



# HOW COVID-19 WILL SHAPE URBAN MOBILITY

By Julien Bert, Daniel Schellong, Markus Hagenmaier, David Hornstein, Augustin K. Wegscheider, and Thomas Palme

**J**UST A FEW MONTHS ago, cities all over the world were in the midst of a mobility renaissance. New forms of shared and connected mobility were taking root, augmenting overburdened public-transit systems and offering convenient, eco-friendly alternatives for commuting and urban travel. Then came COVID-19. When lockdowns halted normal everyday life, commuting and leisure trips for many millions of people came to an abrupt halt. Urban transportation usage plummeted to its lowest level in decades.

Meanwhile, the pandemic forced companies to adapt fast, and now many people are recognizing that there is actually another way to live and work. Google and Spotify recently announced that employees can work from home until the end of this year; Twitter, Square, and Facebook will allow most of their employees to telecommute permanently.

But how deep and how long-lasting will such changes be? As business activity resumes but the threat from the coronavirus

remains, urban mobility faces two challenges: consumer behavior and attitudes have shifted, and disposable income has shrunk. Social distancing practices, along with fear of the close physical contact that's often inevitable in urban transportation, raise the question: Is this the beginning of the end of the new urban mobility ecosystem—or just a temporary bump in the road? The fact is, the need for new modes of mobility hasn't changed and neither has their social or environmental value. Moreover, a vibrant mobility ecosystem is vital to cities' economic recovery. So what must mobility providers, municipal leaders, governments, and investors do to restore public confidence and get the new mobility back on track?

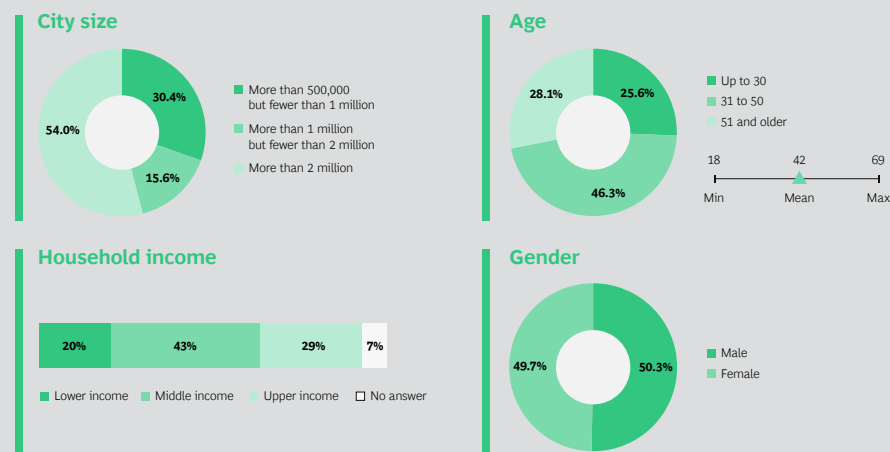
To answer that question, BCG conducted a survey of 5,000 residents of major cities in the US, China, and Western Europe (France, Germany, Italy, Spain, and the UK). (See the sidebar "About Our Survey.") Our goal was to understand people's travel-related concerns and priorities by asking them a series of questions about their actu-

## ABOUT OUR SURVEY

At the end of April, BCG surveyed 5,000 urban residents: 1,000 in the US, China, and Germany, and another 500 each in France, Italy, Spain, and the UK. (See the exhibit below.) By then, China was no longer in lockdown, but Europe and the US were. More than half the respondents live in cities with populations exceeding

2 million, and their median age is 42. The survey pool was divided almost evenly by gender, and the largest share of respondents (43%) were in the middle-income bracket (brackets were adjusted according to each country's level of prosperity).

### Survey Demographics



Source: BCG survey (5,000 urban residents in China, the EU, and the US).

al and anticipated behavior in the course of three specific periods: during lockdown; over the short term, as lockdowns are lifted but the threat of contracting COVID-19 remains (as does the possibility of subsequent lockdowns); and in the medium term, some 12 to 18 months from now, as treatments and a vaccine presumably become available.

