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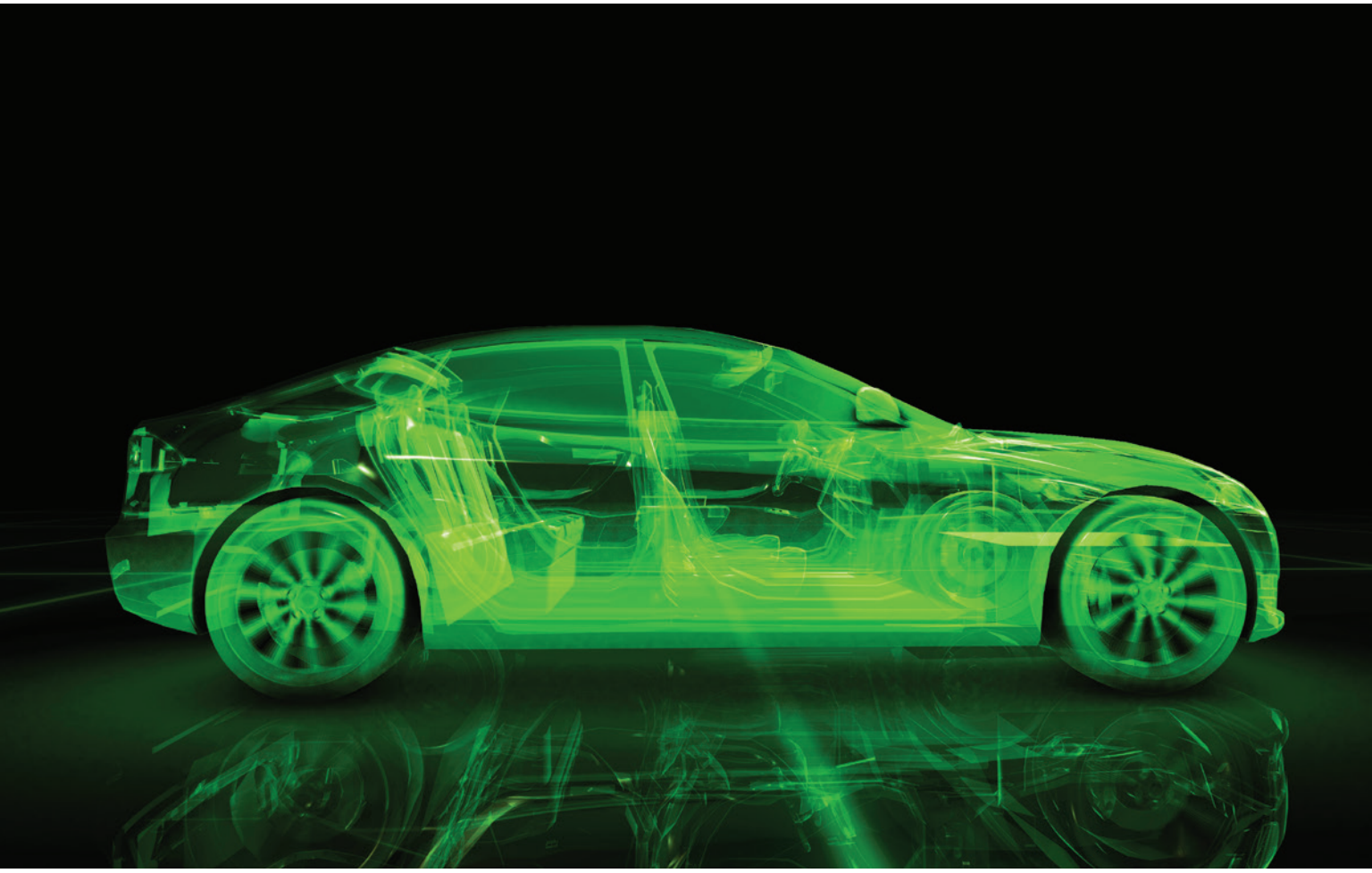
Special Report

Driving Forward: The Future of Urban Mobility



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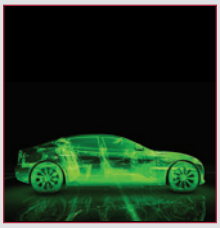
INTRODUCTION



Driving Forward: The Future of Urban Mobility

The future of transportation could not be more exciting. Autonomous vehicle technology, car-sharing, car-hailing, and other cutting edge developments, are driving the next stage of urban mobility. Car rental companies and automakers are all pivoting to put long-lasting stakes in this new world.

