Ubiquitous Mobility:

The Rise of Urban Ridesharing and The Evolution of Transit Oriented Development

Peter Erhartic
MDes Real Estate and the Built Environment '17

Public transit is at a paradoxical crossroads, at once receiving unprecedented governmental investment while concurrently facing a threat more severe than at any time since the advent of the automobile. Advocates fought for decades to increase transit equality and now their work has paid off as the value of urban public transportation has come to be re-embraced. This acceptance is particularly true with rail, with the United States seeing a mass revival of streetcars and numerous heavy rail extension projects or proposing the creation of new lines. Accompanying proposed rail projects is significant investment in the neighborhoods immediately surrounding their transit nodes. Beyond private land speculation, cities have proceeded to encourage transit-oriented development through a variety of urban policies and incentives, ranging from density bonuses to eminent domain power, all for the purposes of spurring private development in transit rich locations to make more efficient use of trans-

What is the distinct utility of transit oriented development once the entire city has access to affordable and reliable transportation?

portation infrastructure. At the same time, however, new automobile-based ridesharing platforms are emerging and are increasingly competing with public transit. As ridesharing continues offering ever more efficient, comfortable, adaptable, and affordable modes of mobility, these platforms have the potential to lure away riders from traditional public rapid transit and offer an increasingly flexible form of mobility. This circumstance could lead to increased opportunities in historically transit poor areas, while simultaneously de-emphasizing areas which are socially and economically defined by their proximity to rapid transit. We may not soon witness the end of public transportation, but we could likely soon see the steep decline of public transportation's influences in shaping the built environment. Much has been written about ridesharing's potential "disruption" of the taxi and automobile industries and transit. While touching on that potential,

this article is less concerned with mobility in and of itself and more interested in how it effects land use choices. To that end, this investigation will focus on how emerging ridesharing platforms will significantly affect settlement patterns, with implicit consequences for real estate development and urban policy surrounding transit-oriented development.

FIXED TRANSIT AND URBAN NODES

The utility of rapid transit seems mostly unquestioned in current American urban policy with multiple rail extension or creation projects underway. Rail's renewed appreciation spurs a vigorous concentration of attention to the communities immediately surrounding fixed transit stops. Consequently, rail and bus stations become centers of commerce and community as transit generates foot traffic by garnering riders. While fixed transit nodes serve as consistent locations of access, they do not allow for flexibility or adaptability in service. Rail systems, for example, are on set courses determined at the time of their construction that would in many cases not be ideally situated if built today. Many of the legacy transit systems in the United States were constructed during an era of monocentric urban development consisting of cities with one clearly defined governmental and economic center, with residential areas surrounding the single urban core. This mode of urban settlement led to the ubiquitous "hub and spoke" model of infrastructure development with lines terminating or converging at city centers. This model of urban development no longer reflects the economic and social realities of how cities function.

Contemporary cities instead typically are now polycentric. American cities usually feature multiple centers of economic and social vitality, and hub and spoke transit systems consequently fail to properly serve widely disbursed citizenry. They further often don't provide efficient paths to employment and social service centers needed by diverse populations. Many cities aiming to move past the hub and spoke model are creating "urban ring" transit services connecting various lines outside of the city core. While an urban ring alleviates some of the limitations of historic transit systems, it often fails to connect distinct urban neighborhood in an efficient manner since this system still tends to be on set courses in distinct circular routes. Modern living and working patterns necessitate

interconnectedness of a wider ranger of nodes than an urban ring could begin to address. Transit infrastructure is so rigid in its design and so expensive to construct that these systems often struggle to evolve in step with the needs of a cities' population.

Instead of transit shifting to suit evolving settlement patterns, many American cities, through urban policy, have encouraged development around existing and proposed rail and bus lines. In other words, development follows access to transit more than transit access is planned around existing communities. As long as fixed transit is crucial for commuting then transit lines will continue to influence land values and personal living and working choices. Policymakers should instead encourage the creation of more flexible methods of mass transportation that can better serve the polycentric city than traditional fixed-route transit modes. Doing so would allow for easier access between two points that may not have historically been economically or socially linked but now warrant connections.

