FROM DIGITAL HYPE TO POST-DIGITAL HOPE

AUTOMOTIVE TECHNOLOGY VISION 2019

The pace of technological change has accelerated. Customer demands have become more pronounced. And competitive threats have grown more unpredictable. The automotive industry finds itself at a crossroads.

Change is happening at such a frenetic pace that industry players jockeying for position in a world of connected, autonomous, shared and electric vehicles, and mobility-as-a-service (MaaS) solutions have simply not had the breathing room to define, shape and industrialize their business case for the future.

Now they do.

The industry is sitting on the cusp of the post-digital era. From this perch, players in the automotive industry can assess where their digital journeys have taken them and, more importantly, their readiness for what's next. Where will the automotive leaders go? And will drivers go along for the ride?

About the research

Each year, Accenture pinpoints the emerging IT developments that will have the greatest impact on organizations in the coming years. In 2019, the process included a global survey of 6,672 business and IT leaders—including 198 automotive executives in 12 countries. This report's findings are based on analyses of their responses.

A SHOT IN THE DARQ

"Future-minded leaders know they will need not only every digital tool in their current arsenal to succeed, they'll also need new ones. The next set of technologies every company will need to master? Distributed Ledger Technology, Artificial Intelligence, Extended Reality and Quantum Computing."

Accenture Technology Vision 2019
Trend: DARQ Power

Over the past 120 years, automobile manufacturers and their suppliers have steadily added new features and technologies to transform the driving experience.

They have essentially turned cars into rolling software platforms that monitor, guide and connect drivers to their surroundings in previously unimaginable ways.

Digital technologies of the past decade allowed automakers and suppliers to double down on innovation and kick their transition from vehicle and parts manufacturers to technology companies into high gear.

But digital capabilities and the advantages they afford are now widely available. They are expected. No longer differentiating.

What, then, will industry leaders rely on to stand apart? According to recent Accenture research, new innovations will be powered by "post-digital" technologies—namely **D**istributed Ledger, **A**rtificial Intelligence (AI), Extended **R**eality and **Q**uantum Computing (or DARQ). Automakers and suppliers are eager to embrace these new technologies as catalysts for change. More than nine out of 10 industry players (93 percent) are already experimenting—with many players already investing significantly.

- Volkswagen combines AI and predictive analytics to forecast— and optimize—advertising spending.[1]

- Navistar uses AI as the foundation of its vehicles' OnCommand Connection systems, which detect potential mechanical issues on the road in real-time.[2]

- Škoda is using AI-based autonomous drone technology and 3D mapping to identify and track empty containers at factory locations, thereby helping to optimize logistics.[3]

- Automotive logistics provider, Koopman, is using blockchain to gain end-to-end visibility into the supply chain.[4]

FROM HARDWARE TO SOFTWARE

The line between hardware manufacturing and software development is blurring. Automakers roll out software platforms—enabled by digital and post-digital technologies—as readily as they do new cars. Volkswagen, for example, is investing billions in a cloud-based platform and software operating system that will connect electric vehicles to customers and enable services such as electronic payments for parking and fuel-price tracking and even customized offers and discounts from local retailers.[5] Mercedes is pivoting from being a traditional vehicle manufacturer to operating as an agile software company —one focused on the digital content experience, rather than a car's hardware.[6]

SHIFTING GEARS

"As people's lives become more and more personalized through technology, creating a world with a multiverse of realities and moments, companies must reinvent their organizations to capture those opportunities as they come. That means viewing each moment as if it is an individual market—a momentary market. Miss the moment, and there is no second chance."

Accenture Technology Vision 2019
Trend: MyMarkets

Beyond enabling operational and design improvements, DARQ technologies are poised to allow automotive companies to understand consumers and markets—and pursue relevant opportunities— as never before.

This is critical in the post-digital era, where demand is communicated instantly, and gratification is expected immediately.

- Volvo has teamed with OnStar and Amazon to enable couriers to leave package deliveries in customers' cars.[7]

- Porsche is testing a blockchain solution that will allow drivers to unlock their vehicles or provide others access via an app.[8]

These companies are using DARQ technologies to meet people wherever they are. They are offering new levels of personalization and convenience. And they are viewing each interaction as an opportunity to offer intensely customized and on-demand experiences at any moment in time.