### Lockdown Travel

During the lockdowns, the use of nearly every mode of transportation fell precipitously. (See Exhibit 1.) Cities kept public transit running to provide low-cost transportation for essential workers; they were forced to act quickly and change their business model to meet the requirements of a rapidly changing environment, with frequent sanitizing of subway and rail cars and buses, contactless payment, and other measures.

Some e-scooter and car-sharing services suspended service temporarily, while others maintained operations, implementing sanitizing and other hygienic measures. Some reduced their rentable fleet to cut costs.

Not surprisingly, the use of privately owned bikes and e-scooters rose in all three of the regions we surveyed, and bike sharing increased in the US and China, aided by regular disinfection and price reductions. Apart from providing a way to avoid contact with others, bikes offered a healthy and convenient alternative and the opportunity to be outdoors, where the risk of infection is minimal. Some cities, in fact, facilitated bike use by closing streets to motorized vehicles and creating pop-up bike lanes.

Private-car travel, which supplanted public transit and ride hailing (among other less-

## EXHIBIT 1 | Use of Most Transport Modes Declined During Lockdowns

TRANSPORT MODE	US	EU	CHINA	SHORT-TERM MEASURES	
<b>Public transit</b> (metro, bus, tram)	↓	↓	↓	<ul style="list-style-type: none"> <li>• Reduced frequency</li> <li>• Disinfection of seats, poles, and other high-touch surfaces</li> <li>• Compulsory masks for staff (and, in some places, passengers)</li> </ul>	
<b>Ride hailing (pooled)</b> (on demand, multiple passengers)	↓	↓	↓	<ul style="list-style-type: none"> <li>• Limit number of passengers in shared rides</li> <li>• Protective sheet between driver and passengers</li> <li>• Temporary suspension of service</li> </ul>	↑ +60% or more
<b>Taxi and ride hailing</b> (on demand, single passenger)	↓	↓	↓	<ul style="list-style-type: none"> <li>• Free masks, hand sanitizer, and cleaning supplies for drivers</li> <li>• Frequent disinfection (e.g., every 4 hours)</li> <li>• Protective sheet between driver and passenger</li> </ul>	↗ +21% to +59%
<b>Car sharing</b> (free floating or station-based)	↓	↓	↓	<ul style="list-style-type: none"> <li>• Increased cleaning and sanitizing</li> <li>• Temporary reduction of fleet or suspension of service</li> <li>• Price reductions and package prices</li> </ul>	→ ± 20%
<b>Bike sharing</b> (free floating or station-based)	↗	↓	↗	<ul style="list-style-type: none"> <li>• Regular disinfection of handlebars and seats</li> <li>• Price reductions</li> <li>• Temporary suspension of service</li> </ul>	↓ -21% to -59%
<b>Scooter sharing</b> (only available in US and EU)	↓	↓	N/A	<ul style="list-style-type: none"> <li>• Temporary suspension of service</li> <li>• Regular disinfection of handlebars</li> </ul>	↓ -60% or more
<b>Own bike/e-scooter, walking</b> (including subscriptions)	↗	↗	↗	<ul style="list-style-type: none"> <li>• Pop-up bike lanes</li> <li>• Closure of entire roads to cars</li> </ul>	
<b>Private car</b> (one's own or company owned)	↓	↓	↓	<ul style="list-style-type: none"> <li>• Suspension of road tolls (including for bridges and tunnels)</li> </ul>	

**Sources:** Press search; expert interviews; BCG analysis.

**Note:** Lockdowns include mandatory and nonmandatory quarantines, business closures, and bans on events or gatherings. Arrows indicate a change in usage based on observations in cities per region.

used modes), declined, as reflected in the reduction in the overall number of trips. In the US, vehicle miles traveled fell nationally at least 65%, and in some states (in early April), by as much as 80%, according to StreetLight Data. Interestingly, some regions reported significant increases in the proportion of speeding tickets compared with the same period last year, as drivers took advantage of emptier roads.

