



MasterCard

Smart Cities

Connected Cities



Our Cities, Our Challenges

More than half the world's population lives in cities—a number that is set to increase to 70 percent by 2050. In developing nations such as China and India as well as throughout the developed world, people are leaving rural areas and moving to cities in search of jobs, education and a better life.

More people than ever are visiting cities too, thanks to fast and affordable transportation links. London alone receives nearly 19 million international overnight visitors annually¹—and worldwide, international arrivals are projected to increase to 1 billion by 2020².

Cities are centres of commerce and are many peoples' most promising pathway to a better, richer life.

But with so many people living in, working in and traveling to them, our cities are facing significant challenges:



**Congestion
& Pollution**



**Economic
Development**



Poverty



**Limited
Public Funds**

1. MasterCard Global Destinations Cities Index, 2015

2. World Tourism Organization, Tourism 2020 Vision

MasterCard & Cities

As a technology leader, MasterCard is committed to being a driving force in the private sector to make cities better...and to make better cities.

We're doing it by connecting consumers and merchants...governments and financial institutions... NGOs and digital players.

All around the world.

Through our unrivalled network, we are able to tailor solutions to century-old systems and modern infrastructures.

We have the experience, insights, advanced technologies, strategic partnerships and global scale to make cities smarter...more sustainable...and more inclusive.

Here's how:



Making cities more efficient and welcoming... by embedding digital payments into a city's DNA.

Payments touch every aspect of our lives. And digital payments make our lives **simpler, safer and smarter**.

With the tap of a card or a mobile phone, city dwellers and visitors can efficiently ride a bus, bike, train or ferry **without the inconvenience** of buying a ticket or transit card.

And city governments can reap **operational efficiencies** from going digital—when procuring services, paying employees or collecting taxes and transit fares.



Making cities more livable, sustainable and poised for future growth...by unlocking the power of data and digital engagement.

Our commercial and transit analytics enable city planners to understand traffic and transaction patterns, and bring insight to urban development projects. We help cities to plan, deploy and price resources based on **real insights** into where people live, travel and spend, resulting in operational efficiency and intelligent development for both cities and citizens.

Most city transport systems are sized to accommodate peak morning demand. But, in many cities around the globe, existing infrastructure will not be able to cope with growing demand, and enhancing capacity will take years. Using tailored digital engagement with riders and **active demand management** with incentives and other measures, cities can relieve some of the immediate pressures on transport infrastructure and spread out their large-scale investment programmes over a longer period.



Making cities more secure and more inclusive... by reducing the reliance on cash.

Two billion adults have no bank account and rely on cash for most transactions. Access to basic financial tools creates economic opportunity and helps reduce poverty, driving higher and more sustainable growth for all.

In cities with a high circulation of cash, residents and visitors are more vulnerable to crime or simply losing their hard-earned money. In countries like Sweden, **lower crime rates have been linked to the reduction of cash.**

Urban Mobility

 'ərbən mō bil' ədē

(noun) making use of a city's infrastructure and resources to facilitate the movement of people and freight via roads, waterways and transport systems.

