

SQUARING THE CIRCLE

» Driving EMV migration in the USA



» WELCOME

SQUARING THE CIRCLE: COMPLETING THE LAST MILE

It is no understatement to say that the journey to adoption of EMV in the US over the last decade has been bumpy, with several false dawns. The arrival of the shift in responsibility for revenue losses from chargebacks in October 2015 however marked the beginning of a long anticipated step change, with the majority of large retailers, issuers and acquirers enabling chip card payments at the check-out.

In the interests of improving protections for consumers and waging a much-needed war on counterfeit card fraud, substantial progress has been made in the first six months of the US EMV journey.

As the insight from the research makes clear, it is a journey that has only just started. Over 90 percent of the nation's merchants are represented by small and mid-sized businesses, so, in many eyes, the hard work really only starts now.

It is for this reason that Worldnet has commissioned this report, which is the result of conversations with over fifteen issuers, acquirers, processors and payment intermediaries and responses from an industry-wide survey of over a thousand senior US payment industry professionals.

As a company founded on the payment industry promise to provide seamless, secure payments that contribute to transaction, and economic, growth we hope you find it assists you and your customers on their own journey toward EMV adoption. It should also help you understand how to avoid the bumps experienced in some corners of the industry during the first phase of roll-out.

We hope you enjoy the insights in this report as much as we enjoyed talking to its contributors, and we look forward to hearing your individual EMV stories in the months ahead, and perhaps to helping you along the way.



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»» KEY FINDINGS

EMV technology has proven to be a powerful weapon in the war against fraud at the checkout, and in helping merchants protect margins already under pressure from online price competition. Wherever it has been implemented.

For the United States – the last big country to switch – it also offers much more than that. Chip card transactions have the potential to restore consumer trust in the payment process at the checkout while giving the incumbent payment industry a valuable opportunity to re-state its commitment to delivering a secure, innovative payment market, immune to external economic factors. At the same time as installing the final piece of the ecosystem to build an integrated omnichannel retail marketplace that is not confined to national borders.

Squaring the Circle: Driving EMV Adoption in the USA, reveals that while the approach to migration across the US during the first six months after the 2015 liability shift has been highly fragmented, the path to implementation should now be much smoother.

However, while survey respondents were universally in agreement that fraud reduction is the primary goal of EMV adoption, realizing an EMV dividend of higher transaction volumes against lower losses from fraud will depend on coherent, consistent collaboration between all corners of the payment industry square. It is this ‘last mile’ that will test the transformative capacity of the incumbent industry before the digital payment era fully takes shape.

IN PARTICULAR, THE RESEARCH REVEALED SIX COMPONENTS CRITICAL TO THE SUCCESS OF MAINTAINING NATIONWIDE MIGRATORY MOMENTUM IN THE YEAR AHEAD:

Chargebacks, consumers and emerging risks: Over 90 percent of respondents to the survey identified fraud prevention as the primary target of EMV implementation. Card fraud topped \$8.5 billion in 2015 and the research reveals the breadth of new and emerging risks confronting payment service providers today. Among consumers, a series of bruising data breaches, rising perceptions of fraud and falling in-store sales mean safer chip transactions provide main street retail with a much needed shot in the arm to reassure consumers that their payment data is in safe hands.

Innovation: The disruptive innovation agenda is dominating the shake-up in delivery of financial services across the US, especially among the payments industry, where new digital entrants are challenging the four party payment model that has determined the payment process for the last half century. 80 percent of respondents to the survey believed that introduction of EMV would also speed up adoption of contactless payments by merchants. The research underlines that while EMV is no panacea for flagging business models, it does provide valuable breathing space for the incumbent industry before the digital payment era fully takes shape.

Re-connection and retention: Data breaches and a reputation tarnished by the impact of the banking industry-induced Great Recession have fractured the consumer relationship with the payment system and their financial service providers. Safer chip payments offer an opportunity to repair the damage before the eyes of the consumer, as well as the potential for retailers to claw back some of the in-store retail sales that have been lost to online merchants over the last decade.

