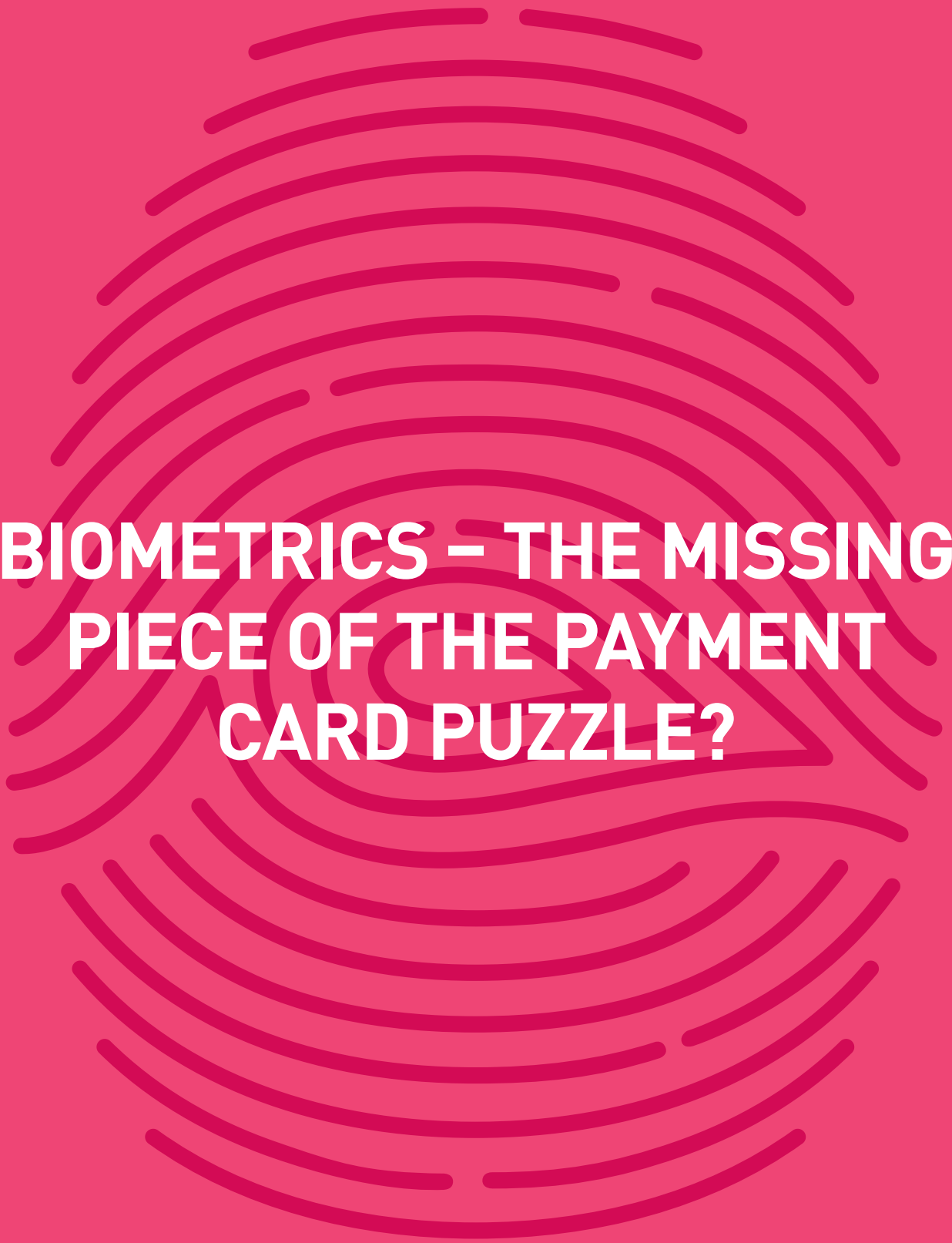
FINGERPRINTS



BIOMETRICS – THE MISSING PIECE OF THE PAYMENT CARD PUZZLE?

2018

"On-card biometrics is the final piece of the puzzle to bring trust and security to contactless payments, without compromising convenience. Consumers are familiar with biometric authentication from the mobile world and therefore recognize the value it can bring to their payment cards."

Thomas Rex, SVP Business Line Smartcards at Fingerprints

LEARN

- What are biometric payment cards?
- How do they work?
- Why do consumers want them?
- What are the opportunities for banks and retailers?
- What is the current status of the market?

