Cities have become the key driver for global economic growth. Transit networks are critical to ensuring cities continue to grow and flourish successfully.

Cities are growing at an unprecedented rate. 70% of the world’s population will be in cities by 2050¹

Cities are also seeing a historic influx of visitors. 1.8B international tourists annually by 2030²

² UNWTO, “2016 Tourism Highlights”, 2017
Transit agencies face a range of obstacles when trying to address these challenges.

<table>
<thead>
<tr>
<th>Current fare management and distribution methods are expensive</th>
<th>Aging infrastructure is difficult to future-proof</th>
<th>Barriers to convenience</th>
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</thead>
<tbody>
<tr>
<td>14% of each ticket’s price is spent on fare collection¹</td>
<td>Increased fraud risks</td>
<td>Complex ticketing options</td>
</tr>
<tr>
<td>— Overcrowding</td>
<td>New payment technologies</td>
<td>Long queues and large crowds at peak times</td>
</tr>
<tr>
<td>— Excessive dwell times²</td>
<td>No global standards</td>
<td>Transit delays due to dwell times</td>
</tr>
<tr>
<td>— Long lines at ticket booths or top-up kiosks</td>
<td>Not digitally compatible</td>
<td>Lack of interoperability with 3rd party service providers</td>
</tr>
</tbody>
</table>

2. “Dwell time” refers to time spent by a transit vehicle in a stationary position, while rider ticket transactions are processed
There are three ways we can help you deliver better urban mobility experiences.

From Contactless solutions to Mobility as a Service, we’ll work with you to identify the right solution mix to meet your goals.

1. **Physical Card Solutions**
   - Help riders “tap and go” with contactless, dual-purpose or prepaid cards they already carry with them:
     - EMV Open Loop
       - Riders use the cards they already carry
     - Dual application cards
       - Combine transit and payment features into a single card
     - Prepaid transit cards
       - Create specific EMV Transit Operator cards to ride in cities

2. **Digital & Mobile Solutions**
   - Help riders “go digital” by managing their ticket and travel options anywhere, any time:
     - EMV Open Loop
       - Provision through digital wallets
     - QR-based ticketing
       - Works with readers and includes “Visual Inspection” feature
     - Private label proposition
       - Provision of a specific Transit-only token through the digital wallet
     - Mobility as a Service
       - App-enabled multi-modal and seamless travel for passengers

3. **Value-Added Services**
   - Our broad suite of services can help cities and transit agencies manage mobility more intelligently and cost efficiently:
     - Data & Insights
       - Inform policy development by gleaning insight from rider behavior and retail spend data
     - Mastercard Payment Gateway Services (MPGS)
       - Simplify and accelerate all payment processing through one gateway
     - Shared best practice
       - Learn mobility best practices (e.g., managing demand of rider behaviour during peak travel times) through the City Possible Global Network.
Mastercard has simplified the daily commute in more than 150 global cities, including:

- Contactless ticketing
- Dual-purpose debit card
- Mobile ticketing

Payment solution

©2019 Mastercard. Proprietary and Confidential
Enabling Contactless EMV NFC ticketing and payment flow “on behalf of a consumer”

Capabilities
✓ Supported by a UK based Mastercard pre-paid issuer
✓ Uses a Mastercard branded consumer pre-paid card with selective authorisation restrictions to ensure it is used “for transit spend only”
✓ Pre-paid card is topped up via Card on File capabilities

Convenience
✓ Operates as a subscription model, or pay-as-you-go
✓ Initial launch provided users with a plastic card they can use to tap in / tap out at TfL transit merchants
✓ A digital version of the card will use the MDES platform to tokenise and provision the card to mobile wallets such as ApplePay and GooglePay.
Miami Dade Pilot Program

First and Last Mile integration Link to Contactless Payment for Rail Users

Scope
✓ Commuters using Metrorail  Park & Ride
✓ Daily commuters who drive to and from city
✓ Use a Mastercard branded contactless prepaid card for public transit and discount code for Uber ride to and from the station
✓ Measure the outcome

Result
✓ Convenience, cost and reliability as greatest transit choice influencers
✓ 71% found contactless bank card use for transit to be more convenient than current ticketing options including cash
✓ Primary weekday Uber rides took place at 7-9AM, 1PM, & 4-7PM. 50% of all trips was taken over weekend.
✓ Lessons learned for future multi-modal studies
Software platform isolates the causal impact through the use of small-scale, rapid experiments.

1. Does the program work?
2. How can I improve it?
3. How should I target it?

DESIGN & IMPLEMENT TEST

PROGRAM ROLL-OUT

MEASURE IMPACT

GENERATE HYPOTHESES
Let’s get started