Collaborative competition. The value of EMV goes far beyond reducing fraud at the checkout. As one interviewee remarked, a mag stripe card declined abroad, stays out of use at home. Among survey respondents the perceived complexity of the certification process (75 percent), the need for merchant education and training (60 percent), and making the business case for EMV to merchants (64 percent) were cited as major obstacles to EMV migration. The research identifies a need for coherent cooperation to educate and promote the benefits of EMV, and underscores the value of bundled technology packages and simpler platforms to ease the transition process.

Limited liability: The liability shift has provided useful stimulus for EMV adoption in the absence of (an unwanted) regulatory mandate. Reliance on the avoidance of liability for fraud losses as the primary benefit of chip card payments however risks overlooking an opportunity to repair a damaged consumer relationship, inspire payment innovation at the checkout, and for incumbent providers to play a lead role in the growth of the payment marketplace.

Every Migration adds Value: Much more than a convenient sentiment, insights from interviewees and the survey reveal the cumulative nature of the EMV migratory process as it sweeps across the US retail landscape. Good progress has been made so far – close to one million retail locations are now EMV ready, a figure growing at 4 to 5 percent a month. Amplification of the benefits of chip transactions, and the realization of an EMV dividend of rising transaction volumes and declining fraud, however will rely on all corners of the payment square contributing to a virtuous EMV adoption circle to help complete the last mile.

» THE EMV JOURNEY

KEY FACTS:

- » In 2015, card fraud in the USA hit an all-time high of \$8.5 billion
- » Following the introduction of EMV cards in Canada, POS fraud reduced by 88 percent over three years
- » Over 90 percent of survey respondents agreed that combating fraud was the primary incentive for EMV implementation

In a report to its 2015 Annual Conference, the Global Risk Institute in Financial Services¹, a think tank focused on reducing risk in the financial services industry, identified cyber-security, disintermediation and data breaches as the three greatest threats facing financial institutions in 2016. A view with which Bank of England Governor Mark Carney agreed at Davos in 2014, when he identified the financial services industry as being more at risk than any other sector of disintermediation by lower-cost, agile competitors, primarily operating online.

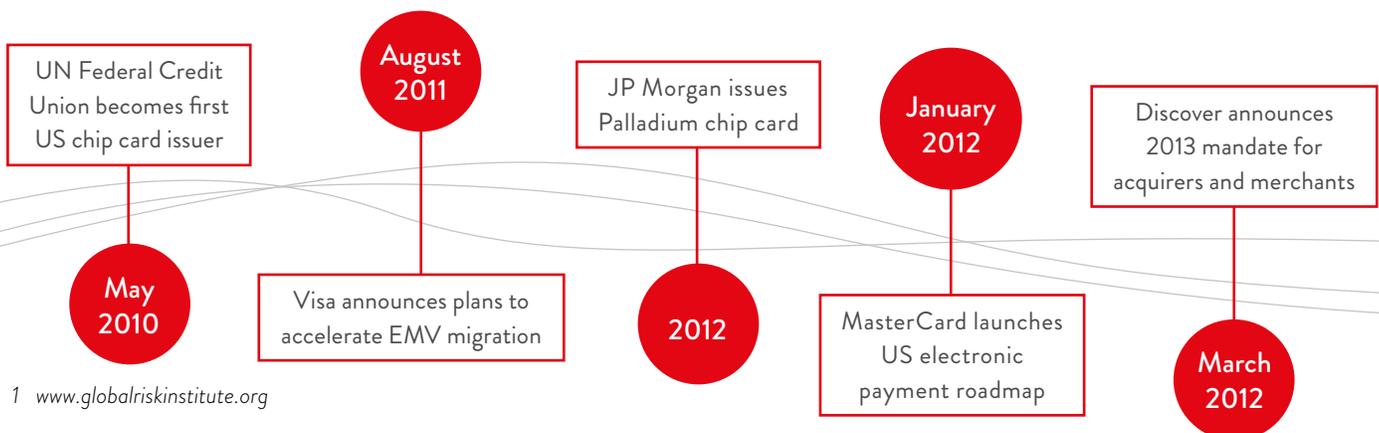
As this report makes clear, the 'payment square' - the established four-party payment model - has served the consumer well over the last half century, enabling the rapid growth, worldwide, of electronic card payments.