### Travel Practices During Lockdown and in the Short Term Post-Lockdown

Now that lockdowns around the world are being lifted or eased, and as urban travel begins to rebound, what criteria will drive city dwellers' transportation choices?

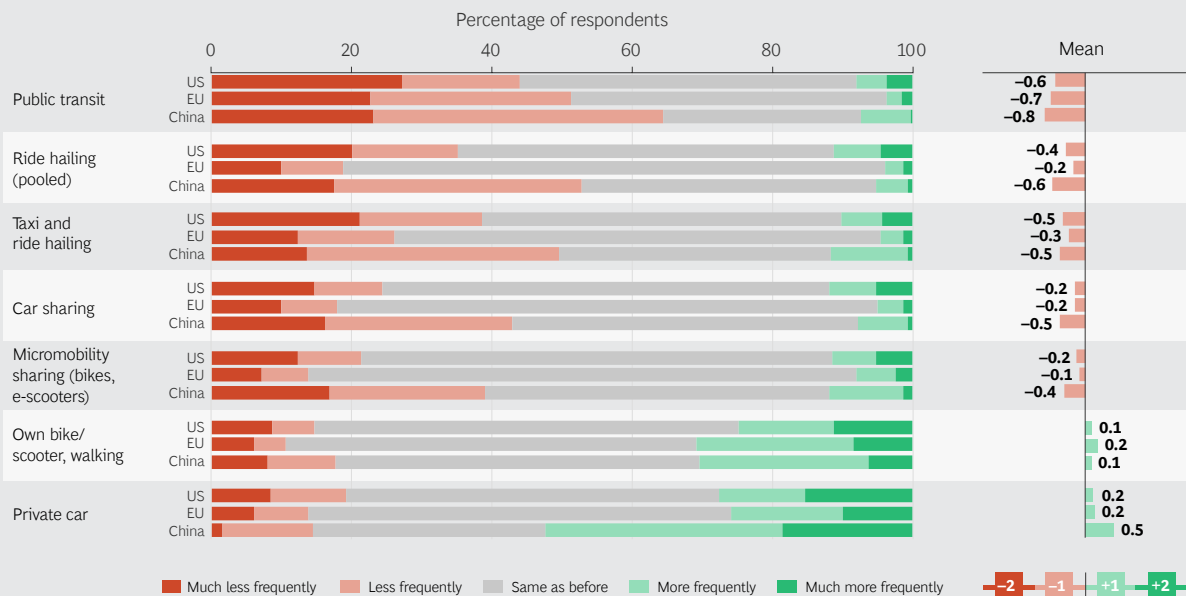
**Social Distancing and Cleanliness.** Physical distance and cleanliness were by far the two most important criteria during lockdown for almost half the respondents to our survey, and this will likely continue. Cost came next (and over time, as more people resume their daily commute and regular routines, cost could resume its place as their top priority). Not surprising-

ly, the travel modes perceived as riskiest were those offering little physical distance from fellow passengers and those requiring contact with high-touch surfaces.

The least risky travel modes? Cars and other types of solo travel. On average, Chinese respondents perceived the risks associated with all modes to be lower than did their European and US counterparts. US respondents were the most wary of mass transit and shared modes. That could be a function of timing, however, as the pandemic hit the US later, and the country is emerging from lockdown later and in a nonuniform way. It could also be a reflection of less reliance on public transit in many US cities.

How do consumers expect to behave in the short term, post-lockdown? Between 40% and 60% of respondents in all three regions said they will be using public transit less or much less frequently, in favor of walking, biking, or driving their own car. (See Exhibit 2.) Other shared-mobility modes, such as ride hailing and car sharing, will also be used less often, but they won't experience declines as sharp as public transit's, according to our survey.