TABLE OF CONTENTS

INTRO

Card is king

CARD IS KING

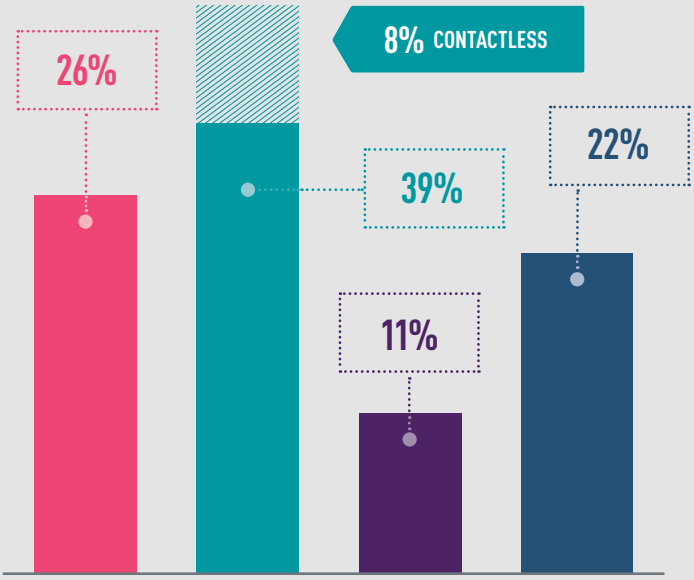
Cards are the most popular way to pay across the world among digital consumers, and their use is growing year on year – despite the option to now pay via smartphones.

80% OF CONSUMERS
have debit/credit cards

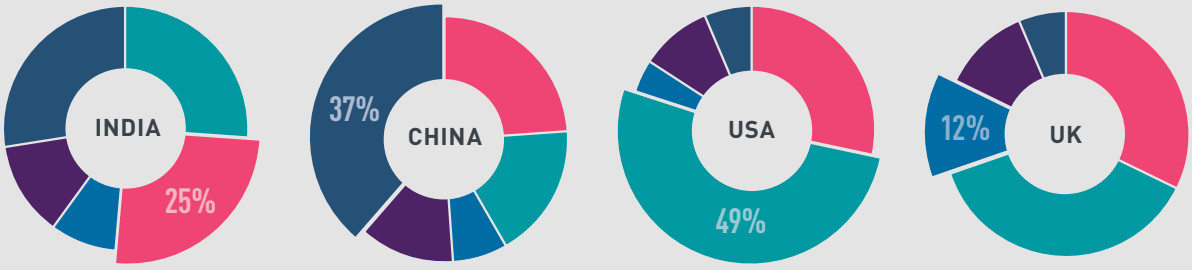
NEARLY 3,5 BILLION
payment cards are sold annually and half of them are contactless

WEEKLY PURCHASES
Split between methods

- Cash
- Contactless & debit/credit card
- Online payment
- Mobile payment



GLOBALLY

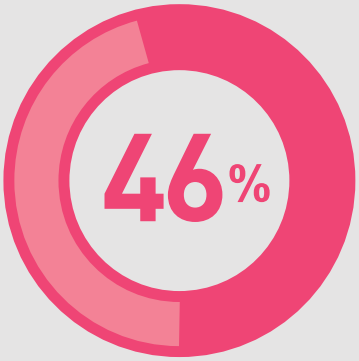


KEY MARKETS

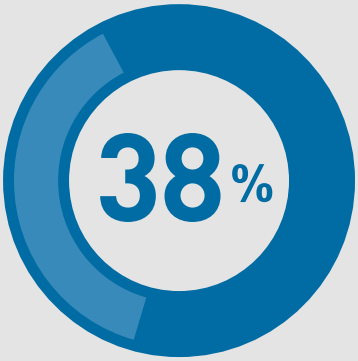
SOURCE Fingerprints™ in collaboration with Kantar TNS. Base: 4,000 online consumers in China, India, UK, USA.