As a result of the value currently placed on public transit, fixed nodes are determining urban settlement by creating centers of vibrancy and opportunity where they might not have otherwise organically occurred. Even without encouragement through governmental incentives and rezonings, the creation of new fixed transit fosters new real estate developments and necessitates high-level urban planning. The regeneration of many American cities has brought relentless growth in land value to urban cores in general and to areas around transit in particular. Despite the perceived value of public transit, however, the placement of new transit lines and nodes often doesn't match a metro area's needs. This is seen in Northern New Jersey across from New York City, which features some of the densest cities in North America. In some cases these areas feature no rail rapid transportation while more suburban outposts in New York City's outer boroughs benefit from rapid transit despite their low population density. In many cases, the locations of these nodes were determined by economic or political strategies or engineering practicalities rather than by census realities .

Modern transit also often fails to reach communities that most rely on its services. As a crucial mode of mobility, one would expect rail lines to be designed to serve low-income populations, but this is often

not the case. Not only is new infrastructure often disproportionately situated in high-income areas, but also the mere presence of a transit line often leads to displacement. The link between property values and rapid transit, particularly rail, can lead to a vicious cycle for low-income households: as transit is extended, land speculation in nearby areas drives up the rents required to support aggressive land acquisition values resulting from rail investment. This increase in rents most harms low-income households who require lower rents and are, ironically, most in need of access to the same reliable and affordable public transportation modes that are leading to their displacement. The high value of land associated with these nodes therefore creates a social equity gap in urban mobility. What's gained for the working poor through the low costs and reliability of public transit is lost via land and housing economics. This economic challenge of rail demands a transit mode that doesn't lead to immediate transportation-based land speculation, and can more quickly respond to the needs of low-income residents than what currently exists in most cities.

To focus on rail, however, is to ignore the more common mode of American transit: the bus. Busses usually provide neither the right-of-way of rail (unless benefitting from designated lanes) nor the adaptability and comfort of cars. Busses, unlike trains, are subject to delays due to traffic and can not be responsive in their routes. Like trains, bus schedules are fixed and unable to optimize ridership: during rush hours busses and trains are full, but during other hours they are virtually empty. Additionally, for a variety of reasons, the public tends to have poor perceptions of busses. Busses do, however, require less capital intensity than rail and this has allowed bus systems to adapt to serve neighborhoods where transit needs are most pressing. Ideally, busses could serve their full potential through by creating adaptive routes based on demand and on the desire to connect specific nodes as economies and populations evolve. Private organizations understanding this potential have begun stepping in.

Emerging models of ridesharing are beginning to combine the utilities of cars, busses, and trains, at once achieving the price point of general public transportation, the capacity of public busses, and the comfort, accessibility, and flexibility of private cars. In reaching this aim, emerging ridesharing platforms will compete with public transit for riders and

offer access to areas not currently served or between areas that otherwise aren't linked. With this competition to public transit comes a potent challenge to the prominence and value of land in proximity to transit nodes. This evolution, in turn, calls into question the public benefit of policies encouraging transit-oriented development. With a viable alternative emerging to public transit, households and businesses may soon no longer need to consider public transit access when deciding where to locate—a reality that will consequently result in the shifting economic values and social utility of transit nodes.

EMERGING MODES OF RIDESHARING AND THEIR CONSEQUENCES

While ridesharing has already significantly undermined the taxi industry, it has yet to put a significant dent in the ridership of public transit. On the contrary, many public transit agencies have seen record ridership in the past year. This current paradigm, however, may soon shift as a result of emerging practices in the ridesharing industry. The platform

Modern transit systems often fail to reach communities that most rely on its services

of Boston-based Bridj offers an example of a viable alternative to public transportation. The organization set out to reconcile the shortcomings of both livery and public transit through using ridesharing technology to create a smart system of mini-busses. While origins and destinations are temporarily fixed (Bridj's stops evolve in a nuanced block-by-block manner as user data is aggregated), Bridj's service is completely different than traditional busses: the route changes during each ride to adjust to traffic; there are no stops during the ride other than the origin and the destination; free WiFi is offered; and vehicles are kept clean throughout the day to feel like "luxury busses." On the user's end, one reserves their rides on the Bridj phone application, Bridj then aggregates user inputs and creates "on the fly" nodes to which multiple users walk. The frequencies of Bridj's routes are highly responsive to demand—more frequent during traditional peak demand (a practice common as well in public transportation, though not always determined in real