## EXHIBIT 2 | Change in Urban-Mobility Use Immediately Post-Lockdown



Source: BCG survey (5,000 urban residents in China, the EU, and the US).

Of the three main populations surveyed, the Chinese showed a stronger tendency on both counts. In the short term, they are relying less on public transit. Our survey, conducted after China’s lockdown was lifted, suggests that public-transit usage had been declining for some time; many Chinese had been voluntarily staying home for months, including many who weren’t in quarantine or lockdown. Chinese respondents also said they were more likely to walk, bike, and drive their own cars, rather than use public transit. This is entirely logical, considering that these are the lowest-risk modes of transportation in places under lockdown

**Avoidance Strategies.** With commuting halted for the vast majority during lockdown, people could be more flexible about when to travel, and many made adjustments to minimize contact. Overall, around one-third of respondents said they were traveling at different times of the day to avoid crowds during lockdown, and nearly one-quarter said they would only board public transit if there were ample empty seats. Chinese respondents practiced these habits considerably more than Europeans or Americans. At the same time, a sizeable

portion in Europe (63% of respondents) and in the US (78%) said they would only travel alone in their own car. Respondents noted that they were not inclined to buy a transit pass, a reflection of their uncertainty about the total number of trips they would take in a given month and the mode of transportation they would choose.

Avoidance may be a harder tactic to keep up over time. It’s telling that even those who continued to use public transit during the peak of the outbreak modified their behavior in some way. So while travel patterns during lockdown were highly disrupted, it remains to be seen how persistent avoidance will be once people are again on the move—and what that will mean for future demand.

**Car Appeal.** More than 60% of Chinese respondents said they were more likely to buy a car post-lockdown than they were before the crisis. (See Exhibit 3.) Their interest was high across all income brackets. About 80% of upper-income respondents and around 60% of middle-income respondents said they were more likely to buy a car now than they were before.

Interest was high even in the lower-income group, with 44% saying they were more likely to buy a car post-lockdown.

In contrast, a significantly smaller percentage of respondents in the US and the EU expressed an interest in buying a car post-lockdown. Why? Several factors are potentially at work. Car ownership in China is still relatively low compared with other regions; for many, a car is an aspirational purchase. Private cars are also attractive because they're a safe form of transportation. Just before the lockdown took effect in Hubei province, only people with their own car were able to leave town. And during lockdown, when access to public transportation was restricted, only those with a car could travel freely around the city. Finally, with international travel all but impossible for much of the rest of 2020, it's probable that more Chinese, like people everywhere, will want to travel domestically by car.

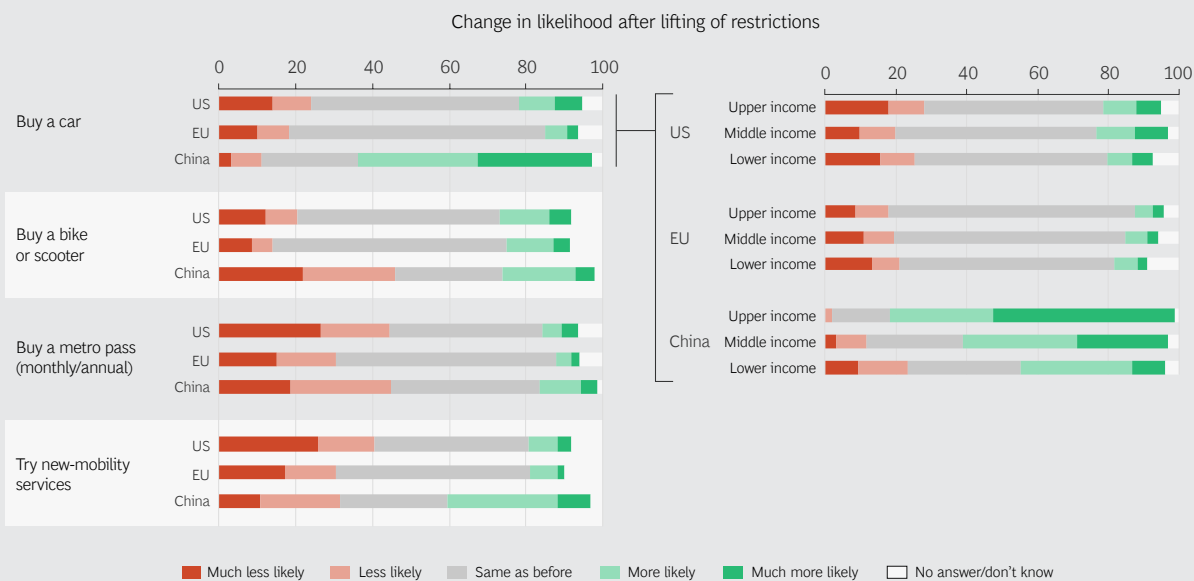
**Spending.** In the near term (as shown in Exhibit 3), the tendency among most respondents appears to be to spend less, suggesting that they expect to travel less often. Among the respondents who expect

