

How sharing the road is likely to transform American mobility

Increased passenger density and decreased vehicle footprint should bring strong growth for ridesharing in the decade ahead.

by Troy Baltic, Alex Cappy, Russell Hensley, and Nathan Pfaff



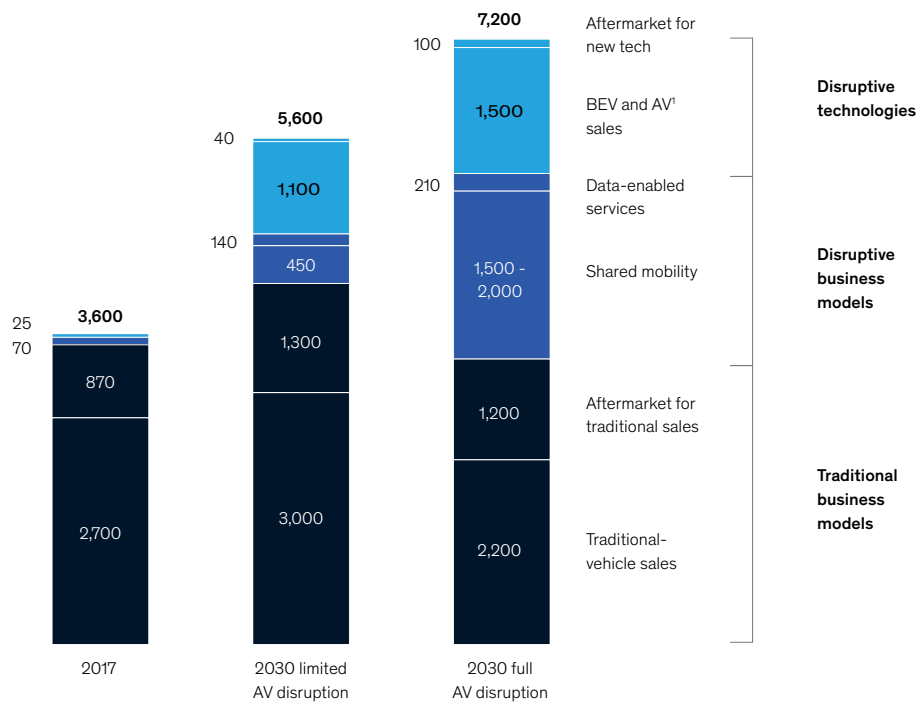
Getting around is about to get a lot more interesting. The mobility sector could well undergo a major overhaul in the next ten years, significantly upsetting traditional elements of the transportation industry and accelerating the shift from purchasing (or leasing) a vehicle as a product to consuming mobility as a service.

[Four essential innovations](#) are rapidly redefining modern mobility: autonomous vehicles (AVs), connected cars, electric vehicles (EVs), and shared-mobility services. These technologies will likely converge—think autonomous, electric-powered robo-taxis—and contribute to a new era of personal mobility (Exhibit 1).

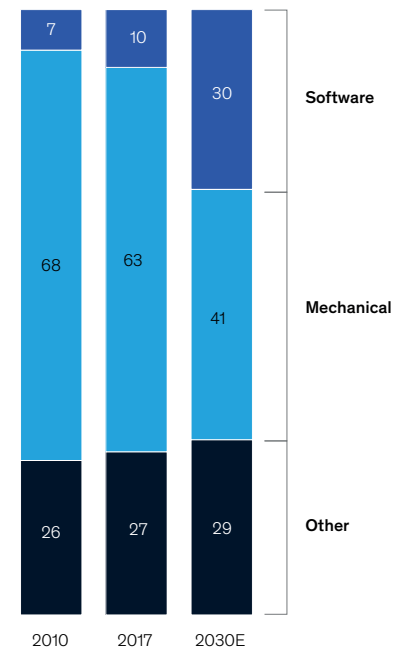
Exhibit 1

Electric and autonomous vehicles will unlock new potential as revenues fragment from traditional streams and software content increases.

Mobility-revenue scenario, based on spend in 2017 and 2030, \$ billion



Average vehicle-component content, % by value



Note: Figures may not sum to 100%, because of rounding.
¹Battery electric vehicle and automated vehicle.