Companies across the industry are catching on to the idea that each chance to give people what they want, when they want it, represents an individual market. That dual objective for speed and hyper-personalization underpins the current flurry of MaaS activities designed to capture the industry's momentary markets. Companies have made great strides to incorporate mobility services and autonomous vehicles into their offerings.

DISRUPTION IS AROUND THE BEND

Automotive manufacturers and suppliers have watched other industries become disintermediated. They have seen how technological advances, originally ignored, quickly disrupted business models and value chains when the right players started paying attention. They have long known that they, too, are at risk. Accenture's Disruptability Index revealed they are right to be concerned.[9]

Today, the most significant threat to the industry involves the emergence of ridesharing services and the general shift among consumers away from traditional car ownership. In response, OEMs have expanded beyond their core business of manufacturing vehicles to deliver mobility solutions.

Many, such as General Motors, Daimler and BMW, have established their own mobility subsidiaries.[10] Some, such as Ford, have opted to acquire technology companies that develop transportation architectures and MaaS solutions.[11]

Others have formed partnerships with existing and would-be competitors to hedge their bets. Daimler and BMW, for example, have merged their mobility subsidiaries.[12] Honda has teamed up with Monet, a mobility company established by Toyota.[13]

Despite such efforts to stake their claims in the mobility market, automotive industry players are struggling to keep up with platform players, traditional car-hire companies and even public transport providers. Profitability is still elusive. The main problem is that their MaaS services are not as customer friendly as the services of established mobility players or start-ups. They are also almost always separate ventures, not fully integrated into the overall business.

As mobility continues morphing into a market whose economic value is determined by the efficient management of an all-encompassing system of services, automakers and suppliers need to determine where they can best position themselves in the emerging MaaS value chain. That decision will hinge on each company's purpose, core competencies and honest assessment of the likely winnable market opportunities.

85%

of automotive executives agree that the integration of customization and on-demand delivery will mark the next big wave of competitive advantage.

(SELF-) DRIVING TO THE FINISH LINE

Electric self-driving vehicles and connected cars are core elements of almost every MaaS program. The technologies that underpin autonomous and connected vehicles are ushering in a new automotive age—and a new set of competitors.

Traditional OEMs and suppliers, along with— and often in collaboration with—new automotive players, digital natives and technology giants have all been looking to be first to market.

Enormous gains have been made. But huge obstacles remain.

Regulatory hurdles, safety challenges, skill shortages and customer skepticism must all be overcome. Business cases must be developed and proven.

The high cost of the technologies that connect and enable cars and mobility services must come down. Perhaps the greatest challenge lies in processing the volumes of contextual and location-based sensor and user information. OEMs that figure out how to convert all that data into a manageable pool of usable insights will lead the industry into its future.