to spend less are some who also expect to rely more on a private car, two expectations that seem contradictory. This suggests that these respondents might be underestimating the cost of owning a car, perhaps because the most obvious variable cost associated with car use—fuel—is now much lower with the global oil supply glut.

**Interest in Bikes.** In the US, bike sales are booming: sales of bikes, related equipment, and repair services almost doubled in March compared with the same period in 2019. British Cycling, an advocacy group, estimates that COVID-19 might prompt some 14 million Britons to choose a bike over a car, according to the World Economic Forum's COVID Action Platform. Bikes offer an alternative to public transit and an opportunity to exercise and be outdoors.

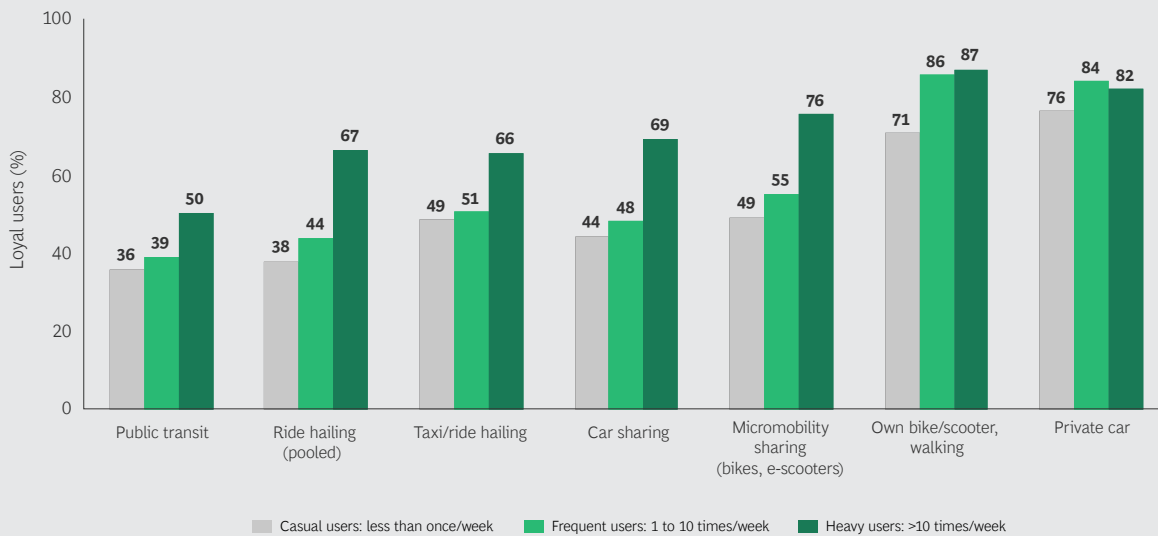
**Loyalty.** Those who used a given mode of transportation more than ten times a week pre-COVID are likely to stick with that choice. In the short term, between 67% and 76% of heavy users of shared mobility plan to continue using (or to increase their use of) those modes—which include solo or pooled ride hailing, taxis, car sharing, and bike and e-scooter sharing. (See Exhibit 4.)