time). Routes are adaptable and therefore more reliable than typical bus schedules. Most importantly Bridj rides, depending on distance, cost between $2-$6 in fixed fees depending on the particular route. Bridj is responsive to organic demand and can create or eliminate origins and destinations based on real-time rider needs. The platform is sort of like a new take on the classic jitney bus, albeit with greater comfort and fewer stops. In short, Bridj offers a more comfortable experience than public transit and is getting closer to matching its price. Beyond providing utility to private users, these platforms offer benefits to municipalities. Bridj offers roughly the same function as public transit without the high infrastructure costs of traditional public transportation modes. While currently in limited early phases, an ultimate goal, according to its founder, is to greatly expand the zones of service of Bridj to serve transit-poor areas and serve as a tool for social equity. If Bridj can indeed serve transit poor areas in a more convenient and dignified manner than public transit, then this "techie" app could become a real public utility. Kansas City

Convenience, dignity, and value can turn an 'app' into a real public utility

Area Transportation Authority believes it can serve this purpose and has partnered with the company to create a quasi-public transit option. The agency has teamed-up with Bridj to make the platform part of Kansas City's public transit system through using public funds to buy Bridj's branded mini-busses, hiring Bridj drivers as municipal employees, and simply using Bridj's technology and data gathering to create "smarter," more efficient modes of publicly funded transit. All of this isn't to fully endorse Bridj or the outcomes of their product but to note that ridesharing is rapidly evolving and that its success, its widespread embrace, and its variety of models suggest that it is quickly shifting from a taxi alternative to an preferred mode of general transportation.

Bridj is not alone in their quest to provide a viable alternative to public transit. Washington-based company Split and New York-based Via also use algorithms to pick-up carpooling passengers at convenient nodes to allow for maximum efficiency

in service at lower prices than offered by traditional ridesharing platforms. Unlike Bridj, Split and Via use traditional cars or large SUV's rather than busses. However, unlike Uber or Lyft, which offer door-to-door service, Split and Via request that riders simply walk a few blocks from their origin and to a given location that allows for the optimal efficiency in routes, and that riders carpool with as many as four or five other riders. Via truly emulates the jitney model through having cars drive up and down a single avenue and picking-up riders along the way to allow each car to reach full capacity and offer riders a predictable route. While slightly more expensive than Bridj, Split and Via's services cost less than traditional cabs and ride sharing platforms such as Uber. To this end, the ridesharing giants are acutely aware that they need to offer competing services, and are improving their carpooling platforms accordingly through prices and reach. Uber has launched "Uber Pool" and Lyft has launched "Lyft Line" where more uses share cars to drive down costs to begin competing with transit.

In the same vein as Bridj and Split, ridesharing powerhouses Uber and Lyft are aiming to compete with the cost of public transit through driverless cars and driverless automobile technology. While warranting its own investigation, it is crucial to note the emergence of autonomous vehicle ridesharing as inevitable competition for mass transit ridership. Understanding this opportunity, Uber Inc. has recruited away almost the entirety of Carnegie Mellon University's autonomous vehicle research faculty and staff, in turn investing in its own state-of-the-art driverless car research facility in Pittsburgh. Concurrently, General Motors bought a large share in the country's second largest ridesharing platform, Lyft, acknowledging the connection between the future of the automobile and ridesharing technology. If this technology is applied to busses then the cost of ridesharing will plummet and its efficiency will greatly increase. It is debatable whether completely driverless cars are ten years or twenty years away from replacing traditional cars, what's clear is that in the near future the cost of ridesharing will become more competitive, as the primary source of cost (the driver) is no longer needed for service. Can city governments and transit agencies, therefore, wisely choose to invest billions of dollars into rail projects knowing that there will be strong practical alternatives to local rail within the next 30 years? In

Above: a typical Bridj commuter bus in Boston.