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Demographic Shifts: Shaping the Future of Car Ownership

CARS HAVE BEEN AT THE HEART OF AMERICAN CULTURE FOR MORE THAN A CENTURY. Until recently, getting a license and buying a car were considered rites of passage, and the car you chose was widely regarded as an expression of your identity, reflecting your priorities and revealing your status.

All that is now changing. The advent of car sharing, ride-hailing and self-driving vehicles presages a radical transformation in consumer behavior. The future of personal transportation will be determined by technological advances, informed by the needs and desires of the people who use them. Our understanding of who those consumers are and what choices they are likely to make is changing in surprising ways.

CAR-LOVING BOOMERS ARE HEADED FOR CITIES

Consider baby boomers, the generation born between 1946 and 1964. They may no longer be the largest generation in the U.S. (their kids, the 19- to 35-year-old millennials, now outnumber them slightly), but boomers are likely to continue playing a major role in shaping the future of the auto industry and the rapidly evolving "sharing economy."

Given the boomers' affection for cars, it's not surprising that adults over 50 bought nearly two-thirds of the new cars sold in the U.S. in 2011, according to an AARP study. Unlike earlier generations, today's seniors "are refusing to follow their parents' lead and go quietly into the car-buying night," according to a 2013 article in Bloomberg News. In fact, nearly 93% of Americans between 60 and 64 had driver's licenses in 2011, up from only 84% in 1983.

What is surprising is that seniors are participating in the well-documented mass migration to urban centers. Despite the common assumption that millennials will dominate the urban landscape in the coming years, recent studies suggest that boomers are also locating there in droves. "Instead of migrating south en masse to retirement communities in the Sunshine State or the wilds of Arizona," wrote Realtor.com, "more and more baby boomers — a particularly urban-savvy group of Americans — are moving back to the metro areas they abandoned when they began raising families."

> **"Millennials have a lower rate of car ownership than previous generations at their age."**
>
> –Sam Abuelsamid, Navigant Research

And these older urbanites are anything but sedentary. Rather than retiring, 87% say a shorter commute to work is a major reason for their move to the city, according to a recent Zipcar study. Moreover, when they are not working, the study said, "An overwhelming 90% are seeking to boost their cultural experiences, with easy access to a variety of restaurants, shops and fitness facilities."

All this activity makes urban boomers active consumers. "Between 2015 and 2030, the 60-plus age group in the United States, for instance, is projected to contribute 40% or more of consumption growth in categories such as personal care, housing, transportation, entertainment, and food and alcoholic beverages," reported a 2016 study by the McKinsey Global Institute titled "Urban World: The Global Consumers to Watch."

For boomers who keep their cars in the city, ride-hailing offers a valuable source of income. A 2015 Uber study found that nearly a quarter of its drivers were older than 50. For many, the primary motivation is extra income, often

needed to supplement retirement savings. But there are other benefits as well.

Uber driver Maureen Mahon, 59, enjoys the flexibility and sociability of the work. "I meet businessmen, college kids on their way out for the night, folks going to parties, pretty much the whole range," she told *The New York Times*. "You can drive as much or as little as you like. If the weather's bad or you have a doctor's appointment, you just don't turn on the app."

Personal car sharing, too, is becoming attractive to some urban car-owning boomers. Moreover, peer-to-peer car sharing firm Getaround has formed partnerships with car manufacturers to provide members with discounts on new car purchases.

> **"Millennials buy cars more pragmatically. … They are forever going to be more on the pragmatic car-as-commodity, car-as-appliance part of the equation."**
>
> –John Paul MacDuffie, Wharton

Of course, many of those who move to urban centers are likely to give up their cars in the process. Paul Eisenstein, publisher of *The Detroit Bureau* and a contributor to CNBC, said that in today's congested cities, "car ownership is viewed more as a hassle than an entitlement." Suburbanites may feel stranded without a car in the garage, but for people living in higher-density environments, according to Scott Kelley, a post-doctoral fellow at the University of Michigan's Energy Institute, "it's becoming more convenient to not have a car. In fact, we're already seeing some shift away from private ownership in dense urban centers."