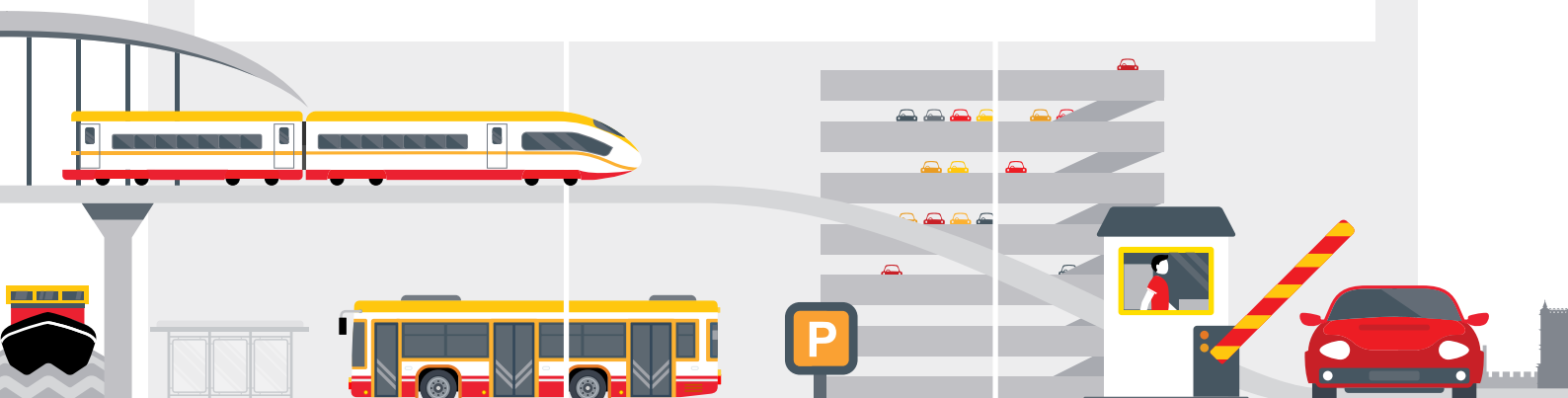
Together with its partners, MasterCard is continually developing smart end-to-end solutions that make urban mobility simple, fast and affordable.

| Public Transit | Parking | Tolls |
|--|--|--|
| Venues: Underground trains, buses, trams, ferries, light rail, bike share, car share | Venues: Curbside meters, surface lots, parking decks | Venues: Motorways, toll roads, exit ramps, bridges |

Benefits—Eliminating Cash:

- Relieves crowding & congestion in ticket areas at peak times
- Speeds riders through stations without needing to buy tickets or transit cards
- Enhances throughput of vehicles at toll plazas
- Allows for automation of pricing discounts & transfers
- Saves citizens time
- Reduces city expenditure on cash handling and equipment maintenance
- Lowers cash management risks

And makes the city's transport system more attractive overall to passengers that would otherwise choose taxis or private vehicles—and hence contributes to reduction in atmospheric pollution and road congestion.



“An advanced city is not one where ‘even the poor use cars’, but rather one where ‘*even the rich use public transport*.’”

—Enrique Peñalosa, Mayor of Bogota

Contactless Payments Travel Well in London

Since September 2014³, Transport for London’s (TfL) ticketless payment system has allowed for contactless bank card payment for fares on bus, Tube, tram, DLR, London Overground, TfL Rail, Emirates Air Line and most National Rail services in London.

The solution—developed by TfL and Cubic Transportation Systems using MasterCard technology—allows travellers to pay for fares quickly and safely with just a tap of a contactless-enabled card or mobile device.

Consumers have eagerly embraced the technology and made more than 372 million journeys using 10.7 million unique contactless cards or payment devices in the first 18 months since it launched. Now, TfL regularly sees more than 1 million journeys per day using contactless payment cards, with about 25,000 new contactless cards in use each day.⁴

Across all demographic groups, users agree on the primary benefits—it saves time, saves money, is easy to use and eliminates the need for carrying another card. It is especially convenient for the nearly 19 million annual international visitors⁵ to London, who may use the transit system without having to get a special transit card. Since launch, visitors from more than 80⁴ countries have used contactless cards to ride the system.

Contactless has achieved hoped-for operational efficiencies for TfL as well. In just over a year, the cost of collecting fares has dropped from about 14 percent of revenues to just below 9 percent. TfL aspires to further reduce this figure to around 6 percent—resulting in massive cost savings.⁶

Building off work in London, Chicago, St. Petersburg and elsewhere, MasterCard now has in place all of the necessary global rules and procedures for contactless transit payment systems, which will enable future implementations to take place in an efficient manner.

3. <http://newsroom.mastercard.com/press-releases/tfl-leads-way-contactless-payments-launch-london-transport/>

4. <https://tfl.gov.uk/info-for/media/press-releases/2016/january/more-than-a-quarter-of-london-pay-as-you-go-customers-now-travel-using-contactless-payments>

5. MasterCard Global Destinations Cities Index, 2015

6. Transport for London, Commissioner’s Report, 03 February 2016, page 34



Connecting Cities and Citizens

All over the world, MasterCard is helping cities find smart, integrated solutions for better city living. Every day, millions of citizens are reaping the benefits of cashless payment technologies.