SECURITY CONCERNS

Our consumer research revealed that people around the world want to use contactless cards more frequently, but security concerns hold them back.



have contactless cards, but only 30% use them



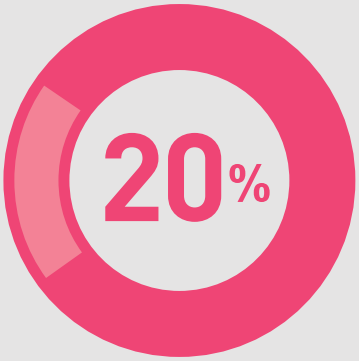
say contactless doesn't feel secure

are very or extremely concerned about fraud

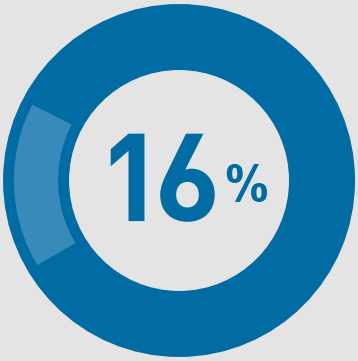
RISK TAKING

Where contactless payments cards are very popular, recent reports reveal that contactless fraud is on the rise.

On the other hand, a study by Visa also shows that among Europeans:



use the same PIN for more than one payment card



share their card details with family and friends

THEY KNOW IT'S RISKY, BUT CONVENIENCE ALWAYS WINS.

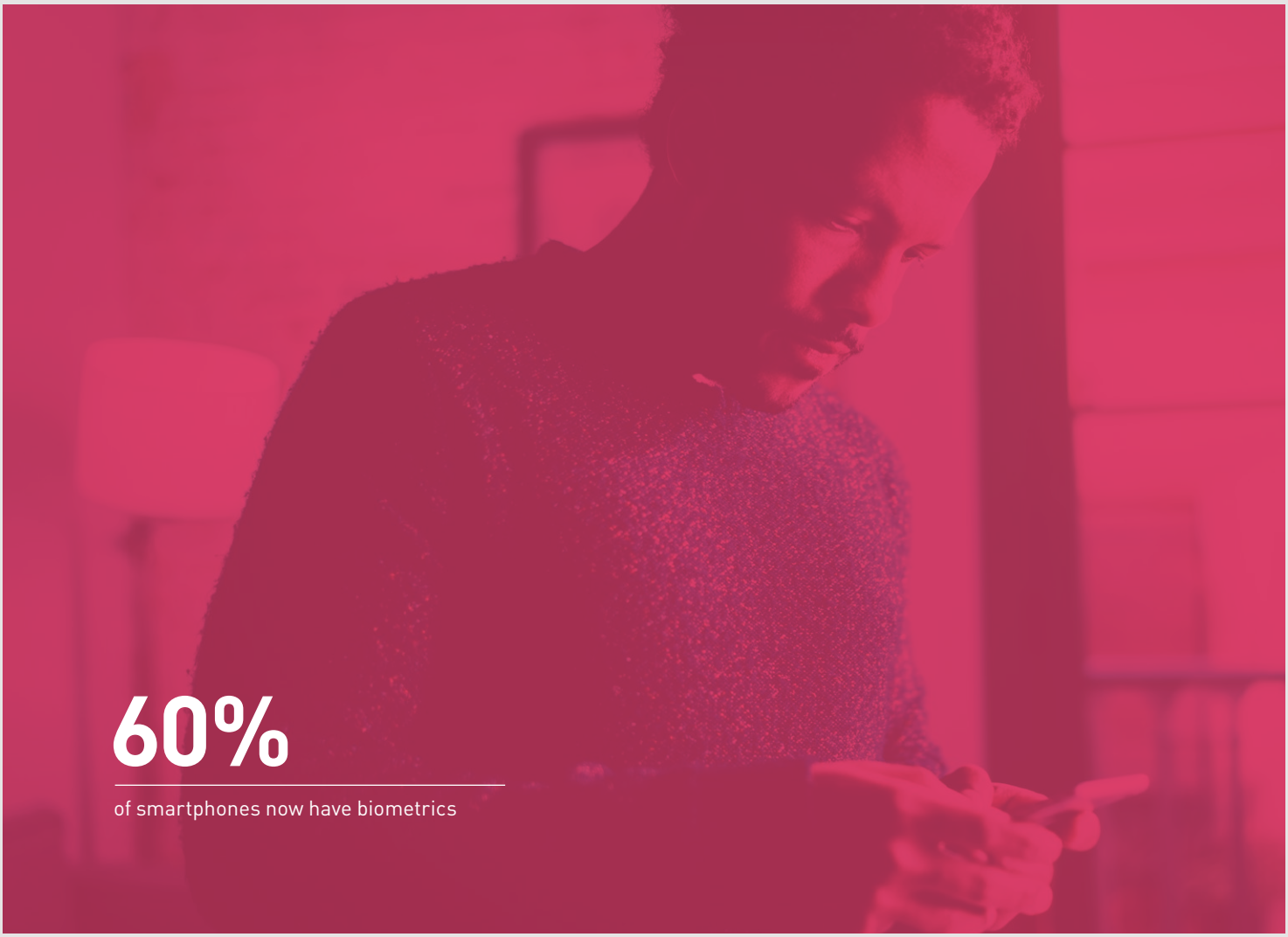
BIOMETRICS FOR CONFIDENCE IN CONTACTLESS