While taxis are the traditional choice for carless boomers making short trips within the city limits, the growing presence of car-sharing and ride-hailing services is just as likely to appeal to seniors, said Wharton management professor John Paul MacDuffie. "I don't see those at the more elderly end of the spectrum — at least if it's suburbanites coming into the city — being turned off by the techie-ness of it. I see them actually liking it if it solves a problem for them." A recent Zipcar study supports his view: 69% of urban boomers surveyed said mobile apps make their lives easier, and 81% were users of Facebook.

MILLENNIALS TAKE A PRAGMATIC VIEW OF CARS

Until recently, automakers had feared the inevitable loss of the boomer market. Millennials, the boomers' children, have seemed far less interested in cars than their parents. "In 2009 and 2010, there was a lot of consternation in the auto industry about this problem," said Sam Abuelsamid, a senior research analyst at Navigant Research.

But it turned out that the concern was largely misplaced. According to an article in *Wards Auto*, the weak sales were less a reflection of the generation's attitudes toward cars and more the result of the Great Recession and the younger generation's lack of resources. Millennials are only now entering their peak car-buying years, the article said.

In March 2016, the Associated Press reported that "millennials — especially the oldest ones — are these days buying cars in big numbers. They just had a late start." The article pointed out that in California, the country's biggest car market, millennials outpaced boomers for the first time as car buyers. Millennials' share of the new-car market jumped to 28% in 2015.

Like their parents, millennials appear to be defying conventional expectations. *Fortune* points out that too many have mistaken the presence of millennials in cities as an indication that they prefer urban living. According to the 2016 National Association of Realtors Home Buyer and Seller Generational Trends study, a growing share of homebuyers are millennials, and more of them are purchasing single-family homes in suburbia.

But not everyone is convinced that millennials are necessarily headed for suburbia and car ownership. "They're living in cities more frequently than their parents," Abuelsamid said, adding that millennials have "a more flexible lifestyle enabled by technology" and "don't have the need or the desire to own a car, even though they increasingly have the financial ability." That may change, he noted, but it's too soon to tell.

University of Michigan's Kelley agreed: "It appears that younger people are willing to treat transportation as an on-demand service, rather than paying the fixed price of owning a car." But cities, he said, "have sprawling suburban areas around them," and how mobility will change there is still not clear. According to a recent McKinsey report on disruptive trends in the auto industry, in rural areas "private-car usage will remain the preferred means of transport by far."

What is clear at this point, Abuelsamid said, is that millennials have a lower rate of car ownership than

previous generations at their age. Some see a generational shift at work. Wharton's MacDuffie postulated that "millennials buy cars more pragmatically. Maybe they missed that moment as teenagers when you deeply fall in love with cars, or a car, or personal autonomous transportation. And they are forever going to be more on the pragmatic car-as-commodity, car-as-appliance part of the equation."

Zoë Hoster, a Wharton MBA candidate, agreed. "My generation grew up with a much more ambivalent relationship to cars than previous generations. A lot of us were just shuttled around by parents in the backseat of cars; we grew up taking public transportation to school."

In addition, many experts point to the fact that millennials have grown up in the so-called "sharing economy" and appear to be comfortable with car-sharing and ride-hailing. That perception is borne out by Getaround's demographics. According to co-founder and vice president Jessica Scorpio, owners who rent out their cars are concentrated in the 25 to 45 age group. Renters skew younger, at 19 to 40 years old.

Whether millennials ultimately continue their move to the suburbs and car ownership or gravitate, along with their parents, back to cities and alternative modes of mobility, remains to be seen. All that seems certain is that it is difficult to predict the future car-buying patterns of Americans, especially when the auto industry itself is going through such profound changes.

THE FUTURE OF CAR BUYING

While there may come a day when people no longer buy cars, that outcome is far from certain. In fact, U.S. car sales in 2015 beat the record set 15 years ago, according to *The Wall Street Journal*. But while consumers' appetites for cars may remain strong for some time, their shopping and buying habits have already changed in significant ways.

One definite trend is that a growing number of consumers prefer to start the buying process online. Social media is playing an increasingly important role. According to a 2013 study by Dealer.com and GfK Automotive Research, 84% of car shoppers are on Facebook and 24% of them have used Facebook as a resource for making their vehicle purchases. More generally, 38% of consumers say they will consult social media in making their next car purchase.

