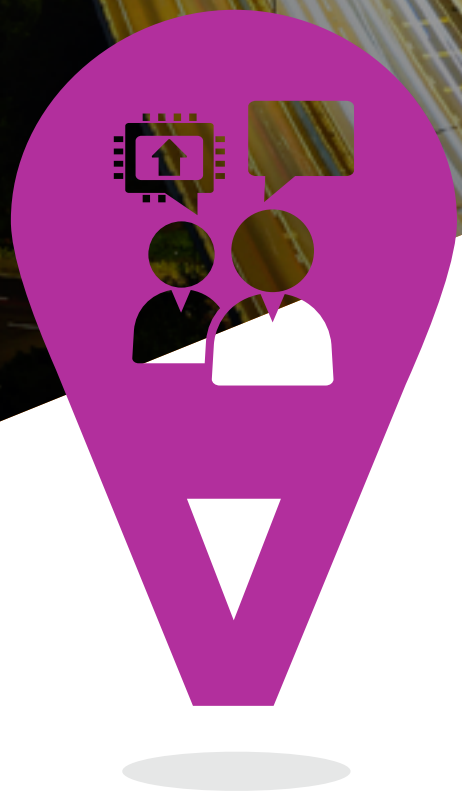
The Changing Face (and Wiring) of the Workforce

The drive to digital amplifies the need for humans and machines to collaborate in new and more effective ways. Advances in natural interfaces, smart machines, and wearable devices are revealing new opportunities for companies to empower their workers through technology, with a particularly pronounced impact on the automotive industry. Already, 40 percent of automotive industry respondents—the highest percentage of any industry—believe that wearables will profoundly change the way the industry does business. Other technologies, such as sensors and robotics, could be just as transformative: 41 percent of executives surveyed are considering adopting sensors to increase intelligence gathering about the surroundings and 34 percent are considering robotics to automate business and industrial processes.

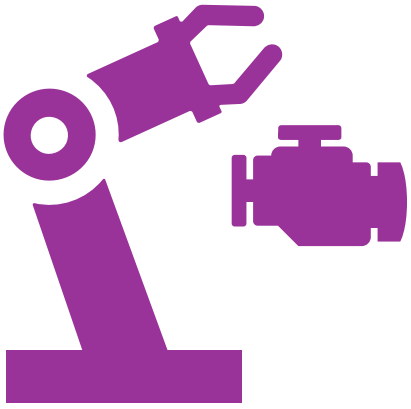


But braided into these opportunities are new challenges in managing human-machine collaborations. Successful businesses will be those that manage the collaborations in ways that capture what's best about both human talent and machine intelligence and embraces both as critical members of the reimagined workforce.

Volkswagen, for example, relies on human-machine collaboration to accelerate and optimize automotive repair work. The diversified global OEM has created a display system for its XL1 hybrid that makes it easier for mechanics to quickly repair the vehicle's complex power train design. Using a tablet that shows an on-screen digital overlay, mechanics can review the context-dependent steps that they must take.[5] With the assistance of this tool, mechanics have reduced repair times while supporting rapid and complex product design changes. At the same time, the tablets promote dynamic learning, because they eliminate the need for technicians to pause to refer to a service manual or call headquarters for additional instructions.

This reimagined workforce—one that will enable more work to be done better—will raise many new issues. Which jobs should be assigned to humans and which to humans working with machines? What governance systems are in place to help us decide? How can the human workforce be trained for this new blended work environment? How do we rethink the skills for hiring human talent—should we emphasize more or less specialized knowledge? The answers to such questions will help determine which automotive companies will probably become digital leaders.

41%
are considering adopting sensors to increase intelligence gathering about the surroundings



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are considering robotics to automate business and industrial processes

Conclusion

Past editions of the Accenture Technology Vision have concluded that every business was becoming a digital business and predicted that large and often long-established businesses, with their deep resources, huge scale, and process discipline would use technology to drive their growth—and in the process rewrite the digital playbook.

In 2015, some of the stalwarts of the non-IT business world—in particular, automotive companies—are aggressively taking the initiative. They are proactively making big moves to deliver better outcomes to their customers, form alliances across industry boundaries to improve automotive performance and the driving experience, and use human-machine collaboration to create value in innovative ways.

Senior leaders will need both boldness and clarity of focus to seize advantage in this new marketplace. They will need to model the impact of transitioning to outcome-based revenue streams, evaluate their ability to deliver hardware solutions at the edge, develop ecosystem strategies that will enable their enterprises to work with a portfolio of potential partners, many of them outside the traditional confines of the auto industry. They will need to formalize technology partner and cloud services relationships to support their platform environments, expand partner strategies to move up the value chain, and think big and broadly about the problems and opportunities that participation in platforms will reveal. And they will need to identify opportunities for leveraging technology to help the human workforce focus on tasks that are more complex, while using augmentation technologies to make jobs once reserved for highly skilled workers accessible to those less skilled.

It's a challenging to-do list, no doubt, but the rewards of executing it successfully are difficult to overstate.

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