In biometrics, part of the body such as a fingerprint, eye, face or voice is used to verify someone's identity. It's been hugely successful in the mobile phone market – 60% of smartphones now have biometrics – with a fingerprint most often replacing PINs and passwords for activities such as unlocking the phone and making mobile payments.

The technology is now available to bring biometrics to payment cards. Which means consumers can have all the speed and convenience of contactless payments, with the added confidence and security of biometric authentication.

DRIVEN BY CONSUMER DEMAND

Already familiar with biometrics in the mobile world, consumers recognize the value it can bring to securing authentication; it is now up to the payment ecosystem to make it happen.



CHAPTER 01

01

What is a biometric payment card?

WHAT IS A BIOMETRIC PAYMENT CARD?

A biometric payment card is a credit or debit card that uses the cardholders' fingerprint to authenticate transactions. It brings a layer of security that's currently missing in contactless payments, without impacting the user experience of speed.

SECURE SELF-CONTAINED DATA

Stored in the card's secure element are:

- Template of the cardholder's fingerprint
- Personal and account details
- Matching engines that check the fingerprint presented at payment is authentic.

Consumers keep hold of their biometric data rather than a third party storing it. And if they lose the card, their data remains safely encrypted in the secure element where no one can us it.

NO BATTERIES OR TERMINAL UPGRADES

Energy from the payment terminal powers the card's biometric sensor. The card doesn't need batteries or recharging and can be used with existing terminals designed for contactless or chip-based payments.

CAN BE USED GLOBALLY

Payment schemes ensure the card works securely and meets today's EMV and ISO standards. So a biometric payment card issued by a bank in one country can be used to make payments safely in another country.

EASY AUTHENTICATION AND PRODUCTION

Embedded in the card is an ultra-thin, low-power fingerprint sensor. You can touch this from any angle, so authentication is fast and simple. Manufacturing biometric cards is straightforward too as the sensors are integrated using existing manufacturing processes.

CHAPTER 02

02

How easy are they to use?

HOW EASY ARE THEY TO USE?

One of the great benefits of biometric payment cards is that they're incredibly easy to use. There's no need to remember a PIN code or provide a signature for contactless or contact payments.

HERE'S HOW IT WORKS:

01. TOUCH

The cardholder touches the sensor and taps the card onto, or inserts it into, the payment terminal

02. TAP

The sensor takes an image of the fingerprint, which is matched against the images stored on the card

03. GO

If the image match, the payment is authorized

If the image doesn´t match the cardholder will be asked to enter their PIN as alternative authentication to prevent unauthorized card use

ALL OF THIS HAPPENS IN LESS THAN 1 SECOND!

CHAPTER 03

03

Everyone wins

EVERYONE WINS

Biometric payment cards offer a great mix of benefits and opportunities for all – banks, retailers and consumers.

SCRAP THE PAYMENT CAP

The £30 (UK), €25 (France) and $100 (Canada, Australia) payment limit on standard contactless cards can be another barrier to sales. The higher level of security on biometric payment cards means this cap could be lifted.

Consumers will welcome the increased convenience of contactless for every purchase, combined with the reassurance of biometric authentication. Which is likely to increase both spend and throughput for retailers and other businesses such as restaurants. Consumers spending more on debit/credit cards is also good news for banks' revenues.

UK	France	Australia & Canada
~~£30~~	~~€25~~	~~$100~~

COOL NEW CARDS, SAME TERMINALS

In regions where the latest technology is prized as a status symbol, biometric payment cards have a natural appeal.

In other regions, the advanced technology will enable banks to increase their status and consumer trust by showing they're at the cutting edge with a cool new technology. A more positive financial experience will benefit the consumer, while also helping banks to attract new customers and retain existing ones.

Importantly, this technological advancement doesn't come at a cost for retailers, as there's no need to upgrade their existing contactless-enabled POS terminals.