For the third year in a row, the annual Automotive Social Media Trends Study found that car buyers ranked social networks as more important than dealerships' websites in their auto selection process. And social media is only one of the ways today's auto consumers shop online. Sites like Edmunds.com and Cars.com also rank high among the resources consumers consult before ever setting foot in a dealership.

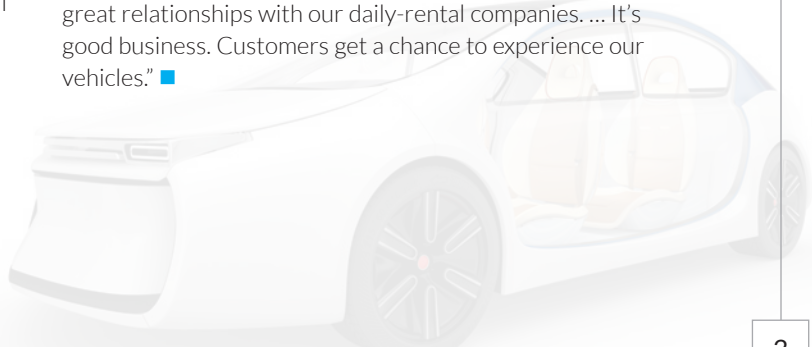
According to Digital Air Strike's 2015 Automotive Social Media Trends Study, 75% of car buyers found Internet research, including social media and review sites, to be the most helpful medium when selecting a car dealership. And it's not just dealerships that people are researching online. A recent survey released by CDK Global found that 83% of car shoppers expected "online buying technology would help them narrow down their vehicle choice and determine what is affordable." Eighty percent said they would likely configure a payment online.

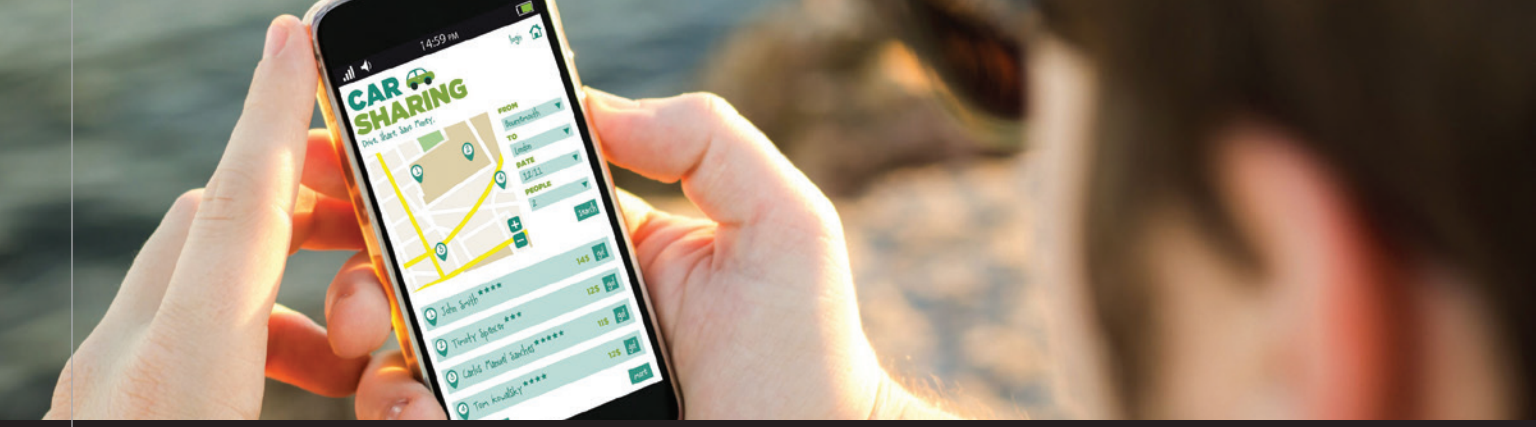
Customers who rent a car from Enterprise Holdings' brands are 55% more likely … to purchase a new vehicle within six months of their rental.

Eventually, consumers may visit dealers to test drive a car before making their final decision and completing the purchase online. "Factory showrooms make sense, with the emphasis on 'show,'" said *The Detroit Bureau*'s Eisenstein, "so people can go try out a car and then buy it online."