EXHIBIT 3 | Anticipated Spending on Mobility Post-Lockdown



Source: BCG survey (5,000 urban residents in China, the EU, and the US).

## EXHIBIT 4 | User Loyalty Varies by Mode and Depends on Frequency of Use



**Source:** BCG survey (5,000 urban residents in China, the EU, and the US).

**Note:** Loyal users are defined as those who will use a given transport mode to the same or a greater extent after lockdown restrictions are lifted.

Not surprisingly, casual users (those who used a given mode less than once a week, on average) are the least loyal. Respondents registered the least loyalty to public transit, regardless of previous frequency of use. Those who walked or who drove their own car, bike, or scooter pre-COVID are likewise highly likely to stick with those options.

It's important to bear in mind, however, that the choice of mobility mode is always determined by the value proposition, including price. So once commuters return to their normal routines, economics and convenience may well overrule other considerations. Still, the pandemic has heightened people's sensitivity to physical distance and cleanliness. This will probably fade over time, but in the short term, public transit and pooled mobility will suffer. For example, in mid-May, when Germany emerged from lockdown, public transit use bounced back to only 50% or 60% of its normal level, according to data from Apple's Mobility Trends Reports.

Who wins in the short term? Most likely individual mobility modes, such as cars, bikes, and e-scooters. Car sharing will remain popular in Europe, and if ride-hailing

services can promise cleanliness and minimal risk of infection (and if they weather the financial shocks they've experienced), individual ride hailing could rebound in most regions. It's worth noting that bike sharing in China, the country first hit by COVID-19, rose 150% immediately post-lockdown. And shared modes, whether bikes, e-scooters, or even cars, offer users the benefits of private, dedicated use without a large investment.

### The Medium-Term Outlook

What will urban consumer sentiment look like over the next 12 to 18 months (mid-2021 through year-end 2021), when more targeted treatments or even a vaccine for COVID-19 becomes available? Respondents to our survey indicated that over time, as the crisis fades, their safety concerns won't be nearly as acute, and their use of shared mobility and public transit will increase.

We see two potential medium-term scenarios:

- The increased use of private mobility may have some staying power. This is especially likely if the perceived risk of public transit and shared mobility

remains high. If respondents' current sentiments persist, we could well see a resurgence of private car use (not just as a reliable means of transportation in town, but also as a way to get out of the city during lockdowns and on weekends and holidays).

- On the other hand, public transit and shared mobility could make a comeback. We believe this to be the more likely scenario, providing stakeholders put in place the right measures and incentives to discourage the use of private cars in urban centers. As Exhibit 5 shows, the short-term reluctance to use public transit (50% of respondents) will decline by about half. Indeed, in the US and Europe, the survey suggests that use of micromobility (mainly bikes and e-scooters) will return to precrisis levels. Again, these results were obtained during lockdown, a period when respondents were generally unsure and unsettled about the potential dangers of using public transit.

The second scenario depends to a great extent on providers' ability to continue with