When those technologies at last take hold, shared mobility—driven by [fleets of autonomous robo-taxis](#)—could generate the biggest slice of new revenues. That prize could amount to some \$1.5-2.0 trillion in 2030. But while the dozen or so years until 2030 is not exactly a lifetime, it's still a long time, especially when the larger ridesharing companies continue to make significant billion-dollar investments each year and have not yet reached profitability.¹ Currently, a rideshare driver's net income consumes half of the total fares collected, and he or she must book two to three rides of 5-6 miles in distance to net \$14 to \$15 per hour—a pay level that's increasingly available for less demanding jobs in a tightening labor market. Driver retention is also one of the biggest costs in a rideshare company's profit-and-loss statement, and that cost can only go up.

Factor in that ridesharing currently only represents about 1 percent of US passenger-miles traveled (PMT) and that ridesharing's practicality decreases dramatically the further away from a city you happen to be, and one can understand the doubters. Is ridesharing destined to be confined to a small urban core? Investors might also fairly put the question another way: Just where is all the growth supposed to come from before the robo-taxis arrive?

Yes, the growth is real—and it's spectacular

Actually, ridesharing's growth potential in the near term is considerable. Overall e-hailing fares have grown ~130 percent per annum since 2013, amounting to a ~\$30 billion market in 2018. Those revenues are largely a function of three things: the price of fares, the number of users, and the miles each user travels (itself a function of total trips multiplied by miles per trip).

The first input, number of users, has been growing rapidly. In the United States, e-hailing is offered in more than 260 cities. Indeed, user numbers have been well-nigh exponential up until 2018, more than

doubling in 2015, 2016, and 2017 before moderating in 2018. User convenience is a primary attraction.

The second input, fare price per mile, has indeed been running flat, and it now sits at approximately \$2.50 per mile. For many users, the price isn't cheap. By comparison, the average cost of vehicle ownership is about \$0.65 per mile if the vehicle drives around 12,000 to 13,000 miles annually. That's not to say that ridesharing users are dissatisfied, however. In fact, most customers report that they intend to use ridesharing even more frequently in the future. Historical numbers back up that assertion.

It's not surprising, then, that the third growth input, miles traveled, is growing rapidly and has much more room to run. Total US ridesharing trips now exceed around two billion per year, having increased at a compound annual growth rate of ~150 percent from 2013 to 2018. Average ride distance has also been climbing, at a rate of 3 to 5 percent annually.

Unlocking the congestion paradox

Growth brings challenges, however, particularly the problem of congestion (Exhibit 2). E-hailing is already having a major impact on cities and suburban areas. Ridesharing is not simply a substitute for traditional modes of automobile transportation, such as personal vehicles, taxis, and rental cars. On the contrary, fully one-half of all ridesharing trips would not have been taken but for ridesharing. In the face of such challenges, some cities are taking aggressive action,² including capping total hailing licenses and setting wage floors for drivers.

Consider pooling as a potential solution. Shared commutes are relatively unpopular; many users, particularly businesspeople on the go, don't want to share their rides with strangers. Purpose-built shuttles, however, would offer greater individual comfort and privacy. Since standard individually e-hailed services still compose about 95 percent of all e-hailing trips, there are likely additional opportunities for shared rides to grow.

¹ Eric Newcomer, "Uber CEO embraces losing money with revenue growth slowing," Bloomberg, August 15, 2018, [bloomberg.com](#).

² Peter Holley, "New York City sets \$17 minimum wage for Uber, Lyft drivers," Chicago Tribune, December 5, 2018, [chicagotribune.com](#).