Indeed, both car rentals and car-sharing offer test-drive opportunities. In 2013, Polk conducted a study for Enterprise Holdings, the largest car rental company in the world and operator of the Enterprise Rent-A-Car, National Car Rental and Alamo Rent A Car brands. The study found that customers who rent a car from Enterprise Holdings' brands are 55% more likely than the average consumer to purchase a new vehicle within six months of their rental. Polk's analysis revealed that 1.2 million new cars (out of 11.4 million in retail sales) were purchased by consumers within 180 days of renting from an Enterprise Holdings brand. "People do rent cars now to try out vehicles," says Eisenstein. "And I'm sure more people will do that in the future."

Joe Hinrichs, Ford's president of the Americas, concurred, saying in a 2016 interview with *Automotive News:* "We have great relationships with our daily-rental companies. … It's good business. Customers get a chance to experience our vehicles." ■





Auto Ownership: New Options for Urban Dwellers

OWNING A CAR, while still attractive for many reasons, may not be nearly as much fun as it once was — especially in densely populated urban corridors. "For most of the population in large cities, it doesn't make sense to own a car," said Sam Abuelsamid, a senior research analyst at Navigant Research. "In Manhattan, for instance, you have the option of the subway, taxis or rental cars, and now there's even greater flexibility with ride-hailing, car-sharing, city bikes and more."

Every year, Americans spend 14.5 million hours in bumper-to-bumper traffic and $23 billion ($126 per driver) on repairing and driving their cars on poorly maintained roads. Just hunting for a free parking spot on urban streets takes an average of 20 minutes, said Donald Shoup, a professor of urban planning at UCLA. According to one estimate, owning and maintaining a car (with parking, gas, tolls and servicing) in a crowded place like Manhattan can cost $8,400 annually. And, on average, that car is going to sit idle 90% to 95% of the time.

Car sharing represents the technological evolution of local car rental in the neighborhood market and takes it to the next level.

Some analysts counter that ownership is too deeply imbued in the American psyche to disappear easily. With almost 17,000 franchised car dealers employing more than a million people and selling 17.5 million vehicles a year, car ownership is also deeply entrenched in the country's economy.

Still, there's no denying the disruptive forces at work today. McKinsey identifies four: electrification (the shift to hybrid, battery electric and fuel-cell technology); autonomous driving (from driver assistance to full self-driving); diverse mobility (the influence of the "sharing economy"); and connectivity (new possibilities with traffic services and the vehicle-to-vehicle communication that enable autonomy).

Much has been written about how ride-hailing services, such as Uber and Lyft, have been capitalizing on these new realities. There are two billion mobile phone users, and eight million of them are now using Uber while more than 631,000 are using Lyft. An estimated 13 million to 15 million Americans are now using ride-hailing, and 20% to 25% of new smartphone users have downloaded the Uber app (with 3% using it every week for rides and the average distance traveled is less than 15 miles).

In addition, car-sharing, from both peer-to-peer startups and new services offered by automakers and established rental companies, is having an impact on the urban market. According to the Boston Consulting Group, by 2021, "35 million users will book 1.5 billion minutes of driving time each month [through car sharing] and generate annual revenues of €4.7 billion [$5 billion]. … Car sharing will reduce worldwide vehicle sales by approximately 550,000 units by 2021, and cause a net revenue loss to OEMs [original equipment manufacturers or automakers] of €7.4 billion [$7.9 billion]." Europe will be the largest market in that time frame, followed by Asia-Pacific and North America.

THE ENVIRONMENTAL FOOTPRINT OF "SHARING"

According to *Auto Rental News*, "The car-sharing market has grown from a largely subsidized, university research-driven experiment into a full-fledged for-profit enterprise, owned

primarily by traditional car rental companies and auto manufacturers."

The environmental impact of car-sharing depends on how car-sharing services are used. A 2016 analysis by the *Stanford Social Innovation Review* concluded "that the service of car-sharing cannot be deemed green or not green on its own." While some users may give up cars, others were previously carless (58% of them, according to a University of California, Berkeley study cited by the *Review*). In fact, the customers surveyed "joined car sharing to gain access to personal automobiles." They also increased their total travel after joining a service. As a result, said the *Review*, "The impact of transportation use is determined by the distance traveled and the efficiency of the transportation."

