

Mastercard® Biometric Card

Innovative technology to drive
security and efficiency



Governments are focusing on increasing efficiency and security

While stakeholders, economics, and opportunities may differ, many governments share the common challenges of **reducing costs, ensuring transparency, minimizing fraud, and driving financial inclusion**—especially when it comes to disbursements (i.e., Government to Citizen or “G2C” payments).

Biometric technology can not only help governments address these goals but, also help them effectively scale their efforts and demonstrate leadership by introducing a new solution that is both cost-effective and innovative



User-friendly technology that adds security with every in-person transaction

Mastercard Biometric Card provides a simple and secure way for recipients or pensioners to verify their identity when they use their card for in-store purchases or at cash-out locations—with their fingerprint, as an alternative to PIN or signature.

It does not require changes to current EMV terminals and the biometric data never leaves the card.



Key Benefits for G2C Disbursements:

- Ability to validate "Proof of Identity"
- Helps reduce program leakage on an ongoing basis
- Provides user-friendly alternative to PIN—which is useful for low literacy populations

Drive Financial Inclusion

Mastercard Biometric Card can help governments increase financial inclusion by providing access to bank accounts and electronic funds—which is especially useful in low literacy populations. It can also help close the gap between unbanked men and women, giving women the opportunity to drive economic growth.



*"Paying government wages, pensions, and social benefits directly into accounts could bring formal financial services to up to **100 million** more adults globally."*²

750
MILLION

adults (2/3 of whom are women) –lack basic reading and writing skills¹

65%

of women have an account compared with 72% of men, a gap unchanged since 2011.³

1. UNESCO INSTITUTE FOR STATISTICS. LITERACY RATES CONTINUE TO RISE FROM ONE GENERATION TO THE NEXT. 2017. 2. THE WORLD BANK. FINANCIAL INCLUSION ON THE RISE, BUT GAPS REMAIN, GLOBAL FINDEX DATABASE SHOWS. 2018. 3. DEMIRGÜÇ-KUNT, ASLI, LEORA KLAPPER, DOROTHE SINGER, SANIYA ANSAR, AND JAKE HESS. THE GLOBAL FINDEX DATABASE 2017: MEASURING FINANCIAL INCLUSION AND THE FINTECH REVOLUTION. OVERVIEW BOOKLET. WASHINGTON, DC: WORLD BANK. LICENSE: CREATIVE COMMONS ATTRIBUTION CC BY 3.0 IGO. 2018.

Potential benefits are threefold



Governments

- **Greater insight** into verified and non-verified recipient/pensioner spending/withdrawals
- **Reduce operational cost and fraud** related to benefit distribution, compared to closed loop systems
- **Ongoing “Proof of Identity” confirmations** without need for costly infrastructure for in-person verifications
- Demonstrate **commitment to technology and innovation**



Issuers

- **No need to support a proprietary system**; Issuers can process transactions similar to other Mastercard products
- **Reduced customer servicing costs** from recipients who are unable to remember PIN
- **Reduced card-present fraud**
- **Potentially greater revenue through broader** adoption of **card** payments



Recipients/Pensioners

- **An extra layer of security** that can help address concerns about card or PIN theft
- **Greater confidence and convenience**—since recipients/pensioners do not need to remember a PIN
- **Easier payment experience** over PIN or signature transactions—especially useful for low literacy populations
- **Peace of mind** through added protection that in-person transactions are verified

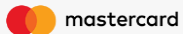
REASON TO ACT

Trials & market research confirm – easy of use and value



Protecting data via advanced technology

A numerical representation of the thumbprint vs. an actual image is captured and used to verify cardholders identity



Biometric Card Test Results



9 out of 10

People thought the Biometric Card was **easy to use**²



86%

Of respondents felt **confident** using their Biometric Card³

“...I like things simple and easy to use & //
absolutely hate remembering PIN #s!¹ //”

1. MASTERCARD. QUALITATIVE CONSUMER RESEARCH. 2016. 2. MASTERCARD. USABILITY RESEARCH 2017. 3. MASTERCARD. PILOT SURVEY. 2017.

Biometric cards provide a simple and secure user experience



Keeping Biometric Data Secure

Biometric data never leaves the card and is not shared with the merchant

How it works for in-person transactions...