The 'dockless' key to unlocking micromobility's appeal

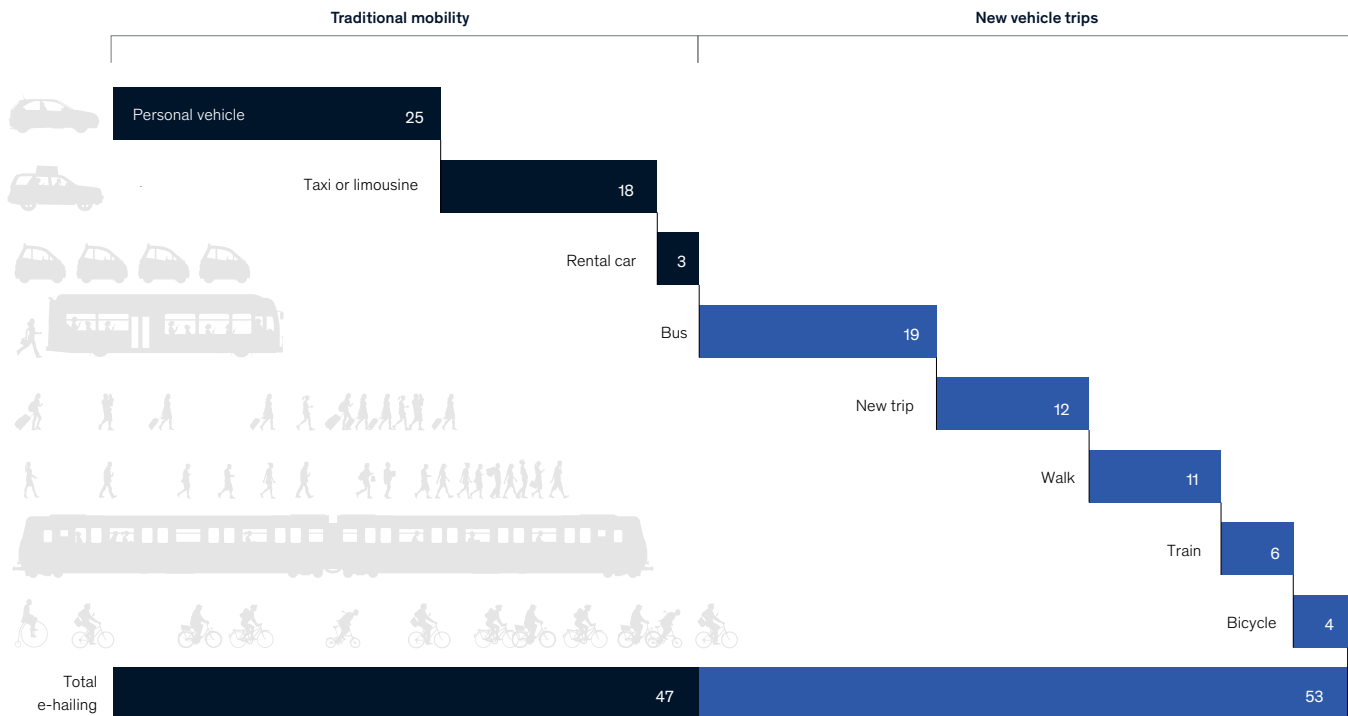
[Micromobility](#) is one avenue to reducing vehicle footprint and relieving congestion on the roads, and it is boosting growth even more. Fares for

these small, one- or two-passenger vehicles, most commonly bicycles, mopeds, and e-scooters, reached a modest \$70 million in 2017 across more than 60 cities. However, the emergence of

Exhibit 2

More than half of e-hailing trips are new passenger-vehicle miles, causing public concerns over growth in traffic and congestion.

E-hailing growth sources, % of trips that would have been taken by alternative mode of transport



Note: Figures may not sum to 100%, because of rounding.
Source: US Department of Transportation; McKinsey analysis

McKinsey & Company

"dockless" e-bikes and e-scooters has changed the growth trajectory and interest; across 2017 and 2018, they logged a staggering ten times more trips during their first 12 months than did traditional-vehicle-based e-hailing solutions during the same early stages.

These new solutions allow users to pick up and park their vehicles anywhere along the sidewalk or at a bike rack within a defined district. That reduces

infrastructure costs and allows for a greater number of the microvehicles to be deployed on streets closer to where consumers can easily use them. Just as important in building a passionate customer base, these solutions bring fun to the commute. Also, they offer a low-cost alternative, at \$1.00 to \$1.50 per mile, for first- and last-mile commuting trips of one to three miles in length.

Obviously, it's still early days. Early unit economics

suggest a payback period of just four to seven months on e-scooters if they get five or more trips per charge cycle—but time will tell if the uncertainties about maintenance, charging, and redistribution expenses can work within feasible unit economics.

The dockless challenge with public perception

The externalities of micromobility are obvious to anyone reading the news regularly, as pushback has been vocal in some cities for very real reasons. Examples of measures already taken by cities include capping the total number of units, setting minimum-age conditions for use, and requiring special licensing for vehicles deemed too fast moving. Significant consumer pull, however, may temper the regulations—or, as proved to be the case for e-hailing automobiles, help roll back or even eliminate restrictions.