Given the complexity of issues that must still be sorted out, it may be tempting to think that the promise of self-driving cars—and the broader connected mobility future—is just hype. It is not. There is widespread agreement that commercially viable self-driving business models will become reality. But it will take a bit more time.
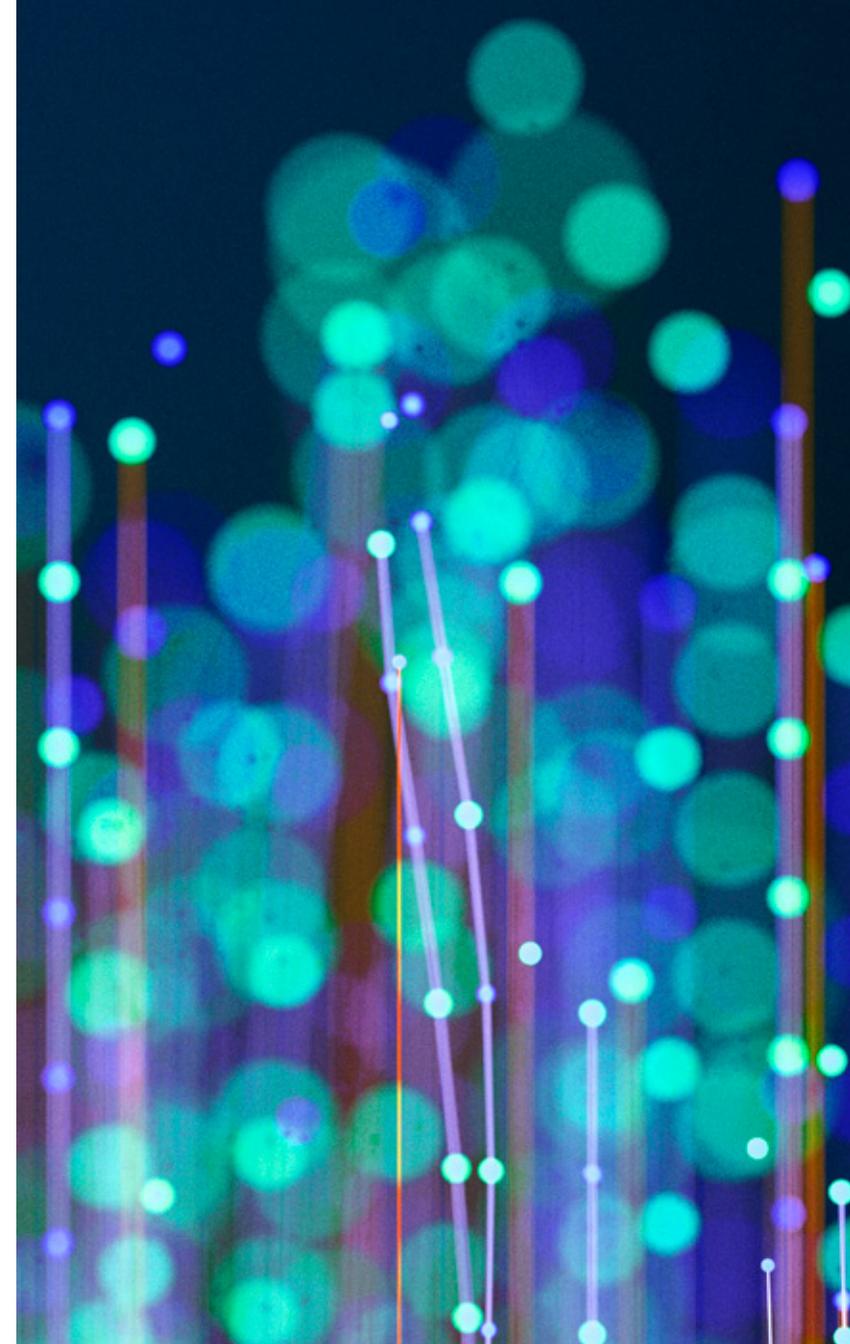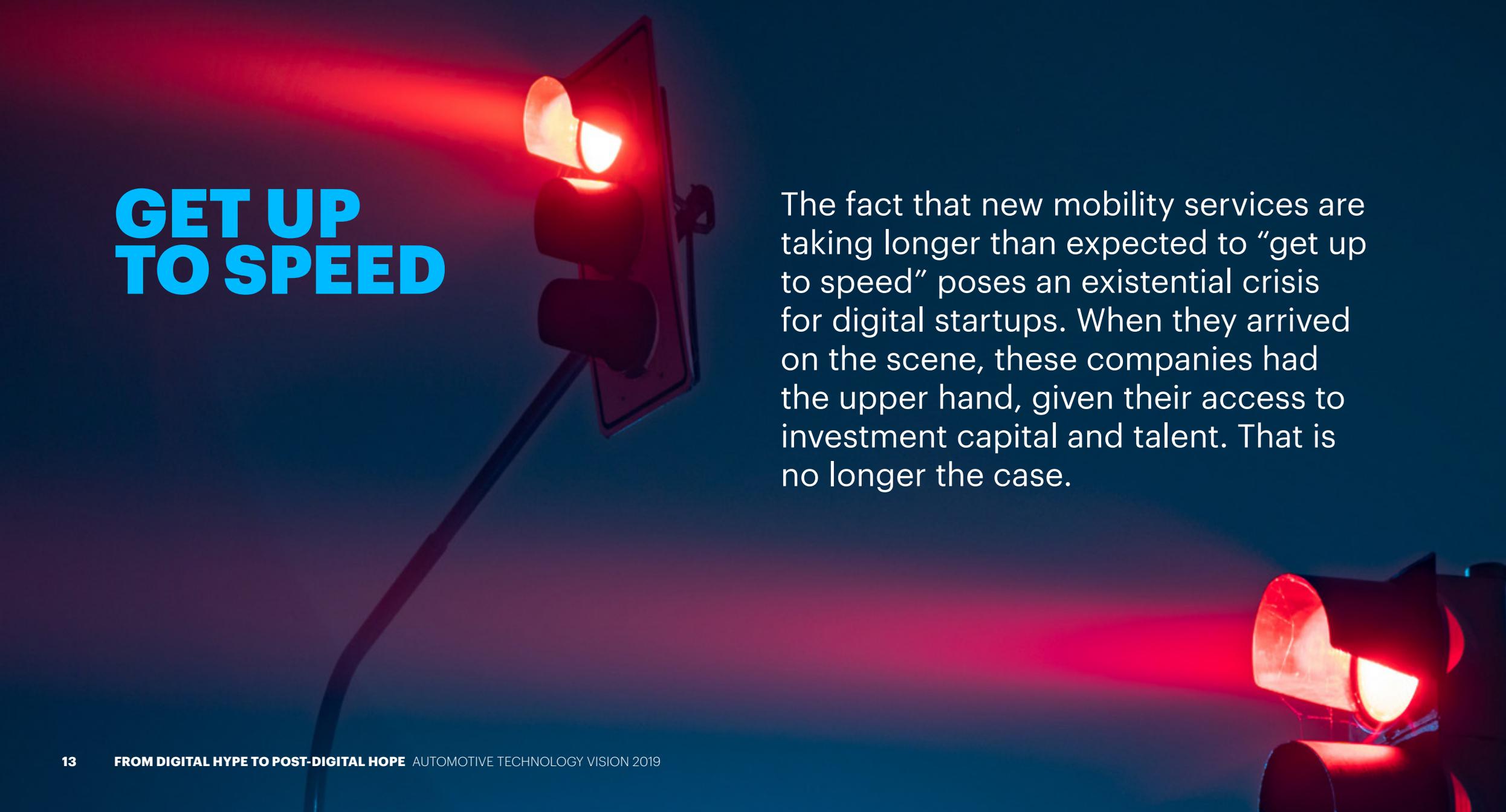
GET UP TO SPEED

