

## BIOMETRIC CARDS POISED TO BECOME A MAINSTREAM PAYMENT PRODUCT

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### Introduction

Over the last two decades retail payments have seen major waves of technological improvement, beginning with Chip & PIN in the 2000's, followed by contactless payments a decade later. We now see, with fingerprint biometric technology, the next major wave. Fingerprint biometric payment cards can facilitate touch-free payments and change the payment experience.

As a result of the pandemic, payments will require a fundamental change to be 100% touch-free and at the same time keeping all transactions secure. All indicators point to the next payment technology change being the fingerprint biometric smart card.

PAY

This paper builds on the drivers of major retail payment evolutions over the last two decades and looks at how the potential of biometric payment cards can be leveraged to address the challenge of touch-free payments. The paper concludes by outlining the value proposition for biometric smart cards for payment stakeholders and explains why fingerprint biometric card technology is the logical next step in the evolution of payments.

# Background on the migration to Chip & PIN

The Payments Industry faced a major technology change in the 2000's with the migration to Chip & PIN cards. This breakthrough delivered fraud reduction and prevention benefits and allowed card payments to become the dominant payment instrument. Within a few years spending at UK retailers soared, with 55% of all payments made with cards by 2006. By 2018 that had increased to 78%, a 23% increase.

#### **RISING CARD SPENDING**

The total number of card purchases in 2006 was 6.4 billion while in 2015 the number was 13.4 billion - up 7.0 billion or 108%. The total card spending in 2006 was £316 billion compared to £622 billion in 2015 - up £306 billion or 97%.





#### Annual totals of card purchases and expenditure<sup>1</sup>

1. Source the UKCARDS Association http://www.theukcardsassociation.org.uk/news/10yearsChipandPINnews.asp

2. Source BRC (British Retail Council) https://www.bbc.com/news/business-49745136

#### PRIOR TO THE INTRODUCTION OF CHIP & PIN TECHNOLOGY, PAYMENT CARDS WERE BASED ON MAGNETIC STRIPES.

These were swiped through a card reader which printed a record of the transaction and consumers then had to sign to authorize the transaction.

But magnetic stripe technology was wide open to fraudsters, who both counterfeited cards and exploited lost or stolen cards. Taking the example of the UK back in 2004, counterfeit card fraud losses totaled £129.7 million, while fraud on Lost & Stolen cards totaled £114.4 million. Card non-receipt fraud – when a new card is stolen in transit to the consumer – was £72.9 million. The industry needed to look for a different system which would bring higher levels of security for customers. A system of cards with Chips, rather than magnetic stripes, and verification with a PIN was the obvious choice. It would give the necessary levels of security and provided consumers with a consistent global payment experience. As ATMs already used PINs for cash withdrawals, it was also a system with which consumers were very familiar.



3. Source http://www.theukcardsassociation.org.uk/wm\_documents/Fraud-The-Facts-2011.pdf

In the UK, the national rollout of Chip & PIN cards and point-of-sale (POS) terminals began in October 2003. Due to its scale and complexity, the rollout happened gradually across the country.

By the end of 2006, the UK was considered a mature Chip & PIN marketplace. In 2006, fraud on Lost & Stolen UK-issued cards had fallen to £68.5 million and fraud on counterfeit cards was reduced to £98.6 million despite a growing share of card payments within national retail sales. The fraud rate in the UK was 0.141 % in 2004 and came down to 0.074 % in 2010.

Following on from the UK, and also the French market (another pioneer in Chip & PIN payment cards), other markets in both Europe and Asia achieved their own Chip & PIN migrations, followed by all continents a decade later. Proving and delivering a similar business case and bottom-line benefits for card issuers. In Europe the Chip & PIN migration allowed better control of fraud on proximity payments. In 2016 only 19% of total fraud originated from POS and 8% from ATM whilst fraud losses had migrated to 'Card Not Present' (CNP) accounting for 73% of the total value of card fraud<sup>5</sup>.