As new, digital forms of payment have arrived however, the costs and constraints of the four party model and the growth in online retail are showing signs of stress.

A new, 'circular' approach to growing electronic payments, in step with the digital world is required. It is an approach that will boast several false dawns as innovation and experimentation seek out the best fit. To the winners, it will mean maintaining their position at the heart of a payment ecosystem more complex, yet also much larger, and quite likely immune to external economic factors.

While enabling EMV is no magic pill, throwing open the door to chip card payments in the US does provide valuable breathing space for the incumbent payment

THE LONG AND WINDING ROAD EMV Milestones



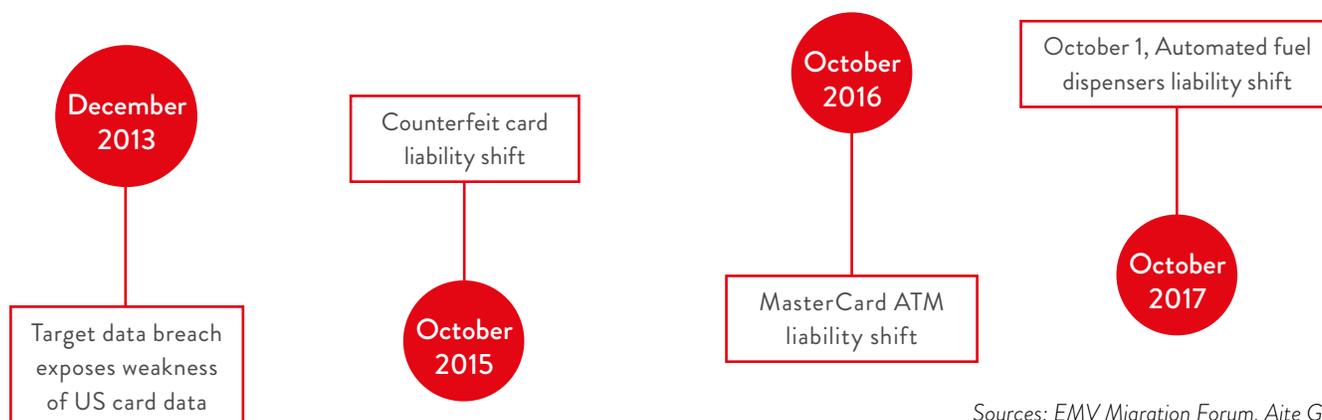
industry. It will allow it to take advantage of, and experiment with, recent digital innovations, at the same time as firmly communicating a commitment to improving consumer protections. An image overhaul that is badly needed in the aftermath of a bruising round of data breaches and a severe, banking-industry induced recession.

As interviewees throughout this report highlighted, the road to US adoption of EMV has already been long. Introduction of EMV-enabled payments began in 2011,

when Visa and MasterCard first mapped out the process with major issuers, a major step towards protecting the world's largest single payments infrastructure from fraud and data breach. A benefit nearly all the respondents to our survey being agreed the primary incentive to EMV migration. Furthermore, by implementing EMV as part of a package of enhanced security measures, financial institutions and their partners are beginning to understand how they can protect themselves from the advance of newer, digital payment market entrants.

ARRESTED DEVELOPMENT?

Widely acknowledged as the most complex payments marketplace in the world, the US' 19 processing networks, and a patchwork of software and hardware providers competing for business alongside a long 'tail' of smaller card issuers complementing the top ten issuers, which collectively account for more than 70 percent of all cards issued. Taking all of this in to account, it is no surprise that the US is the last big market in the world to adopt the EMV standard after the UK and Ireland, the European Union, Australia and Canada.



