The Bus Is Still Best

Ride-shares aren't the most efficient way to move lots of people around cities.

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A recent conference I attended featured a panel called "Microtransit: The Fight Against Congestion." *Microtransit*: It sounds as though a genius has shrunk public transportation in a laboratory, making it adorable.

In some cases, shrinking vehicles is a great idea. Cities don't have room for everyone's car. With shared electric scooters, and improvements to bicycle access, people are finding new ways to move without taking up much more space than their body does.

So it feels right that shrinking transit might be a good idea, too, maybe into little vehicles that will come to your door on demand. But it's not. The best way to get the most people around a city efficiently and cheaply isn't nearly as sexy or high-tech: It's fixed-route buses.

Microtransit, or "Uber for public transit," as some advocates call it, is a new name for an old idea: "dial-a-ride," or demand-responsive transit. A van roams in a neighborhood. People can

call a phone number and request a vehicle to take them where they want to go, or at least to a transit hub. The van might stop for others along the way, too. There are hundreds of these services in the United States. As a transit-planning consultant, I have been designing and redesigning dial-a-rides for 25 years.

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The only new feature of microtransit is smartphones. Apps let customers reserve trips on shorter notice than before, and without making a phone call. But microtransit is about as inefficient as dial-a-ride always was, for reasons that no technology will change.

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Visualize a low-density suburb, with requests scattered over a wide area. How many people's doors can a driver get to in an hour, including the minute or two that the customer spends grabbing their things and boarding? The intuitively obvious answer is the right one: not very many. An Eno Foundation report promoting microtransit could not cite a case study doing better than four boardings an hour of service. John Urgo, the planner of demand-responsive service for AC Transit in Oakland, California, has said that seven boardings an hour is "the best we hope to achieve." Few fixed-route buses perform that poorly. Across sprawling Silicon Valley, for example, fixed-route buses carried 12 to 45 people an hour in 2015. In a dense city such as Philadelphia, the number can exceed 80. I've found similar figures in all of the 50 or so transit agencies that I've studied over the years.

Even so, it seems like small vans would be cheaper to run than big buses to the casual observer. But until it becomes fully automated, the operating cost of all passenger transport is at least 70 percent labor. The driver's time is far more expensive than maintenance, fuel, and all the other costs involved.

In almost every public meeting I attend, citizens complain about seeing buses with empty seats, lecturing me about how smaller vehicles would be less wasteful. But that's not the case. Because

the cost is in the driver, a wise transit agency runs the largest bus it will ever need during the course of a shift. In an outer suburb, that empty big bus makes perfect sense if it will be mobbed by schoolchildren or commuters twice a day.

Cost efficiency only comes from shrinking drivers—that is, paying them less. But an agency can cut pay and benefits only so much while maintaining quality. The transit system in my hometown of Portland, Oregon, is full of friendly drivers who've been selected and trained to be graceful under stress. You cannot expect that skill at minimum wage—a Portland bus operator can make more than $60,000 per year.

Superficially, it might seem that offering riders a more convenient service—especially one that comes directly to their door—would increase ridership. And for individual riders who don't use buses or rail for whatever reason, it might. But for a municipality with a fixed budget for service, shifting resources from fixed routes to microtransit is a way of *lowering* ridership overall, not increasing it. To put it another way, the "to your door" convenience offered by microtransit is so expensive per rider that it cannot possibly scale to the volumes of people traveling in a city. It can only be a special service for a small number of people.

That doesn't mean these services are useless. Every U.S. transit agency runs low-ridership services, called coverage services, for non-ridership reasons. If you planned a network solely for ridership, it wouldn't go to places where density is very low and walking is too difficult. Transit agencies run coverage service in response to a need for transit (such as low-income people living in a hard-to-serve place) or an entitlement to it (*We pay taxes, too, so you should serve us*). Dial-a-ride or microtransit is one way to provide coverage services. They are also a useful way to provide disabled persons with specialized services, which are mandated by civil-rights law. But they will never be high-ridership tools for an urban transit agency.

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In my work as a transit planner, I try to help transit boards think clearly about what balance they want to strike between ridership goals (putting service where lots of people will ride) and coverage goals (providing a little service to everyone). Many citizens demand coverage service and complain if it is removed, but the more coverage service is offered, the less ridership a municipality can expect under a fixed budget. Finding the right balance is a painful process of balancing competing demands, which is the job of elected officials or the board members they appoint.