Credit: Metro.us, 2015

this same vein, can cities wisely encourage transit oriented development knowing that nodes could be de-emphasized as rail and traditional bus services decrease in utility? Is it wise for real estate developers with long-term hold strategies to place value in transit-oriented locations? Or is there potential opportunities in areas of cities that are transit poor but offer other public amenities? Cities, transit agencies, and developers must consider these questions and plan for the continued evolution of ridesharing, as well as for the potential for unprecedented access to transportation across the urban landscape. All land uses and property values deeply affected either by access to transit or a notable lack thereof will be greatly altered by this upcoming shift in urban transportation. The de-emphasis of nodes begs the question of whether lower costs of ridesharing will encourage sprawl, and the jury is still out on this matter. After all, while the emergence of the automobile encouraged post-World War II-era sprawl in the U.S., the recent rush back to cities by people with economic choices and resources demonstrates that lifestyle choices are multifaceted—high and mid-

dle income city residents could live further away from urban cores and rely on personal cars but are increasingly choosing not to. Perhaps affordable ride sharing and a de-emphasis of nodes will not therefore encourage sprawl but instead a sort of dispersal of population within urban cores. Individuals could remain in dense areas but the need to live or work on specific transit lines or within close proximity to blocks immediately near rail transit will no longer drive living or working choices. New ridesharing platforms will allow for living and working options to be based not on access to linear, fixed, transit lines, but instead on personal or economic choice or necessity.

When public rapid transit is no longer the dominant means of affordable urban transportation, quality of life items other than transit access could become more significant in the value residents and employers place on their locations. The devaluation of nodes can increase land values of transit-poor areas near amenities like parks, schools, or quality building stock, while decreasing land values in more "placeless" places (i.e. park and ride

stations) otherwise valued due to access to rapid transit. New forms of mobility can lead to reduced land speculation around transit lines as these fixed lines might no longer serve as crucial segments of transportation infrastructure. Transit extension resources could in turn be re-allocated to alleviate other quality of life issues for city dwellers. Existing transit lines may continue to be beneficial to their surrounding communities, but they will likely be less vital than they are considered at present.

While the future of transit is murky, what's certain from public investment patterns is that many major American cities haven't evolved to fully consider the growth of ridesharing and autonomous vehicles as an alternative mode of mass transit. Billions of dollars, for example, are being invested in the extension of Boston's Green Line, Los Angeles' nascent rail system, and new light rail lines are being proposed in New York City and Detroit. Time will tell whether Kansas City's embrace of Bridj or New York's potential re-embrace of the streetcar leads to greater social equity and mobility opportunities. It is notable, however, that Bridj's aim is explicitly to increase urban mobility, whereas streetcar lines often serve as economic development strategies which use rail to spur investment in resulting nodes, a strategy that uses growth in

public transit as a pretense for investment rather than a sincere effort to serve the most economically disadvantaged portions of the population. At the same time, cities have long known that busses are a more cost effective and adaptable than rail, and yet busses remain firmly less desirable to the general public. The comfort and "coolness", however, of evolving ridesharing busses such as those offered by Bridj could truly present the opportunity for busses to not only realize their cost effectiveness but also be embraced by the wider public by balancing the popularity of the streetcar and the utility and cost effectiveness of the bus. This could more quickly shift the transit paradigm and bus-oriented ridesharing currently appears to be the approach that will soonest compete with traditional public transit.