GREATER FINANCIAL INCLUSION

Chip and PIN cards, or those needing a signature, can also present a problem for a variety of people, including those who:

- Are illiterate
- Use a different set of numerals
- Struggle to remember PIN codes

Biometric payment cards overcome this because the cardholder only needs their fingerprint to prove their identity.

There's the opportunity for banks to increase financial inclusion by providing these cards to people who can't use other kinds of authentication. Financial services can be accessed by a new consumer base for the very first time, meaning small businesses and retailers in previously low-access areas will see on-card spending increase at an unprecedented rate.

THE SPECIFICS

RETAILERS:

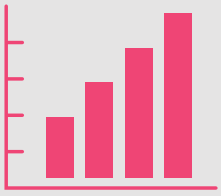
MORE CONVENIENCE = MORE SALES

Security often slows things down, but biometric payment cards increase security without compromising convenience or speed. Authorizations take less than one second, so the time saved compared to PIN-based or cash payments **really adds up**. This means greater through-put in store as more consumers use contactless and spend less time in line, also leaving less time to second-guess purchases and therefore a higher spend.

This will be even more noticeable if the contactless payment cap is removed, leading to faster payments for high value transactions. Payments are also more convenient with no PIN code to remember or signature to write. Overall, retailers can provide a swifter and more secure shopping experience, leading to higher rates of customer retention.

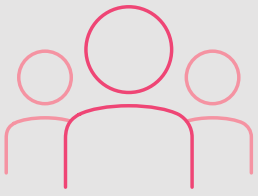
This means less frustration for consumers, and retailers may see increased revenue from:

Reduced false declines



Sales not being lost due to forgotten PIN codes

Shorter queues (there's more time for transactions and fewer people dropping out of long queues or second-guessing purchases)



Debit / credit card usage by a previously excluded customer base

BANKS & CARD ISSUERS:

TRUST THROUGH INNOVATION

A positive customer retail experience will see banks that provide biometric payment cards position themselves as innovators and being at the cutting edge brings increased status and trust. This trust will be gained by increased card security, reducing fraud and customer frustration. Greater card usage will also see banks increase revenues, while new technology can also enable them to bundle with other innovative services. This can all be offered to previously excluded customers, for whom PINs and signatures are inaccessible. Similar to the retailer, all of this means banks will be able to attract and retain customers.

Banks will benefit from:

A better reputation as a trusted innovator

Financial inclusion for a new customer base

Reduce fraud costs and chargebacks on lost or stolen cards

Customer retention and attraction with secure, convenient and cool products

CONSUMERS:

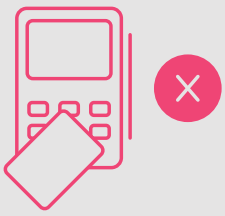
INCREASED SECURITY, REDUCED FRAUD, SAME CONVENIENCE

Consumers are the real winners and will benefit from a better payment experience from their bank and their retailers. They were given contactless to make their lives easier and quicker, which it has. However, the lack of authentication has left many uneasy. And the payment cap means they cannot use a contactless card for all purchases and is also seen as confusing. Now, with on-card biometrics, they can retain the speed and convenience of contactless, just with added confidence.

What's more, unlike biometric payment projects that have scanners within the POS, consumers' biometric data is stored and matched only on the card, protecting their privacy and putting them in control of their data, similar to mobile payments where everything biometric is stored securely in the smartphone. As payment fraud hits the consumer the hardest, they will reap the largest benefit from increased security.

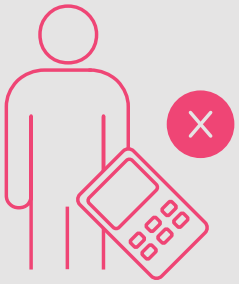
False acceptance rates show that biometric payment cards are at least twice as secure as cards using a standard four-digit PIN.

Some examples of the types of card fraud prevented by biometrics, include:

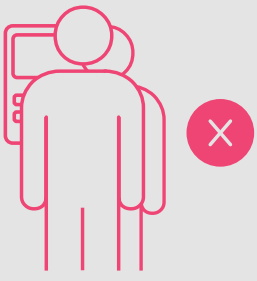


Payments using a lost or stolen card

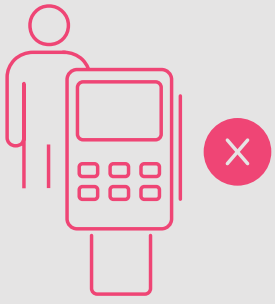
Someone the cardholder knows using their card without their approval



Skimming – for example where a criminal uses a payment terminal to scan the card through the cardholder's pocket



Nobody can see over the shoulder what the PIN is



No risk of forgetting the card stuck in the POS terminal

CHAPTER 04

04

Growing consumer demand across the world

GROWING CONSUMER DEMAND ACROSS THE WORLD

U.S.