Through the looking glass

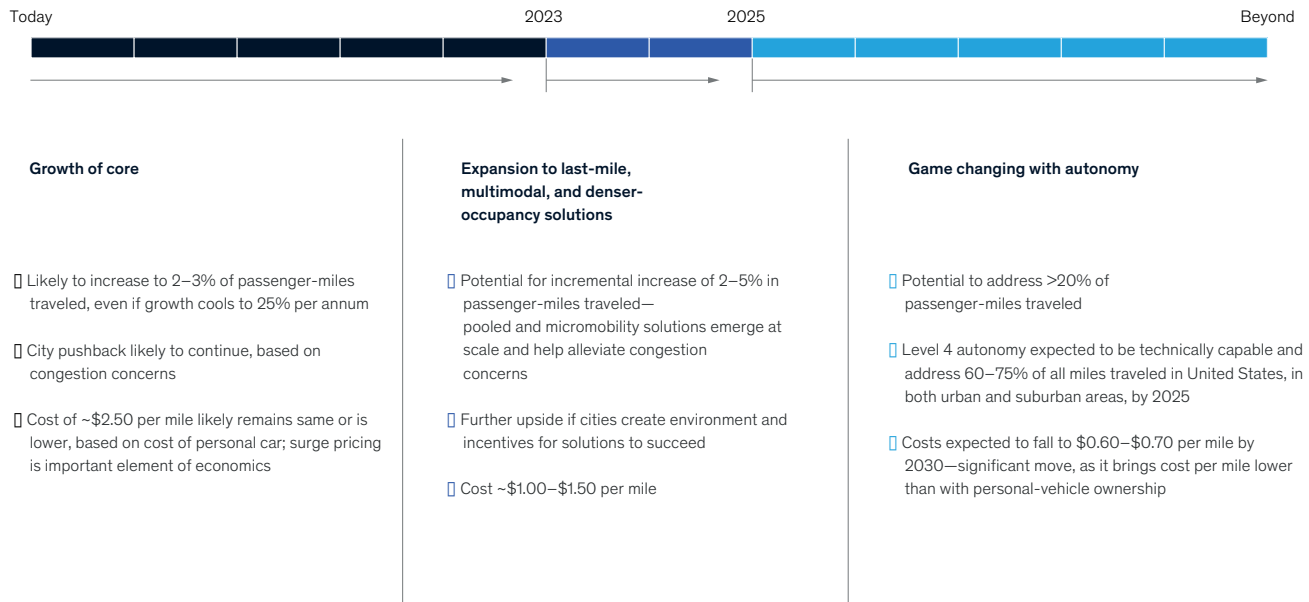
Most likely, the future will unfold as it always does: in stages. We expect to see three development horizons for shared mobility (Exhibit 3).

To start, look for additional growth in the core business to continue until about 2023 (or until autonomous solutions fully emerge), with shared mobility increasing to roughly 2 to 3 percent of all PMT (even if growth cools considerably). The primary growth driver will be trips taken—and even more trips, from a range of conceivable use cases, can be realized with [cost-effective improvements](#) in vehicle-interior design and by more widespread implementation of purpose-built vehicles beyond 2023. While growth in this initial phase could be higher, practically, some major cities will probably take increased action to check congestion.

Exhibit 3

Shared-mobility growth is likely to follow three horizons over the next decade, as we move toward autonomous vehicles.

Horizons, signposts, and what you have to believe



Building on—and to some extent running in parallel with—this initial horizon, the ridesharing industry will likely seek to expand to last-mile and multimodal solutions through 2025. The introduction of more pooled and micromobility services at scale during this second horizon has the potential to add more than two to five percentage points to PMT. The key to growth [rests with cities](#). While some cities may actively encourage micromobility and create room for smart growth or adopt a laissez-faire position (or at least a wait-and-see stance), it remains uncertain how much pushback cities will ultimately apply in the face of increasing numbers of e-bikes and scooters.

Finally, in the third horizon, the industry will approach escape velocity toward vehicle autonomy, starting to reach scale around 2023. (Self-driving cars are already on streets today.) Achieving SAE

International Level 4 autonomy capabilities could help ridesharing companies reach, and even exceed, more than 20 percent of shared-mobility PMT in urban and suburban areas.

The impact could be profound for the auto industry, consumers, and cities. Early data suggest that high-income urban households are already shedding cars in favor of other mobility choices, while younger generations use ridesharing two to three times more than do those older than 55 and are increasingly less likely to get driver's licenses (according to a McKinsey US consumer survey). These data points suggest an openness to replace owned cars—or at least, use one's owned car much less—because of shared mobility.

As Niels Bohr was reputed to have said, prediction is always difficult, especially about the future. Shared mobility's growth could be incremental, or it could be quantum. In fact, it could well be both. With opportunities to increase passenger density, minimize vehicle footprint, and tack to favorable demographics, the arrow for ridesharing is almost certainly pointing up. How far, and how fast, will become apparent even before the AVs arrive.

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The authors wish to thank Shih-Yung Huang, Ayesha Khan, Josh Roberts, and Ben Veres for their contributions to this article.

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