There are a number of challenges faced by Bridj, Split, Uber, and other ridesharing applications, however, in their quest to supplant public transit. These limitations may consequently allow fixed-route public transit to remain dominant for the foreseeable future and ensure the continued vibrancy of transit nodes. These limitations are most significantly tied to scaling. Until Bridj, for example, garners a critical mass of users in a particular location they are unable to serve a given route often enough to match the reliability and frequency
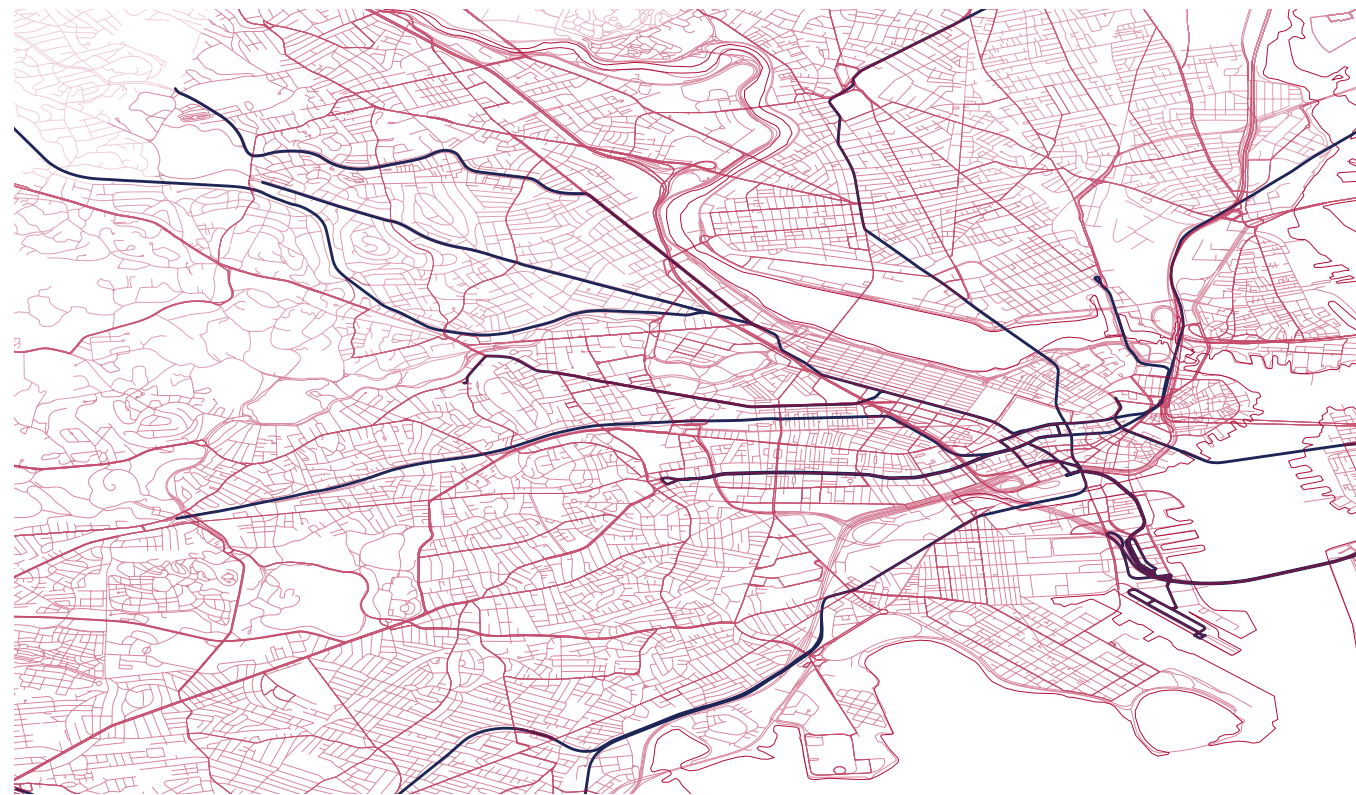
of public transit. Bridj may serve a location during rush hour but they can't serve that same area during mid-day when there are insufficient ride requests to fill a mini-bus. Further, as a private company, Bridj will require a critical mass interested in a given origin or destination to ensure profitability and service to those locations. Public transit, by being primarily mission-driven, ensures regular service rather than tying routes purely to profit-margins. Bridj's services are currently viable between two dense and prosperous locations, but riders in lower-density, lower-income, marginalized neighborhoods trying to access similar neighborhoods for jobs or personal trips are currently unable to access Bridj despite the company's espousal of transit equity goals. Services like Bridj may instead lead to a two tiered transit system, where those with means use slightly more accessible and slightly more expensive private services and lower income households are stuck using public systems further harmed by declining revenues. Public transit, however indirect its routes may be, typically affords a path to broad portions of a city, whereas no ridesharing service is able in the foreseeable future able to affordably offer a diversity of destinations. Public transit, unlike current ridesharing platforms, is truly reliable in that it usually runs regardless of demand, economic trends, or peer requests. Never mind the environmental, traffic, and infrastructure challenges related to car and bus use, all of which are well-tread topics—from a consumer standpoint alone, new models of ridesharing face hurdles in supplanting public rapid transit. The diminishing of transit nodes therefore may not be on the immediate horizon and will likely not occur in uniform and universal manners.