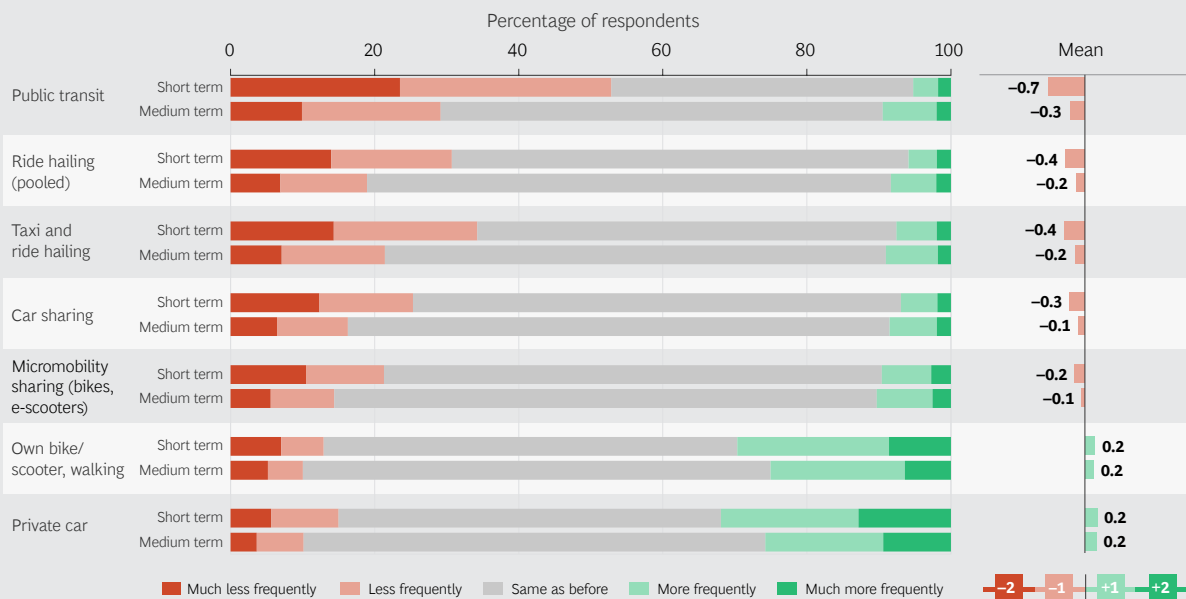
sanitizing and other safety measures to reduce risk and instill confidence. There are only so many options for urban passengers, and fear does fade, supplanted by practical reality. (Recall the widespread vows to never fly again in the wake of 9/11.) Moreover, consumers opt for value—the best combination of features and cost—and many, especially commuters, rely on public transit because of its affordability. If they haven't already, these people would benefit from shared mobility for the same reason.

This second scenario is also more desirable, for city residents as well as for city officials, because it means less pollution and less traffic congestion. Assuming cities respond effectively to restore faith in public transit and support eco-friendly mobility modes, the only pandemic-related trend that endures may be the rise of flexible ownership models, in everything from cars to e-scooters.

## Getting the New Urban Mobility Back on Track

What can mobility providers, policymakers, and investors do to restore beleaguered

EXHIBIT 5 | Change in Urban-Mobility Use Over Time



Source: BCG survey (5,000 urban residents in China, the EU, and the US).

Note: Short-term = immediately after lockdown restrictions are lifted; medium-term = the next 12 to 18 months, when COVID-19 treatments and/or vaccines are expected to be available.



public-transit systems and new-mobility modes to health—and revive the urban mobility agenda?

**Mobility Providers.** For providers, ensuring the health of staff and passengers is the top priority. Many of the practices that companies introduced during the pandemic, such as the use of protective plexiglass panels and motorized sanitizing stations for drivers, could become standard.

Meanwhile, the wave of layoffs is one more indication that consolidation is likely—and an important development in a market where price competition to gain share was pummeling revenues even before the crisis hit. (Uber’s sale of its bike-share business, Jump, to the scooter company Lime demonstrated how tough the micromobility market has become.)

Mobility providers will need to focus on streamlining operations and optimizing costs to curb cash burn. This includes reducing fixed costs; cutting nonessential processes; trimming offerings, fleet size, or city portfolios; and renegotiating with suppliers. It may even require pausing services temporarily.

On the revenue side, providers will need to zero in on the most profitable cities and focus on stabilizing income efforts—by catering to alternative customers, such as essential workers, for example, or offering cargo or food delivery. Revenues of the food delivery service Uber Eats exceeded those of Uber’s passenger transport service in the US for the first time in the first quarter of 2020. Providers should also consider alternative pricing schemes, such as monthly passes and volume discounts, to attract customers.