Here are just a few:



FINANCIAL INCLUSION:

Pretoria, South Africa

Iminathi does not have a bank account. Or a credit card.

But she doesn't need cash to pay for her groceries anymore.

MasterCard and the South African Social Security Agency (SASSA) have teamed up to distribute benefits electronically to Iminathi and more than 10 million other social grant recipients. They are benefitting from SASSA's biometric grant payment disbursement system.

Iminathi's SASSA Debit MasterCard card positively identifies her as a social grant recipient using fingerprints, voice and/or other personal information. Her card cannot be used by any other person—virtually eliminating theft or fraud.

Plus, by eliminating cash payments, SASSA has cut program administrative costs by 50 percent.⁷

⁷ <http://newsroom.mastercard.com/press-releases/ten-million-sassa-mastercard-cards-issued-to-south-african-social-grant/>



LEVERAGING DATA & INSIGHTS:

Charlotte, North Carolina

Dan owns a regional boutique breakfast chain and is looking to expand in Charlotte, N.C. He finds two potential locations across the city—one in Ballantyne and another in Uptown Charlotte.

To compare the two locations and choose the most optimal one for his business, Dan worked with MasterCard to compare the transaction and sales-based data metrics for other restaurants in both prospective neighborhoods.

Using Retail Location Insights, MasterCard helped Dan understand that while the sales scores for both locations are high, the transaction data is much higher for Uptown Charlotte. As a result, Dan made an informed decision about the most appropriate site for his new restaurant.



SEAMLESS VISITOR EXPERIENCE: Singapore

Pierre, in Singapore on business, only speaks French. His taxi driver only speaks Malay.

But thanks to MasterCard, they can converse in a common language: commerce.

Pierre uses his smartphone to book through the ComfortDelGro Taxi Booking App, hops into the cab and disembarks at his destination without any exchange of cash. Payment is made via MasterPass, the digital payment service by MasterCard that automatically accepts and processes the fare within the app—so Pierre can keep his credit card in his pocket and get to his meeting on time.

Today, 17,000 taxis in Singapore are equipped to use MasterPass⁸, making cab rides throughout The Lion City more convenient and hassle-free than ever before.

⁸. https://www.wirecard.com/uploads/tx_nenews/PM_2016_01_07_EN_ComfortDelGro_MasterPass.pdf



OPERATIONAL EFFICIENCY: Barranquilla, Colombia

Payday was once a nightmare for Martin.

A city payroll manager, he once had to process and distribute the majority of payments to city employees by cash or check—which was an administrative burden. Payments were processed slowly, and were susceptible to human error or even fraud.

Now, those problems are gone. MasterCard helped streamline the city's payment process and as a result, the use of electronic payments grew from zero to 76 percent, driving costs down by 28 percent for the city of Barranquilla.⁹

As large buyers of services, city governments have an opportunity to make widespread use of electronic disbursements, leading to less administrative burden and increased speed, as well as transparency through traceable electronic payments.

⁹. <https://newsroom.mastercard.com/wp-content/uploads/2016/03/China-Development-Forum-2016-Remarks-As-Prepared.pdf>

Other Cashless Payment Solutions



Identification:

By using multi-function cards and mobile payment methods to combine authentication with an ID for access to services.



Wages:

By providing unbanked or seasonal employees instant access to funding and a safe, flexible way to track, save and spend.



Disaster Relief:

By rapidly extending funds to citizens in need, via preloaded cards using biometric ID and spending controls to eliminate theft.



Shopping:

By enabling integrated discounts and merchant rewards.



MasterCard is committed to helping cities become more inclusive, more sustainable and more open—by applying our technology, data and partnerships to the challenges of an increasingly urban world.

For more information about our work
with cities around the world, visit:
www.mastercard.com/smart-cities



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