PREFERS PIN-LESS PAYMENTS

EMV chip payment cards have been rolling out to U.S. consumers over the last few years and have been slow to take off with consumers because of challenges with speed. One reason being that chip and signature works poorly in the self check-out stations that are becoming more and more common, as there needs to be a person checking the signature, hence slowing down the process. Contactless payments have much more appeal but have also experienced mixed reaction. Our research shows it's something American consumers expect to do a lot more of over the coming years.

WEEKLY PURCHASES

Consumers think they will use more contactless payment cards and mobile payments in the future

● Today ● In 3 years

U.S.

Cash | Contactless bank card | Mobile payment

Global

Cash | Contactless bank card | Mobile payment

Research by Visa also shows that Americans have a strong interest in biometrics.

Of the 1,000 American respondents:

- 86% are interested in using biometrics to verify identity or make payments
- 70% find biometrics easier and 46% think they're more secure than using passwords or PINs
- 50% said fingerprint recognition is the authentication method they'd most like to use for in-store purchases – the highest ranking of all biometric techniques queried

ASIA

SO KEEN, MANY ARE HAPPY TO PAY

In many areas of Asia, such as Japan, one of the key attractions of a biometric card is the kudos that comes with having the latest technology. In other areas, such as India, the protection they offer against fraud has a high appeal. Plus, biometric cards are a trusted method that doesn't require network connection or battery, a key concern in especially rural Asian markets.

PAYMENT FRAUD

India

24%
have experienced fraud

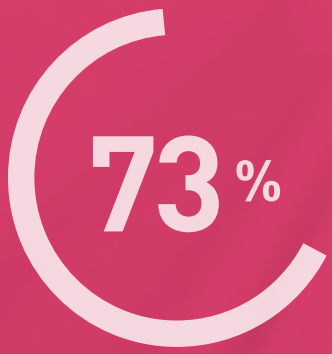
77%
are very or extremely concerned about fraud

Global

22%
have experienced fraud

51%
are very or extremely concerned about fraud

ARE WILLING TO PAY EXTRA FOR A BIOMETRIC BANK CARD



India

China

Global

Whatever the motivation, our research shows that consumers in a range of diverse Asian countries are willing to pay extra for a biometric card and the additional trust it offers.

EUROPE

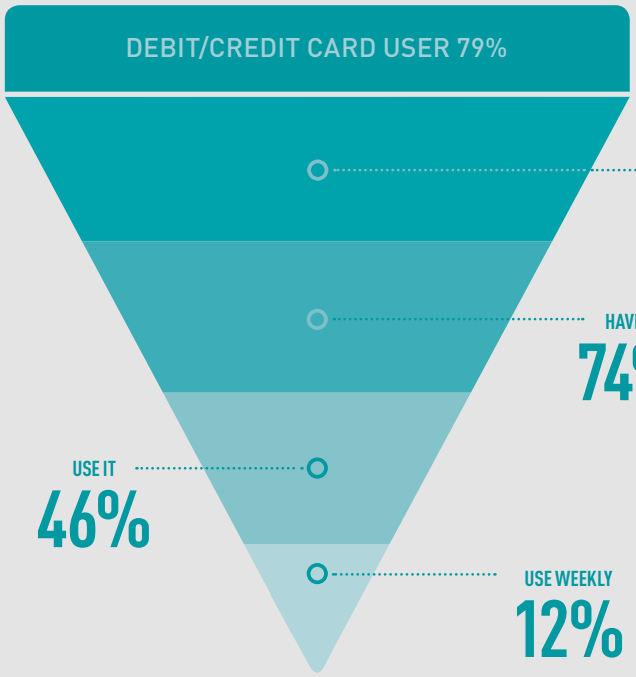
WANTS CRIME-FREE CONTACTLESS

The UK and other European countries have already embraced contactless cards. In the UK, for example, 74% of consumers have a contactless card.

A much lower number (46%) actually use a contactless card, however, and 55% don't feel it's secure. Not to mention that use is also limited by a payment cap.