Fraud losses on UK-issued cards<sup>4</sup>

4. Source http://www.theukcardsassociation.org.uk/wm\_documents/Fraud-The-Facts-2011.pdf

#### **EVOLUTION OF PAYMENTS FROM CONTACT "CHIP & PIN" TO CONTACTLESS IN THE 2010'S**

A decade later payment stakeholders achieved another major technology change by enhancing the payment infrastructure to contactless. The objective was to allow faster transactions and to eliminate cash for low value transactions. especially in fast throughput environment. This was seen as a natural extension to the debit product proposition with the benefit of improving convenience.

It is worth stressing that this technology evolution, although increasingly popular, had not become the default for the majority of card payments by 2018, (See example of UK distribution of payments "The way we pay") due to transactions limits and fear, from many consumers, about having their card misused by thieves.

A recent survey of 1,000 current account or credit card holders in the UK, by IDEX Biometrics, found that 54% fear that contactless technology could enable criminals to scan a contactless card in their pocket and steal funds without their knowledge.

#### The way we pay<sup>5</sup>



Number of payments made by a typical adult

5. Source BRC (British Retail Council) https://www.bbc.com/news/business-49745136

## Initial reaction to Covid-19 impact

#### RISE OF CONTACTLESS LIMITS TO ENABLE TOUCH-FREE PAYMENTS

To mitigate the ongoing effects of the coronavirus pandemic, by enabling more touch-free payments, regulators have encouraged contactless payments<sup>6</sup>. Card Schemes, both domestic and global, have increased contactless limits. E.g. "Mastercard enables Contactless limit raise across 29 countries (Europe) and champions permanent increase"<sup>7</sup>. In addition, several financial analysts are advocating a fundamental change after Covid-19 (e.g. McKinsey report April 2020) which is to make all payments in the future "touch-free"<sup>8</sup>.

#### Limitations of existing dual interface payment cards

A major limitation of existing dual interface cards is that they do not support a frictionless method to authenticate the cardholder. When presenting the card for a contactless transaction, neither the terminal nor the chip card can be certain the genuine cardholder is using the card. As a consequence, contactless transactions, in the absence of cardholder authentication, are only allowed under the following 3 limitations:

- A maximum transaction amount (e.g. €50 on average in EU after card schemes have recently increased contactless limits during the first quarter 2020)
- ✓ A limited number of consecutive transactions made contactless (e.g. 5 transactions in the EU)
- ✓ A cumulative amount for consecutive transactions made contactless (e.g. €150 in the EU).

As every cardholder has experienced, when trying to make a contactless payment, terminals often prompt the cardholder to either enter a PIN when one of the above three limits is reached or to insert the card and perform a regular Chip & PIN transaction. In any case, when one of the above three limits is reached the experience is not frictionless, nor touch-free, is inconvenient and therefore is frustrating for the cardholder. Despite raising existing transaction limits, the standard dual interface cards still have limitations and require PIN entry or a contact Chip & PIN transaction when limits are reached.

- 7. Source https://newsroom.mastercard.com/eu/press-releases/mastercard-enables-contactless-limit-raise-across-29-countries-and-champions-permanent-increase/
- 8. Source: https://www.nfcw.com/2020/04/03/366230/mckinsey-coronavirus-will-cost-the-payments-industry-165bn-dollars/

<sup>6.</sup> Source https://www.pymnts.com/news/payment-methods/2020/eu-encourages-contactless-payments-coronavirus/

#### LOST & STOLEN FRAUD PREVENTION

#### Encouraging more touch-free payments to reduce the risk of Covid-19 introduces a financial risk.

With new upper transaction limits for contactless we are now facing no cardholder verification for higher value transactions. If fraud was insignificant with the lower contactless limits in place before the pandemic, with the new upper limits we will inevitably see an increase in Lost & Stolen fraud. The increases may reach rates seen prior to the introduction of Chip & PIN, very much a backward step.