In other words, when those who don't own cars use car-sharing services, they gain access to jobs and services (benefiting the economy) but also increase the overall vehicle miles traveled, at some cost to the environment. When car owners jettison their vehicles after joining a service, it's a clear win for the environment.

The good news is that the available evidence shows that car-sharing is having a positive environmental effect. By 2030, McKinsey reported, 10% of global car sales could be shared vehicles. Membership in car-sharing services has grown 30% annually between 2011 and 2016. Susan Shaheen, who directs Innovative Mobility Research at the University of California, Berkeley, said that a 2008 survey by her team found an overall decline in public transit use among car-sharing members, but it also found "substantial increases in non-motorized and sustainable travel — walking, bicycling and traditional carpooling."

For all the recent attention focused on new car-sharing and ride-hailing services, however, the fact is that vanpooling (one of the oldest shared mobility options) is probably the greenest choice of all. Enterprise's recent purchase of vRide, a 40-year-old vanpooling company serving commuters, to complement its existing vanpooling business is an indication of ongoing growth in this market. Together, these two Enterprise services account for 12,100 vehicles and more than 100,000 riders, thereby eliminating more than 2.4 billion miles driven annually.

CAR RENTAL STILL GROWING

In reality, there isn't much difference between local car rental and local car sharing at all — in both cases, consumers are hiring the car they need, whether it's for an hour, a day, a week or longer. Car sharing represents the technological evolution of local car rental in the neighborhood market and takes it to the next level.

During the 2015 "Differentiating Brands in a Sharing Economy" panel discussion at the Global Business Travel Association (GBTA) Convention in Orlando, Enterprise's chief strategy officer Greg Stubblefield explained: "Consider that we essentially 'share' more than a million vehicles a week in the United States. So when you talk about scale and the ability to meet public transportation needs for the long term, fleet size obviously is a significant factor from an operational and financial perspective."

Car rental revenue in the U.S. remains 12 times larger than ride-hailing revenue, reports travel research firm Phocuswright. Far from contracting, U.S. rental vehicle revenue has increased from $20.5 billion in 2010 to a record $28.4 billion in 2016, reported *Auto Rental News*. And Enterprise Holdings customers alone logged more than 25 billion miles globally last year.

Car rental companies are also adopting new retail technology that appeals to tech-savvy customers.

The allure of local car rentals is being driven by a number of factors. One is convenience. The concept of bringing vehicles close to where people live and work — a core principle of car sharing — has been part of the DNA at Enterprise since 1957, when the company launched a new business model that located cars outside of airports. Its cars are strategically and conveniently situated at nearly 6,000 neighborhood locations throughout the U.S. In 1997, Enterprise trademarked the term Virtual Car®, after recognizing the strength and energy of local car rentals.

Another attraction is the chance a rental provides to try out cars equipped with new technology. One Enterprise survey revealed that young drivers use rental cars as "extended test drives" to prepare themselves for ownership. Some 68%, for example, said they first accessed the new technology very important to them in rental cars. More than half (53%) said they chose a rental based on a need to try something new.

Car rental companies are also adopting new retail technology that appeals to tech-savvy customers. "Rental Car Companies Have Gotten So Good that Even Millennials Like Them," the *Los Angeles Times* headlined in 2015. One way rental companies are changing with the times is with software. Instead of the traditional lines at the rental counter, customers are met by sales associates holding tablets. The app shows the availability and location of cars (even their condition) in real time and, with prefilled

reservation forms in-hand, associates can take customers directly to their rentals.

New ride-hailing services are here to stay, but so is car rental. David Wyshner, president and chief financial officer of Avis Budget Group, noted in a fourth-quarter 2015 earnings call that his company sees "minimal overlap" between the use of car rentals and ride-hailing services. "One-day rentals represent only 3% of our rental day volume and under 50-mile transactions also represent only 3% of our rental days," said Wyshner.

"Uber has mastered the use of on-demand apps, but managing a fleet of vehicles and all that entails is institutional knowledge that rental car companies have."

–Jessica Caldwell, Edmunds.com

What's more, the company's one-day rentals actually went up in 2015 — including in cities where Uber and Lyft are well established. In analyzing 2015 trends, Avis also noted that 97% of its renters drive more than 50 miles, which would make ride-hailing an expensive alternative. "The net result," Wyshner said, "is that the data simply don't support the argument that the growth of ride-hailing is coming at the expense of car rental."