Finally, new-mobility services should make a greater effort to partner with cities to offer cooperative arrangements such as multimodal access. In this way, they would help integrate public transit with other mobility options and, in particular, offer first- and last-mile micromobility solutions.

**Cities and Policymakers.** COVID-19 has

brought municipal leaders to a crossroads. Restoring ridership to precrisis levels may be necessary to restoring the financial health of public-transit systems, but riders will only let a full bus go by so many times before they choose an alternate mode. Economic factors must be balanced against concerns about the risks of overcrowding. That means, for example, tailoring service frequency to actual demand patterns, instead of relying on traditional tactics like weekend schedules. Transit authorities need to ensure that riders have an incentive to buy monthly passes, or the economic hit could be significant and trigger undesirable effects throughout the mobility ecosystem.

Like the sharing companies, public-transit systems will need to invest significantly in regaining the public’s trust over the longer term. Maintaining or implementing sanitizing practices is a clear imperative, given the sheer volume of passengers served. New tools, such as the disinfection robot that Hong Kong has successfully trialed in train cars, may help with that effort. Cities also need to find ways to accommodate a higher volume of passengers more safely, by running buses, subways, and trams more frequently, for example, and trying out new hybrid models, such as pooled minibuses, which transport far fewer riders but offer more elbow room.

Extending short-term support to local new-mobility service providers could help cities meet normal demand without compromising consumers’ safety. For example, they could pause or waive operating licenses or parking fees, offer providers credit, or even invest in their services.

As federal, state, and municipal governments focus on gearing up their economies, they may be tempted to encourage spending on automobiles, especially given the renewed attraction of private ownership. (China and France have already announced that they will be offering car-buying incentives.) But given the need (and, in some cases, the legal obligation) to reduce urban congestion and control emissions, municipal leaders must be proactive about stav-



ing off an increase in private cars. Two proven tactics are congestion pricing (discounting tolls during off-peak hours) and increasing downtown parking fees.

Another strategy, which has won many more advocates during the pandemic, is to promote biking and walking. The UK recently announced a £2 billion package to put cycling and walking “at the heart of” Britain’s post-COVID transportation plan—intended, in part, to protect the public-transport network. In May, Milan began re-allocating 35 kilometers of streets for bicycle and pedestrian use only, adding temporary bike lanes, widening pavements, and designating certain streets as “pedestrian and cyclist priority.” Paris, too, is developing a plan to discourage cars from regaining dominance on its streets.

No matter what, in the effort to restart their economies, governments should not neglect support for public transit and new-mobility modes, whether in the form of subsidies for sanitization programs or funding for designated bike and scooter lanes or parking spaces for car sharing.

**Investors.** Overall, big sums of money remain in the market and in investment funds. Investors are watching closely to identify the relative winners in mobility postcrisis. Given the amount of funding that so many mobility startups need, consolidation is inevitable. So are “down rounds” (in which valuations are lower than in the previous funding round).

Current investors in mobility services will now turn to working with their portfolio firms to reduce the burn as much as possible in order to rebound postcrisis. But they will need to stay calm and hold the line.

We expect that the new mobility will recover and that, on average, the industry will provide positive profit pools in the not too distant future. In the long term, new forms of mobility must prevail if urban centers are to remain vibrant and sustainable.

**R**ELIABLE, ACCESSIBLE, AND affordable transportation that minimizes environmental impacts is still a critical need. Residents and policymakers everywhere understand that a sound public-transit system, biking infrastructure, and new and shared forms of mobility are vital to the economic lifeblood of their cities. The fundamental value proposition underlying the new mobility has not changed. Business models may need to be modified, but user economics, environmental health, and general societal interests only reinforce the value of a diverse urban mobility ecosystem. Restoring cities’ economic health post-COVID-19 depends on it.

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