The fact that new mobility services are taking longer than expected to "get up to speed" poses an existential crisis for digital startups. When they arrived on the scene, these companies had the upper hand, given their access to investment capital and talent. That is no longer the case.

70% of automotive executives believe the combination of DARQ technologies will transform their organizations extensively over the next three years.

Traditional industry players have several advantages.

Unlike their digital-native competitors, they have their original business models to fall back on—as well as operating models that have served them well for more than a century.

They also have what new competitors have not yet developed: expertise in mass production, powerful distribution and sales networks, strong brands and, in many cases, a loyal customer following. Their strengths in these areas more than compensate for weaknesses they may have in their new, MaaS-oriented business models.

This is not to say traditional automakers and suppliers should not go ahead with their MaaS and autonomous driving programs.

Now is not the time for them to take their foot off the accelerator. At the cusp of the post-digital era, they have the chance to grow and transform their core businesses, while also finding new ways to stand apart. As the industry continues making advances in mobility services and autonomous driving, automakers and suppliers have the opportunity to define—or redefine—the role they want to play in the future of transportation.

IN THE DRIVER'S SEAT

To position themselves appropriately in the emerging automotive value chain, automakers and suppliers must strengthen and transform their core businesses. That means continuing to drive efficiencies across their operations, taking out costs that can be invested in areas of future growth, and delivering new automotive products and services that consumers demand and deserve.

Faurecia, one of the world's leading automotive technology companies, has implemented a Digital Services Factory to develop products and services for connected vehicles, but also to leverage digital technologies, such as AI, to further accelerate Faurecia's digital manufacturing transformation.

Savings from these efficiencies will bring millions of gains.[14]

In the post-digital era, traditional automotive industry players will benefit from a new technology framework that can guide and accelerate their forward momentum. This framework—which applies to companies looking to grow their core business, transform their offerings, or develop completely new business models—comprises three core elements.