CONTACTLESS CARDS – AWARENESS & BARRIERS

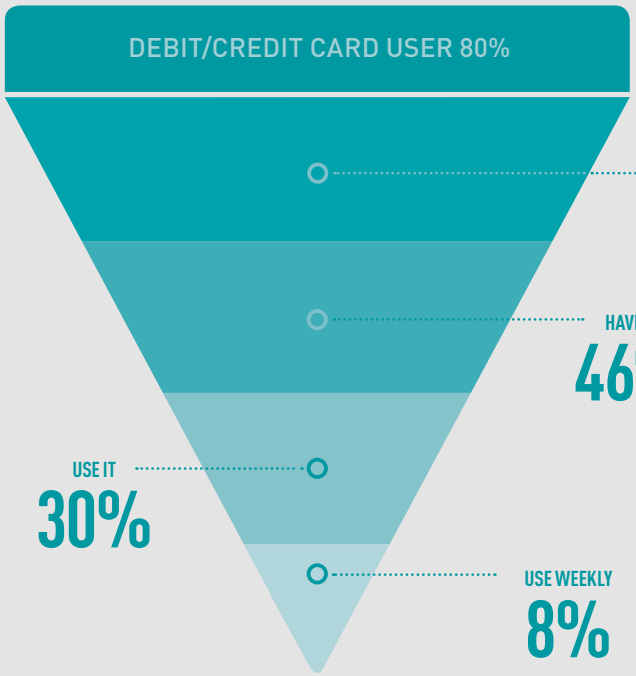
UK



BARRIERS

- 55% It doesn't feel secure
- 16% Payment cap
- 9% Don't understand how it works
- 7% Not enough vendors support it

Global



BARRIERS

- 38% It doesn't feel secure
- 21% Not enough vendors support it
- 15% Don't understand how it works
- 12% Payment cap

CHAPTER 05

05

Getting ready for volumes

GETTING READY FOR MASS MARKET

CONSUMERS ARE READY

Consumer demand for biometric payment cards is clearly there, and card industry leaders such as Mastercard, Visa, Gemalto and IDEMIA are working to make it a mass-market reality.

THE TECHNOLOGY'S READY

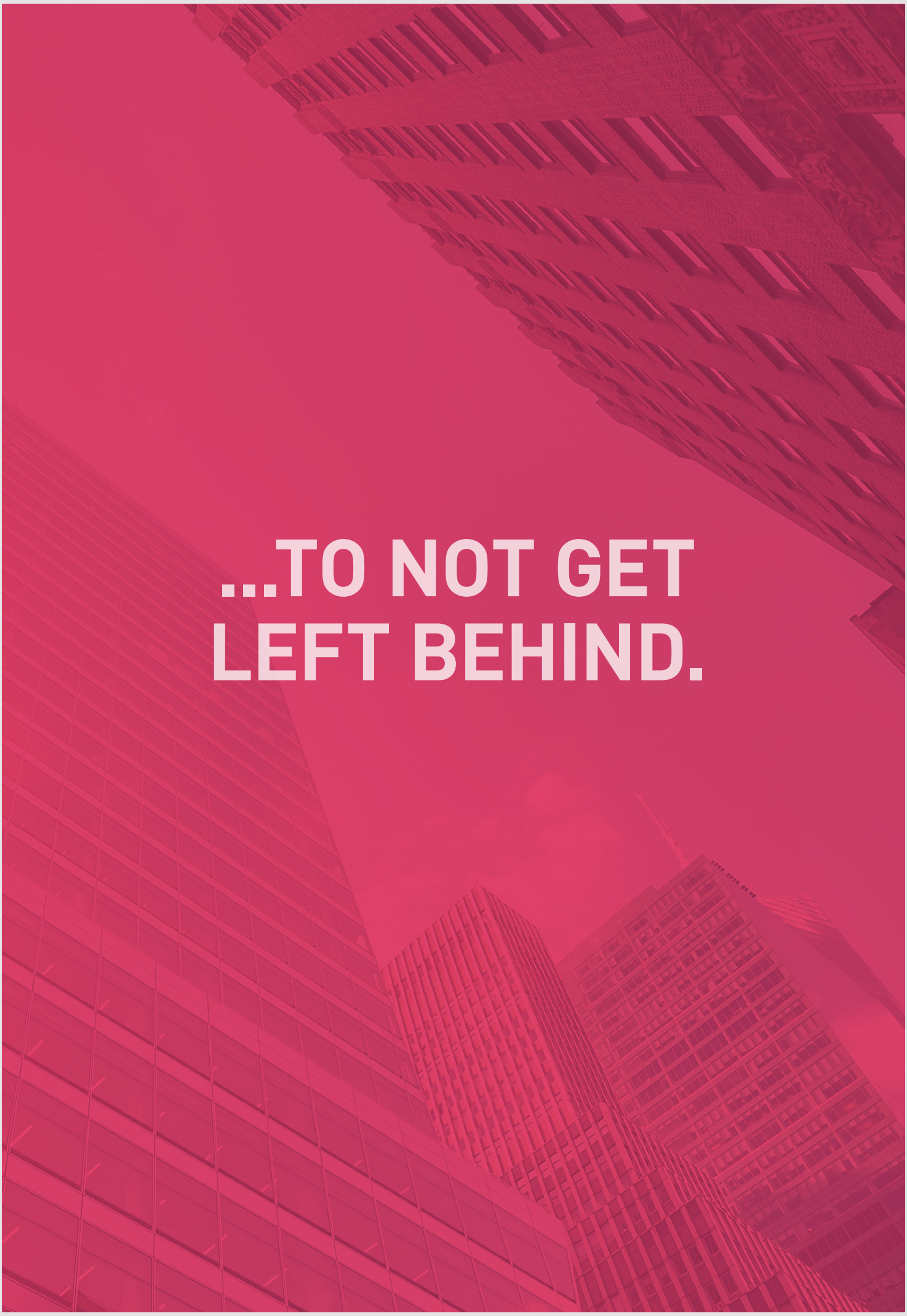
The exciting thing is, the technology is already here and ready to scale. It can be integrated into cards using current manufacturing techniques and works with existing contactless and chip-based point of sale terminals.