FLEET MANAGEMENT WILL BE CRITICAL

Ride-hailing and peer-to-peer car sharing use technology to connect people to transportation. That's a vastly different business model than traditional car sharing and rentals, which demand management and maintenance of large auto and truck fleets. "The ability to know when to sell, how to sell and have the distribution relationships, that has taken decades to build," said Enterprise's Stubblefield.

Jessica Caldwell, executive director of strategic analytics at Edmunds.com, said that experienced rental companies will be better positioned to run large sharing fleets. "Uber has mastered the use of on-demand apps, but managing a fleet of vehicles and all that entails is institutional knowledge that rental car companies have. There's a lot of logistics."

According to Paul Eisenstein, publisher of *The Detroit Bureau* and a contributor to CNBC, "It's difficult right now to form clear conclusions [about] anything on car sharing and ride-hailing, because we're still in the early-adopter stage. In the long term, we may indeed see certain demographic groups truly switch from private ownership to shared alternatives, but at the moment, the people who are doing so are highly motivated early adopters." How those changes will ultimately play out is still a matter of conjecture, but automakers are already reacting to customers' shifting tastes and eagerly exploring what lies ahead. ■

Tomorrow's Transportation Ecosystem: From Autonomous Vehicles to Public Transit

THERE IS GROWING EVIDENCE THAT TOMORROW'S URBAN CARS WILL BE "SAFE, GREEN AND CONNECTED," Mary Gustanski, Delphi's vice president of engineering, recently told *Car Talk*. "We're going to see more electrification, and the electric car will merge with automated driving and the connected car."

Electric vehicles (EVs) now hold just a 1% share of the global fleet on the road, but it could comprise 15% to 35% of total global new vehicle sales by 2040, according to IHS Markit. Worldwide sales are up more than 1,000% since 2010. In Europe and China, where regulation encourages plug-ins, EVs could be more than half of new passenger vehicle sales by 2040 — the same time fully autonomous cars are expected to rule the roads.

CARS THAT DRIVE THEMSELVES

The auto industry is moving toward the self-driving car; and semi-autonomous cars — able to operate hands-off, but with a driver behind the wheel — are already on sale. According to Deloitte, the shift to take our hands off the wheel "could occur more quickly and at greater scale than many are prepared for, especially in densely populated areas." Cities will probably be the first laboratories for autonomous technology.

Will these vehicles simply replace our current private cars? Maybe not. With cities in the vanguard, we seem to be evolving toward a growing reliance on shared fleet cars. "We will primarily see autonomous cars in on-demand mobility fleets," said Sam Abuelsamid, a senior research analyst at Navigant Research. "There's a distinct possibility that consumers will never actually be able to buy them."

As Abuelsamid pointed out, there are good reasons for fleet ownership of self-driving cars, including the fact that maintenance will be critical. "Once a car is sold to a consumer, the manufacturer no longer has control over which parts are put on that vehicle, and when we're talking about the sensors that control the car, it's critical that they not be replaced with cheap, off-brand parts," he said. But poor-quality parts could also be outlawed by regulation.

Robin Chase, co-founder of Zipcar, argued that serving our transportation needs with fleets of autonomous electric cars is an ideal scenario for these reasons. "Simply eliminating the drivers from cars, and keeping everything else the same, will be a disaster," she said. "If we share rides in shared cars, we will only need 10% of the cars we have today. … We have the ability to eliminate congestion, transform the livability of cities, make it possible to travel quickly and safely from A to B for the price of a bus ticket, improve the quality of our air, and make a significant dent in reducing carbon dioxide emissions," she said.

> **"We will primarily see autonomous cars in on-demand mobility fleets."**
>
> –Sam Abuelsamid, Navigant Research

"The footprint of the [U.S. car rental] industry stretches from coast to coast, and includes both airport and what we call the home-city market," said Chris Brown, executive editor of *Auto Rental News*. "The fact is, the autonomous vehicle model most likely will be well suited for a pay-as-you-go system, especially on the local level. And this plays into car rental's strengths of customer interface and management for the long term."

Jack Nerad, an executive market analyst at Kelley Blue Book, agreed that fleets will be in the autonomous and electric vanguard. "In fleets, it works," he said. "Cities are

a challenge, because space is at a premium, and there's no place for apartment dwellers to charge. But fleets can be charged en masse at centralized locations."