But while I'm trying to help leaders think clearly about reality, the microtransit marketers are whispering sweet nothings in their ears. Consider this example from the global-transit operator RATP Dev USA:

Let's face it, your community can offer clean, efficient, wide-ranging public transportation, but if the riding public can't get to it or if it doesn't service a specific location—at the time they need to get there—they won't use it. Enter microtransit. It opens up a world of options for your

passengers. And, rather than compete with traditional fixed-route transit, it enhances it ... Because it uses smart software platforms to manage multimodal forms of transport, riders can use their smartphones to search, book, plan, and pay for an entire trip.

This idea might sound good, but it can encourage denial about the real issues facing a transit agency. Like the cost of labor, even though that's most of a transit agency's budget. Or how people will use microtransit to get to fixed routes if the fixed routes have been cut or neglected to fund the microtransit. Or why people who need a ride to a fixed route stop are more important customers than those who get there under their own power. The dream of connecting services to smartphones risks taking attention away from other, more important transit goals.

To succeed, microtransit would have to help people get around cities better, not just make them feel good about hailing a ride on a phone. Full automation of vehicles, if indeed it ever arrives, might solve the labor problem—although it would put thousands of drivers out of work. But the congestion problem will remain. A city is a place where many people live close together. The problem of urban transportation is a problem of sharing space.

When you drive alone (or take Uber alone) in a gridlocked street or freeway, you are taking more than your fair share of the limited space. When stuck in traffic, you are blocking others from moving freely.

If cities want to move people faster than walking while allowing them to take up only their fair share of space, two options arise. One is to use a vehicle that's not much bigger than the human body, such as bicycles and scooters. Those tools work well for certain people in particular circumstances, but not for everyone. The other option is to share the ride in a vehicle. If space is really scarce, that vehicle will have to carry lots of people. In most cases, riders will have to share a vehicle with strangers, people who are not traveling for the same purposes or even to the same places. That's what public transit is.

Fixed public transit deploys large vehicles flowing along a set path, and riders gathering at stops to use them. That way, the vehicles can follow a fairly straight line, and they don't need to stop once for every customer. That is what makes them worth walking to get to. It is one of the best ideas in the history of transportation.

And walking is key to it. Out in low-density suburbs, residents can also drive to fixed-transit stops. But in the dense city, there's no room for that. The microtransit promise of "service to your door" is a promise to abolish walking, and yet walking is the essence of how people share precious space.

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Those who prefer not to walk should be able to pilot their own tiny vehicles: a bike, a scooter, or whatever gets invented next at that scale. But the space-efficient solution, like the labor-efficient

one, won't require a driver to transport just you and a couple of others. Citizens should expect to pay full price for that.

So what technologies make sense in public transit? Efficient transit networks are made of many technologies, each the right one for its own situation. Rail is for high-capacity markets, where you need to move hundreds of people per vehicle. Ferries and aerial gondolas overcome certain obstacles. But everywhere else, the bus is the thing that's easiest to make abundant. Because labor is the main limit on their quantity, they can be much more abundant after full automation.

If the buses are terrible in your city, you may think that buses are terrible in general. In truth, a city's bus service is as good as its leaders and voters want it to be. Where voters have funded better bus services and cities have worked to give them priority, as in Seattle, ridership has soared.

But most U.S. cities have a large unmet demand for frequent bus service, which is why cities investing in more frequent service have seen ridership rise. Outside the largest metro areas, you can also verify this fact by comparing your city to the most similar one in Canada. There, you'll usually find much more bus service in a city that looks a lot like yours, with rider numbers that are higher than your city's and growing faster. Fewer people are forced to drive in those cities, too. Americans could share that benefit, and without the need for technology. Just run as much bus service as Canada does, and demand that it have the priority it needs to succeed.

The starvation of high-ridership public transit in America is a choice, one that Americans don't have to make. I work in cities all over the developed world, but my U.S. clients always have the poorest transit budgets, requiring the most painful trade-offs. They can't afford to run the frequent and reliable fixed-route services that would do well, so they are forced to run poor service, yielding low ridership, feeding the impression that transit is pointless. Yet rather than taking the next steps in a known path to success, some leaders are chasing whatever distraction the tech industry is selling.

Technology companies have brilliant solutions to important problems. For the problem of emissions, they offer electric vehicles. Autonomous vehicles of the future, and active-safety systems of today, make vehicles safer. Apps make transit services easier to navigate and pay for. But those are different problems from the problem of sharing space. The technology industry's marketers can mix these issues together, dangling an electric, autonomous future before the citizenry, but if their vision hasn't solved the problem of sharing space, it is not a vision of a functional, inclusive city. They will try everything else first, but in the end, the only solution will be the bus.

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