TRIALS ARE BEING HELD

Trials of biometric payment cards have recently been announced with AirPlus, Visa is doing trials in the US, Cyprus and Middle East. JCB has partnered with IDEMIA to launch the first F-Code biometric payment card in Japan. Mastercard has conducted trials in Bulgaria and South Africa, and others are underway.

FOR BANKS, NOW IS THE TIME TO ACT...

2018 IS THE YEAR OF ON-CARD BIOMETRICS, QUICKLY PAVING THE WAY FOR VOLUME UPTAKE.


...TO NOT GET
LEFT BEHIND.

ABOUT US & OUR PARTNERS

LEADING THE CHARGE

Fingerprints is at the forefront of biometrics across the world. Our solutions are found in hundreds of millions of devices and are used billions of times every day, providing safe, convenient identification and authentication with a human touch.

FROM SMARTPHONE TO PAYMENT CARD

Over 30 leading brands have integrated our sensors in over 300 smartphone models. We've adapted this hugely successful technology with our unique T-shape sensor module, tailor made for payment cards. Thin and small, it offers high image quality with optimized and proven biometric performance for smaller surface areas such as a payment card. And with unprecedentedly low power consumption it enables contactless authentication without a battery.

Our sensors can be made cost-effectively and at high volumes with standard card production processes. They can also be laminated, so there's no compromise to a card's design.

HOW WE'RE MAKING BIOMETRIC PAYMENT CARDS A REALITY

The potential of on-card biometrics is huge, but we can't make it happen alone. We're collaborating with a wide range of representatives from the card ecosystem (illustrated below), which each have a vital part to play.

BIOMETRICS LEADERS

like Fingerprints are leading the way. Using our expertise with high-volume smartphone sensors, we're driving forward innovations to take biometric payment cards to the mass market.

SOLUTION PROVIDERS

like NXP, Zwipe, Linxens, CardLab are adapting and developing components including secure elements, prelams and inlays to fit the new requirements.

CARD MANUFACTURERS

like IDEMIA, Gemalto and Kona-I are developing and manufacturing biometric payment cards and other smart cards, and are working with card issuers.

PAYMENT SCHEMES

like Visa and Mastercard and bodies like EMVco and Eurosmart are working to ensure technologies are interoperable, secure and stable for a standardized, sustainable industry.

ISSUING BANKS & LARGE RETAILERS

are sharing their requirements to ensure they have the right product for their customers.

CONSUMERS

are using biometrics increasingly more in daily life* and are looking for the same level of authentication for payment cards, without compromising on speed or convenience.

* An average smartphone user unlocks the phone about 100 times per day,for many biometrics has replaced the PIN already

FINGERPRINTS