Ultimately, the rise of ridesharing and the related diminution of the importance of transit nodes in cities could end up being extremely beneficial to cities' future adaptability, their ability to serve as centers of social equity, and in their economic development potential. No longer will transportation drive settlement and working patterns but instead respond to other needs of businesses and households. The current fixed-node paradigm has put severe strains on urban infrastructure, creates limitations on where households can live and businesses can locate, and incentivizes land speculation, which in turn engenders investment in transit rich areas and disinvestment in transit poor areas. If cities can get ahead of the new opportunities in ridesharing transit they could enable new oppor-

tunities in transportation and housing planning, land use incentives, and economic development. The ultimate consequence on urban form is broad: one simply needs to imagine a city where proximity to public transit no longer matters and yet private car ownership is not required. Many of the same characteristics that currently make for desirable neighborhoods (walkability, diversity, mixes of uses) would still apply but settlement patterns may be more closely linked to cultural affiliations, access to schools, social networks, or other public amenities rather than to transportation. Two earner households could more easily find locations that are convenient for both individuals; children could more easily get to a wider variety of schools; and elderly and disabled individuals will have easier access to more of the city. Whereas density incentives are often currently allotted to transit-oriented areas, they could instead be allotted to areas that may be geographically proximate to economic centers but otherwise not well connected by transit. In the previous example of Northern New Jersey, which is transit poor in relation to its high density, municipalities could now serve their populations' transportation needs without significant infrastruc-

Diversity of destinations and quality, uniform service are major hurdles ridesharing has yet to overcome.

ture costs. Remote areas of the city will no longer require multiple bus transfers for access to jobs but could instead benefit from direct services offered by emerging platforms which in turn offering better access and opportunity to broader segments of a city's population. Overall, the opportunities for increased and reallocated density, a diversity of work locations, and connections between industries, will all be engendered by affordable ridesharing. Whereas, for example, Boston's high-density "High Spine" was partially the consequence of access to a spine of public transit, new high-density centers can relate to sensitivity to natural resources, resiliency efforts, land economics, or other aspects of the city that make useful residential or commercial uses that were otherwise previously not tenable due to a lack of transportation infrastructure.

Above: Even with its robust transit network, shown in blue, Boston's MBTA subway system does not approach coverage levels provided by ridesharing services, shown in crimson.

These are just some examples of the potential (mostly positive) consequences of affordable, adaptive ridesharing. These observations aren't to celebrate the a potential decline in public transit or to laud ridesharing but to instead point-out the short-comings of traditional public transportation and how that gap is being addressed by emerging platforms. Public transit may evolve to embrace the practices of private ridesharing platforms but end up doing so through a public medium as is seen through Kansas City's partnership with Bridj. Regardless of how these platforms evolve, this impending transportation shift must be a regular part of the conversation in the development and planning professions because the related possibilities and potential challenges are many and unknown.

CONCLUSION: AN INEVITABLE GROWTH

While ridesharing may be ubiquitous it remains in its infancy. Cities have seen only the beginning of the opportunities and consequences of using data aggregation and route efficiency for the benefit of improved urban mobility. We have, in turn, not yet begun to witness how this evolving approach to transportation will manifest in the built environment. As platforms such as Bridj and Split begin offering more accessible, comfortable, and perhaps one day soon, affordable, service than is offered by public rapid transit, traditional public transportation will lose its position as the mode of mobility that best balances service and cost. Real estate development professionals should be acutely concerned with how this transformation in transportation will be realized in terms of urban economics and neighborhood form. If transportation is no longer a crucial driver of human geography, then it is necessary to consider which other factors related to transportation will become meaningful when creating vibrant places. Urban developers, planners, and designers must drastically re-think the current transit paradigm in order to maintain vibrancy in places already thriving as transit nodes, while also taking advantage of new placemaking, economic, and social opportunities in areas that will have newly improved access to transportation options through evolved ridesharing platforms. Developers with the foresight to understand this shift will construct buildings that better serve their future end-users. We are approaching a moment where cities will be free from nodes and the fixed transit paths that, for generations, determined development patterns,

public policy, and urban form. This potential shift could be as significant as the emergence of the automobile, and it is imperative that policymakers consider the geographic, aesthetic, and economic consequences of evolving ridesharing platforms so that cities can plan for inevitable related consequences rather than merely reacting to them.