1. New technologies.

To stay competitive, automotive manufacturers and suppliers need to continually integrate new technologies into the business. AI, Extended Reality solutions, 3D Printing and Distributed Ledgers are some of the newer technologies being used to reinvent business value chains and customer experiences. In many cases, the efficiencies or new revenue streams enabled by these technologies deliver a quick return on investment, which can then fund other components of the new technology framework.

- General Motors is using inspection drones, collaborative robots, 3D printing and other technological advances in its plants to streamline operations and save millions in annual production costs.[15]

- Ford, Audi and Toyota all use virtual environments to accelerate vehicle design processes.[16,17,18] Fiat Chrysler even extends the AR design experience to consumers.[19]

- BMW has identified use cases for Quantum Computing and conducted feasibility studies to gain a better idea of quantum's potential—especially in the realm of autonomous driving.[20]

- Potential use cases for distributed ledger technologies include "smart" contracts, warranty management, and spare part provisioning and payments.

> **The future of the automotive industry will be characterized by technology partnerships among multiple players that deliver more and better products and services collectively than any one participant could deliver on its own.**

2. A new technology strategy and operating model geared for innovation.

In the post-digital world, where agility and responsiveness set winners apart, a technology strategy cannot stand apart from a company's business strategy. They must be woven together to shape a vision for the future. Driven by the CEO, this new combined strategy must permeate the organization and encourage an environment of experimentation and a culture of collaboration.

In delivering the post-digital promise, agile methods, lean operations, new enterprise architectures and design thinking all play a role. So does a new focus on ecosystems. The future of the automotive industry (and mobility more broadly) will be characterized by technology partnerships and collaobrations among multiple players that deliver more and better products and services collectively than any one participant could deliver on its own. Industry players must carefully consider the roles they can play in ecosystems— especially those that digitally link value chains across industry boundaries. They must choose their partners wisely.

Also important will be a human+ workforce that is empowered by data, knowledge and new technical capabilities. New skills and new roles will be needed. In fact, nearly half (45 percent) of automotive executives expect that most of their workforces will change roles due to technology advances. Data scientists will be in high demand. So will futurists and out-of-the-box thinkers who can prepare the organization to seize the potential of future technological advances.

Automakers and suppliers should consider crowdsourcing and non-traditional talent pools to secure the workers they will need.

New technology strategies will be further supported by capabilities that allow industry players to quickly scale their innovations—not only in the products and services they develop, but also in the management of their operations. Leaders know that scaling innovations means identifying innovation enablers in the organization and matching those enablers to business functions that need them most and will use them best. In-house innovation factories can be established to seed and grow digital innovations organically.

3. A new future-ready technology foundation.

Automotive manufacturers and suppliers will need a flexible technology foundation to enable future growth. This foundation includes the ability to continually embrace emerging technologies and also decouple core architectures to unlock new value from data.

In the post-digital automotive future, data will be one of the most important assets for automakers and suppliers. But data alone has little value. It must be interpreted and applied in the right contexts and for the right purpose to tap its true potential. Winning players will understand the data at their disposal, as well as the potential uses of that data to open new opportunities. Identifying how data can solve market problems is one place to start. Toyota, for example,

is examining how Distributed Ledgers might facilitate the sharing of driving and autonomous vehicle testing data, which can then be used to establish appropriate insurance rates.[21]