Gary Survis, a venture partner at Insight Venture Partners and a senior fellow at Wharton's Initiative for Global Environmental Leadership (IGEL), said he believes that at least the early generation of autonomous cars will let their owners take the wheel when they want to, because the love of driving is still strong in today's motorists. "A lot of research shows that, even with autonomous cars, people are still going to want to drive," he said. "I don't think that goes away."

Automakers will remain a big part of future mobility, but they see their roles changing.

THE FUTURE OF TRANSPORTATION

"When it comes to urban transportation, there is a huge amount of disruption to what we consider the norms," said Survis. "The whole question of auto ownership is being challenged by sharing services and the autonomous car."

Survis said that accommodating self-driving cars will require cities to adjust their infrastructure — for instance, by adding special dedicated lanes, or geo-fenced areas. "The infrastructure for modern transportation in the urban environment demands major thinking and federal funding," Survis said. "As the population continues to rise in our bigger cities, this should become a major priority."

For Asia's growing "megacities" (with populations above 10 million), new transportation models may not involve four wheels at all. A startup called Gogoro has sold 15,000 of its electric scooters in Taipei, Taiwan, and keeps them on the road with hundreds of battery swap stations. Founder Horace Luke said he plans to expand to other Asian megacities. The company also has a separate scooter-sharing operation in Berlin, Germany with Bosch as a partner.

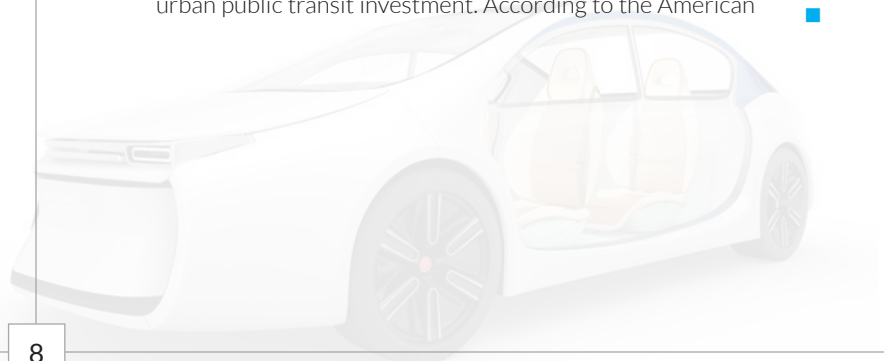
In the U.S., Americans are responding to the renaissance in urban public transit investment. According to the American Public Transportation Association (APTA) Fact Book for 2015, "Since the early 1970s, public transportation has shown a long-term growth in ridership [60% since 1973]. … Bus ridership has grown 15% over that time period while heavy rail and light rail ridership have each more than doubled. … Public transportation ridership has increased by over a billion trips each of the past two decades." But more needs to be done, since the U.S. transit system is aging, and the population is expected to increase by 100 million by 2050.

The good news is that despite infrastructure challenges, cities are committing to adding transit options, especially light rail. According to New Geography in 2014, it is "legacy" cities like New York, San Francisco, Chicago and Washington, D.C. with well-established subways and rail that account for 77% of transit commuting nationally. But that's changing, as newcomers like Phoenix (which opened a 20-mile rail system), Dallas (93 miles in four lines), Salt Lake City (four new lines in one year), Denver (which realigned its downtown around the rail hub) and others become far more transit-friendly.

That said, automakers will remain a big part of future mobility, but they see their roles changing. Volkswagen, for instance, launched a new brand called MOIA, which is providing a ride-hailing commuter shuttle in Germany using electric vans. According to a 2016 article in the *Financial Times*, "[Automakers] are partly being pushed into it by Uber, which has made ride-hailing in cities so convenient and comparatively cheap that it may start to take the place of car ownership. … Road transport becomes a utility, something that can be bought by volume, like gas, electricity and water."

John Paul MacDuffie, a professor of management at Wharton, believes that in the near future, urban dwellers will "start each day figuring out where they need to go, and will put some options together that might be unique to that day, possibly combining public transit, car rentals, ride-hailing, car sharing and city bikes."

MacDuffie also said that there is likely a market for "mobility services providers that can make it all work for you." Ideally, that would mean the traveler would tell the provider where they wanted to go, and they would get a detailed itinerary with all the intermodal links worked out. ■



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