With higher contactless limits cardholders are enjoying the incremental convenience and it makes sense that consumers will want to keep paying via contactless. It would therefore prove unpopular with consumers if the card schemes were to decrease contactless limits when the world returns to its new normal. The financial risk and rise of Lost & Stolen fraud will remain and will need to be addressed. In addition to bringing convenience and allowing touch-free payments, there is a business rationale for card issuers to bring in fingerprint biometric smart cards. The major pillar of this rationale, in addition to bringing convenience and safety, is to prevent Lost & Stolen fraud. If we take the example of the UK, the level of Lost & Stolen fraud before Chip & PIN was officially between 0.1% and 0.2% and was steadily increasing. Considering the debit and credit card spending amounted to £300billion in 2018, replacing Chip & PIN payments by contactless payments, without cardholder authentication, could potentially result in Lost & Stolen fraud being between £300million and £600million per year for the UK banking community alone.

Lost & Stolen fraud was very significant before the Chip & PIN migration and will likely rise again if nothing is done to strengthen cardholder authentication for any transaction, including contactless based transactions which are the majority of proximity payments.



#### FUTURE OF PAYMENTS

In view of adjusting to the pandemic situation the payment industry will need to prepare for fundamental changes in the future in order to:

- ✓ Enable safe, hygienic, convenient, secure and touch-free proximity payments
- ✓ Keep Lost & Stolen fraud low

To avoid touching a terminal and a keyboard for Chip & PIN entry, whilst ensuring the genuine cardholder is using the card, consumers will need a solution that provides both strong authentication and allows contactless limitless payments. There are two forms of technology to consider:



#### Mobile proximity payments.

This technology is trendy and increasingly popular; however, firstly it is limited to modern handsets as not all smartphones in circulation are secure and have up-to-date OS; secondly, this option is limited to some consumer segments. Consumers in large segments are reluctant to use a smartphone for payment (whether they have an appropriate mobile device or not) and prefer using a payment card over a smartphone

#### OR

#### Fingerprint biometric smart cards.

The biometric card technology is now mature, it has been piloted by multiple organizations across the globe. It is becoming widely available and it has reached a high degree of confidence thanks to proven performance and positive feedback from consumers, card issuers and card networks. Finally, the costs of the technology have drastically reduced, making the biometric smart card proposition more and more attractive for Issuers.

## Conclusion

The fingerprint biometric smart card is an ideal instrument to support touch-free payments as required in the new world post pandemic, it brings multiple benefits to payment stakeholders.

- For consumers the biometric smart card technology will enable:
  - A completely touch-free payment experience
  - Hygienic and therefore safe practices
  - Higher levels of security, "I trust contactless acceptance, nobody else can use my card"
  - Consistency with current payment behavior
  - Cash replacement. People will not need to use cash if they have a safe and secure alternative.

By making fingerprint biometric smart cards widely available, more cardholders will perform contactless transactions as they will trust their cards more.

#### For Merchants, biometric cards will ensure

- ✓ Faster payments ✓ Consumer safety
- A reduction in fraud
  Improved consumer loyalty
- Reduced interaction with cardholders for payment, no need to take the card, no need to present a PIN pad
- No change to the existing payment infrastructure, no change to current POS terminals

### For Card Issuers/Banks fingerprint biometric smart cards will deliver:

- A safe payment instrument to all consumers (not only smartphone users)
- A profitable card proposition thanks to:
  - More card transactions with more cardholders using contactless
  - Higher spending greater transaction value
  - More transactions thanks to 'Top of Wallet' effect
  - "Lost & Stolen" fraud prevention/reduction (to avoid returning to the uncontrolled and unacceptable levels reached before Chip & PIN).
- Improved security and privacy
- Full control of transaction security (independently from cloud operators or smartphone manufacturers)
- A bridge to greater online security for e-commerce
- A leverage to providing a digital identity for other services.

The future of the fingerprint biometric smart card is bright and brings a natural evolution in payments. These cards should be a mainstream product to make payments both touch-free and secure.

## Get in touch



Be part of the fingerprint authentication revolution:

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