Commentary: Andres Sevtsuk

Andres Sevtsuk is an Assistant Professor of Urban Planning at the Harvard Graduate School of Design. His research interests include urban design and spatial analysis, modeling and visualization, urban and real estate economics, transit and pedestrian oriented development, spatial adaptability and urban history. He was previously an Assistant Professor of Architecture and Planning at the Singapore University of technology and Design (SUTD), and a lecturer at MIT.

Peter Erhartic's essay on the disruptive potential of ride-sharing strikes an important chord for city development. It inquires if the present trend of transit oriented city building and pedestrian oriented design could be under threat from ride-sharing services, which offer door-to-door service, decreasing prices and individual comfort that public transit can hardly match. Though only the future can tell for certain, I have my modest doubts about this threat.

First, Uber data has shown that the peak hours for ride-sharing demand tend to coincide with off hours for transit. Rather than competing with public transit, ride-sharing appears to complement public transit. Ridesharing helps solve the first and last mile problem in low-density areas where local feeder buses remain too costly to operate. And a good deal of riders comes from areas that have poor transit coverage today.

Second, it is unlikely to see this balance shift in significant ways, especially in dense urban centers, because shared vehicles face the same spatial capacity limitations as private vehicles – they can not move commuters in and out of dense employment centers as efficiently as public transit does. A common metric for such efficiencies is captured in terms of passengers per hour per lane per direction. Shared cars achieve roughly the same capacity as private cars – around 2,000. With public buses, which carry around 50 passengers each, the figure rises to around 9,000. With light rail and bus rapid transit, which use exclusive lanes, it goes up to around 12,000, while heavy rail can move about 30-40,000 people per lane per hour per direction.

Downtown Boston, Manhattan or the City of London could not be served during peak hours by cars alone unless their densities are radically lowered. At the same time, the more efficient forms of transit also consume the least amount of energy and produce the lowest per capita carbon emissions. In the long run, automobile travel is thus not only limited by capacity, but also environmental costs.

Third, as Peter also briefly alludes to, service coverage remains a significant issue in all forms of private transit, be it ride-sharing, taxis or shuttles. Since public transit serves a public mandate, it connects neighborhoods regardless of their profitability to the system. Sparse, poor and otherwise disadvantaged areas form part of a public transit network, despite their negative effects on operating costs. This is why most public transit systems around the world run on subsidies. For private operators, there is little incentive to serve such areas. Whole segments of the population without credit cards remain invisible to Lyft and Uber. But without including these groups, significant effects on urban form and land use patterns remain unlikely.

In sum, every transportation technology produces externalities for cities. Our collective goal should be to support those solutions that minimize the negative and maximize the positive externalities. Though ride-sharing contributes to the welfare of many, it also leaves out important segments of society. In terms of space efficiency, it shares the same issues as private cars. Its biggest gains are thus achieved, when the system works as a complement, not a replacement, to public transit.

PLACES AND PLATFORMS OF THE NEW CITY

Stanislas Chaillou
M.Arch I '19

Peter Erhartic
MDes Real Estate and the Built Environment, '17

Tommy Hill
PhD, Urban Planning

Sam LaTronica
MUP '16

Andrea Chegut
Research Scientist, MIT Center for Real Estate

Fred Cooper
SVP Finance & International Development, Toll Brothers

Marc Rutzen
Co-Founder & CTO, Enodo Score

Andres Sevtsuk
Principal Researcher, City Form Lab, Harvard GSD

SELECT CONTRIBUTORS

Dandi Li
MIT MSRED '16

Van-Tuong Nguyen
MDes Real Estate and the Built Environment, '18

Adam Tanaka
PhD, Urban Planning

Phillip van Alstede
MDes Real Estate and the Built Environment, '17

SELECT COMMENTATORS

Max Stearns
Program Director, Boston Housing Innovation Lab

Molly Turner
Urban Innovation Advisor, formerly Global Head of Civic Partnerships at Airbnb

Peter Verwer
CEO, Asia Pacific Real Estate Association

Carl Weisbrod
Chairman, NYC Department of City Planning

NO.6

FALL 2017

ONLINE EDITION

MAY 2017

PRINT EDITION

FALL 2017

WWW.
HARVARD
REAL
ESTATE
REVIEW
.COM