Step 1

- A cardholder dips or taps* the card into a chip-enabled terminal—while holding their thumb onto the built-in sensor on the face of the card
- When the card is inserted into the terminal, a digital image is created of the cardholder's thumbprint

**Contact cards to be launched 3Q 2018 and self enrollment to be launched 4Q 2018.*

Step 2

- The fingerprint image is compared against the stored image within the card
- The biometric match results are sent to the EMV chip and the transaction data is sent to the Issuer
- If matching is not possible, the cardholder may be asked to enter a PIN instead**

***Fallback verification method to PIN/signature can be configured as per Issuer's request*

Step 3

- Issuer receives chip data which indicates whether biometrics was successful or failed
- Issuers --switching via Mastercard-- can also check a biometrics authentication indicator, which is part of the authorization message

Enrollment is quick and easy



Start to finish about 5 minutes

Initial trials confirm enrollment is fast and simple—taking about 5 minutes to complete¹

Enrollment experience...



OPTION 1

In-Person Appointment

Recipient/Pensioner visits their local government post and validates their identity—before receiving their card.

Cardholder places their thumbs on the enrollment scanner. Digital images of both thumbs are securely transferred and stored on the card.

OR



OPTION 2
AVAILABLE 4Q 2018

Self Enrollment *(i.e., At Home)*

Cardholders can easily set up their card without going to their local government post—via a disposable sleeve that is sent with their new card.

Cardholder inserts the card into the sleeve and places their thumb on card sensor. After repeating a few taps on the sensor a digital image of their fingerprint is captured and enrollment is complete.

Cardholders can use the biometric feature of their card right after enrollment completes.

For current payment programs, set-up is simple—with no impact to EMV terminals



Innovation Made Easy

With minimal outlay, biometric cards can quickly and easily help drive innovation

Biometric Card Implementation



Card Procurement

- **Available as feature for any Mastercard or Maestro card¹**
- Certified Biometric Cards are purchased from a card manufacturer
- Mastercard Biometric Card program enrollment form to be completed



Cardholder Enrollment Set-up

- Contract with an enrollment vendor to support enrollment activities



Issuer Platform Changes

- Issuer host needs to read the biometric authentication values—within the transaction data
- Issuer's risk scoring models to be updated to capture the biometric authentication values

1. NOT FOR U.S. REGULATED DEBIT OR PREPAID PORTFOLIOS.

Building on success

Mastercard Biometric Card helps issuers around the world drive better authorization results and ensure a positive cardholder experience.

Planned Activity

4Q/2018 Dual interface cards to be piloted

4Q/2018 At home (i.e., self) enrollment option available

4Q/2018 Dual interface cards to be piloted with self enrollment

2Q/2019



Dual interface (i.e., contactless) cards to be launched

Advancing Product Availability*

Current Markets

(Markets in *orange italics* are "In Process")

Asia Pacific	Europe	Latin America	Middle East Africa	North America	
<ul style="list-style-type: none"> • Australia • China • Hong Kong • India • Korea • Malaysia • Singapore • Sri Lanka • Thailand <p>-----</p> <ul style="list-style-type: none"> • <i>Japan</i> • <i>Philippines</i> • <i>Taiwan</i> 	<ul style="list-style-type: none"> • Albania • Armenia • Austria • Belgium • Bosnia • Bulgaria • Croatia • Cypress • Czech Republic • Denmark • Estonia • Finland • France • Germany • Iceland • Ireland • Italy 	<ul style="list-style-type: none"> • Kosovo • Latvia • Lithuania • Luxembourg • Macedonia • Montenegro • Netherlands • Norway • Poland • Romania • Russia • Serbia • Slovenia • Spain • Sweden • Switzerland • Turkey • United Kingdom 	<ul style="list-style-type: none"> • Brazil • Chile • Costa Rica • Haiti • Jamaica • Mexico <p>-----</p> <ul style="list-style-type: none"> • <i>Argentina</i> • <i>Colombia</i> • <i>Dominican Republic</i> • <i>Panama</i> 	<ul style="list-style-type: none"> • Egypt • Jordan • Kuwait • Libya • Morocco • Oman • South Africa • UAE <p>-----</p> <ul style="list-style-type: none"> • <i>Bahrain</i> • <i>Kenya</i> • <i>Lebanon</i> • <i>Namibia</i> • <i>Nigeria</i> • <i>Pakistan</i> • <i>Qatar</i> • <i>Saudi Arabia</i> 	<ul style="list-style-type: none"> • Canada • United States

*COUNTRIES LISTED HAVE PASSED REGULATORY AND PRIVACY SCANS FOR BIOMETRIC CARD. LIST MAY NOT INCLUDE ALL MARKETS; NEW COUNTRIES ARE CONTINUALLY BEING ADDED..

Let's get started

- ✓ **Discuss** interest in biometrics to drive security and risk management strategies
- ✓ **Explore** the need for more detailed information
- ✓ **Evaluate** potential pilot opportunity