US FRAUD IN NUMBERS

783
Data breaches in 2014

76 %
of all data breaches worldwide

24 %
of all cards

47 %
of all card fraud

1.4 billion
records lost since 2013

Sources: EMV Migration Forum, Aite Group

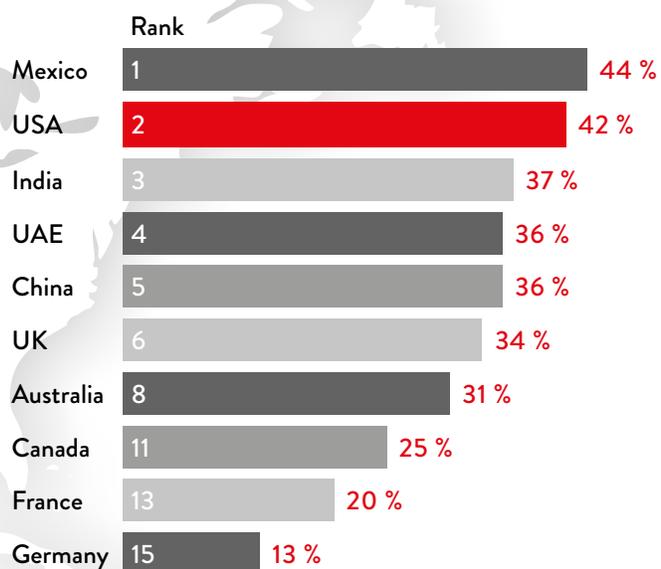
BREACH IN THE WALL: HIGH PROFILE US DATA BREACHES TO 2014



Source: Gemalto Breach Level Index, Creditcards.com

GLOBALLY SKIMMED

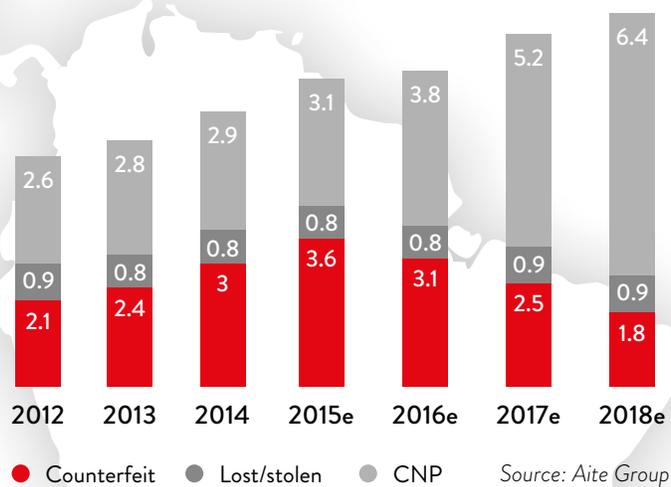
Percentage of consumers who have experienced card fraud



Source: Aite Group, ACI Worldwide study 2012

HOLES IN MY WALLET

US card fraud losses 2012-18 (\$ bn)



Source: Aite Group

US EMV IN NUMBERS



2012

UN Federal Credit Union
issues first chip card

40 %

of US consumers have
EMV cards

25 %

of merchants EMV ready

400 million

chip cards issued



Source: EMVCo, December 2015

In spite of the complexity, migration to EMV is no longer an option. The now infamous breach of Target's systems that resulted in 40 million credit cards being compromised blew the lid off the fatal flaw in magnetic stripe cards, opening consumer's eyes to the glaring reality that nearly half of all card fraud¹ and three quarters of all data breaches globally take place in the USA². All this in market that accounts for less than a quarter of all cards worldwide.

More worryingly, with a retail sector where e-commerce accounts for nearly all the growth in retail sales³ while in-store sales continue to decline, the US consumer watchdog has recorded that complaints of card fraud by consumers has increased 10 times and complaints of identity theft have increased six times between 2001 and 2015⁴.

