



The Future of Urban Mobility

SMART CITIES THAT USE INNOVATIVE SOLUTIONS TO **REDUCE CONGESTION** THROUGH **PREDICTABLE** AND **MULTIMODAL** TRANSPORT OPTIONS WILL WIN.

By 2030, 60 percent of people will live in cities.¹ Population surge is overwhelming transport infrastructure, and urban sprawl adds to the congestion, worsening air purity and quality of life.² This impacts city economies and contributed to an estimated 7 million premature deaths in 2012.³

Mobile is now a must for cities and businesses alike, in part because 58 percent of American adults and 76 percent of millennials are addicted to their smartphones.⁴ That's creating skyrocketing demand

for mobile customer experiences. And people are sharing, not buying. Estimated at \$335 billion by 2025,⁵ the sharing economy brings customers on-demand conveniences at a lower cost.

Two urban mobility trends to start planning for:

- Shared mobility and predictability
- Demand management via mobile apps

Shared mobility and predictability

The new and expanding world of shared mobility

New and improved shared mobility options—where transport services are shared among users—lower congestion and improve predictability of the passenger journey. These emerging technologies

use digital identity and driving credentials—electronic IDs for mobile devices and elsewhere online—to make it easier for customers to access and pay for their journeys, whatever the ride.

1 RENOVATION OF EXISTING TRANSPORTATION MODELS.

Autonomous driving advancements are disrupting conventional ways of commuting, including with buses, taxi services, and privately owned cars.

Autonomous public buses like the ones being introduced in China can literally work around congestion—carrying 1,200 passengers at a time above congested roads—to bypass traffic and improve commute predictability.⁶

Autonomous commuter rail like that introduced in Hong Kong in 2017, which services 170,000 passengers a day, helps increase ridership, save costs, and create more timely and predictable arrivals.⁷

Mobile ticketing solutions like JustRide with the Masterpass[™] app that are in use in cities such as Boston, New York, Athens, London, and San Diego facilitate a simple payment process, helping commuters in terms of convenience and cities in terms of long-term cost cutting.

2 NEW SHARED MODELS ARE SCALING.

Sharing models that incorporate cars, bicycles, and hailing are growing quickly, and mobile technology makes access and payment easy.

Bike sharing is convenient, economical, eco-friendly, and quickly growing ... and is now available in more than 850 cities worldwide, a dramatic increase from 68 cities in 2007.⁸

Car sharing shifts consumers away from car ownership, lowering congestion and pollution. Market value of the industry is projected to be \$6.5 billion by 2024;⁹ with it, cars are more utilized, and electric vehicles become a natural option.

E-hailing and shared e-hailing continue growth in over 60 countries, and 300 cities provide alternatives to private car ownership, create the option for consumers to carpool at a low cost, and reduce the overall number of cars on the roads.¹⁰

3 EVOLUTION OF SHARED MOBILITY.

Autonomous shared e-hailing, made possible by vehicle-to-vehicle communications via 5G wireless technology, will eliminate driver expense, lowering trip cost enough for consumers to overcome reluctance to share with strangers, and will result in lower demand for individual cars.¹¹

Demand management via mobile apps

Innovative solutions will reduce friction in the payment process for shared mobility transport

Cities are starting to use apps to effectively manage demand, reducing congestion and pollution and improving the overall user experience. Key information available in mobile apps can improve

trip predictability, incentivize drivers to use alternative routes, and enable ticket purchasing without human intervention.

1 MOBILE APPS PROVIDE COMMUTERS WITH TRAFFIC UPDATES.

Today's mobile apps provide information that keeps commuters updated on traffic delays, optimal routes, and estimated trip times based on transport selected.¹²

2 MULTIMODAL APPS EXPAND CONVENIENCE AND AUTOMATION FOR RIDERS.

With **mobility-as-a-service (MaaS) apps**, cities can offer monthly subscriptions that enable access and payment to all transport types and incentivize behavior through rewards.

For example, Helsinki launched an app in 2016 intended to replace car ownership and further reduce congestion.¹³

And Bulgarian start-up Tickey enables smartphones to communicate with Bluetooth beacons, recognize the transport boarded, and purchase tickets without human intervention.¹⁴

3 FUTURE DEVELOPMENT IN MOBILE APPS.

Artificial intelligence will create personalized rewards to incentivize commuter behaviors.

Location data and insights on spending will help cities to predict and prepare for unforeseen shifts in demand.



Tomorrow's transport will be defined by smart cities

The future of urban mobility will be defined by smart cities that use innovative solutions to reduce congestion through predictable and multimodal transport. Getting there demands collaboration between

city leaders who promote and use innovative new tools and technology vendors who build them. Together we can make our cities more livable for everyone.

How Mastercard can help your city

- **Reduce friction within payment and authentication**—Facilitate seamless user experiences using Masterpass™ for easy payment and the digital ID storage required for biometric authentication.
- **Enhance demand management with data and insights**—Smart cities can leverage Mastercard data insights into spending trends, as well as the Retail Location Insights tool, to inform city planning and resource management tools.
- **Increase personalization to deliver intelligently tailored rewards**—Leverage Mastercard data insights and develop artificially intelligent algorithms to offer personalized rewards for certain commuting behavior.

Learn how Mastercard can help you build a strong, mobile, and urban future. Visit www.citypossible.com today.

¹ "Urban Mobility at a Tipping Point," McKinsey & Company, 2015

² "Urban Sprawl," Encyclopedia Britannica, 2015

³ "7 Million Premature Deaths Annually Linked to Air Pollution," World Health Organization, 2014

⁴ "How Are Millennials Using Their Phones?" MarketingCharts, 2015

⁵ *The Sharing Economy*, PwC Consumer Intelligence Series, 2015

⁶ "The Future of Transport? From China's Traffic-Busting 'Uber-Bus' to Flying Cars," RT, 2016

⁷ "Driverless Train in Hong Kong Offers a Peek into the Future," Curbed, 2017

⁸ *Bicycle Infrastructure and Traffic Congestion: Evidence from DC's Capital Bikeshare*, Resources for the Future, 2016

⁹ "Global Carsharing Services Revenue Is Expected to Reach \$6.5 Billion in 2024," Navigant Research

¹⁰ "Global Carsharing Services Revenue Is Expected to Reach \$6.5 Billion in 2024," Navigant Research

¹¹ "Will Autonomous Cars Change the Role and Value of Public Transportation?" The Transport Public, 2015

¹² "Traffic Apps Survey: Consumers Value Multi-Purpose Apps," AYT, 2016

¹³ "Whim, the World's First All-Inclusive Mobility Services, Promises to Change Urban Travel Forever," MaaS Global, 2016

¹⁴ "Self-Driving Buses Are Now on the Road in Helsinki," Curbed, 2016