A new approach to cyber-security will also be a critical component of a future-ready technology foundation. In the post-digital world, in which ecosystem partnerships and data-sharing within, across and beyond an organization's four walls become more common, the risks of hacking rise exponentially. The vulnerabilities extend beyond theft of designs to vandalism and outright sabotage. In this environment, securing ecosystems must become a main priority. Automotive industry executives we surveyed agree; 87 percent believe they need to rethink security to protect not just themselves, but their ecosystems.
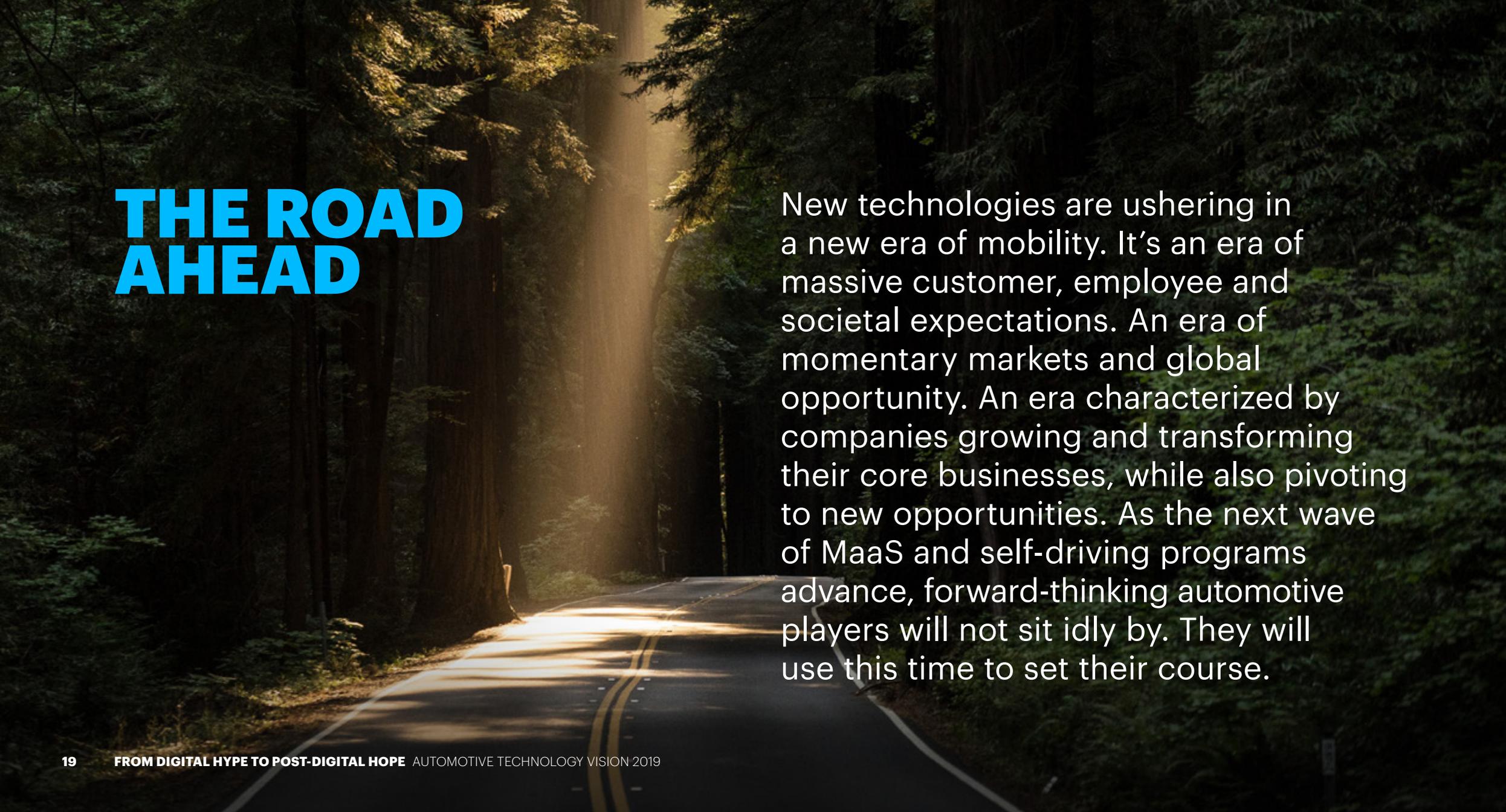
THE ROAD AHEAD

New technologies are ushering in a new era of mobility. It's an era of massive customer, employee and societal expectations. An era of momentary markets and global opportunity. An era characterized by companies growing and transforming their core businesses, while also pivoting to new opportunities. As the next wave of MaaS and self-driving programs advance, forward-thinking automotive players will not sit idly by. They will use this time to set their course.

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Note
Unless otherwise stated, the statistics in this point of view represent automotive respondents in the survey report "Accenture Technology Vision 2019."

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About the research

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