Given the scale of the rollout, substantial progress has been made so far. The EMV Migration Forum reports that more than 600 million chip cards have been sent to issuers in the United States, although rather less than this number have actually been issued, owing to the time needed to personalise the cards to issuers specifications.

October 2015 fired the starting gun for EMV which provided much-needed impetus for adoption of the EMV standard when liability for fraudulent transactions was shifted from issuing financial institutions to the merchant handling the transaction.

Further significant steps are planned for 2016 and 2017 (see 'The Road to EMV' infographic on p. 4-5), including moves to EMV standard for ATMs by MasterCard (October 2016) and Visa (October 2017), as well as impressive growth in the number of merchants accepting EMV cards, estimated by Ingenico Group among others to be running at up to 5 percent per month. Together with the continued roll-out of chip-enabled cards by card issuers across America, this should ensure that the somewhat arrested development of the market for EMV transactions of the last five years takes a smoother path in the years to come.

1 Barclays' Security in Payments: A Look into Fraud, Fraud Prevention, & the Future, 2015

2 Breach Level Index, Gemalto, 2014

3 2015 Retail Trends, Strategy&, 2015

4 Consumer Sentinel Network Data Book, Federal Trade Commission 2016

THE LAST MILE

Significant challenges remain, however, before all parties in the payments process can reap the benefits of EMV implementation. Most merchants apart from major chain stores still need to be persuaded to adopt EMV-compliant hardware and software, including the challenge of updating existing firmware.

With small merchants making up 99 percent of the retail industry¹ – convincing this long tail of the benefits of the payment circle will take a cooperative, collaborative approach by issuers, acquirers and processors alike. An approach that requires clearer communication to merchants and consumers of the benefits of EMV, ramped up capacity to break the logjam in certification applications and a smoothing of the migration process to help reduce the time needed for merchants to be ‘chip-ready’.

The result of extensive interviews with all corners of the payment square, combined with the results of a nationwide payment industry survey, this report sets out the current situation regarding EMV migration from the point of view of issuing financial institutions, acquirers, merchants and consumers, and related technology issues. It includes relevant case studies of what has worked well both at home and abroad, and provides a glimpse of

the future of EMV in the US as the digital payment era takes flight.

This report argues that improved merchant and consumer education and more coherent, bundled solutions for certification are necessary conditions for success in the US’ migration to the EMV standard. As this report demonstrates, the most challenging part of the migration to EMV still lies ahead this year, and success – in the form of lower fraud coupled with card payment growth - will only be possible if the four corners of the payment square can join forces to form a virtuous payment circle.

Failure to cover the critical ‘last mile’ may leave large parts of the payments infrastructure at increased risk of fraud, and at risk of disintermediation by new digital payment entrants. EMV offers all actors in the payments business a golden opportunity to ‘square the circle’, creating a single platform for everything from traditional in-person transactions to mobile commerce, card not present and e-commerce businesses, strengthening the world’s largest single payments infrastructure and, by implication, the entire global network in the process.

¹ Retail’s Impact, National Retail Federation 2016

»» THE PAYMENT SQUARE

ISSUERS

The road to EMV adoption in the United States began in 2011, when cardholders began returning from trips to Europe and reporting that their cards were being declined. Interoperability – the capacity to have cards issued in one market working in all the others – is key to a globally successful payments system. Additionally, major card issuers and the big card brands became concerned that fraud would migrate from EMV-ready markets to the US. With card fraud and data breaches increasing, both the major card brands and big issuers recognised the need to act, announcing merchant incentives for EMV migration towards the end of 2011.

Discussions were held with major merchants and the first migrations to the EMV standard took place in early 2014. Today, there are more than 900,000 merchant locations across the USA accepting EMV transactions – a number growing at over 5 percent per month – and 20 percent of all cards issued in the US are chip cards, including 67 percent of all MasterCard consumer credit cards as of 1 April, 2016.

According to Jack Jania, SVP of Strategic Alliances at Gemalto, the USA has made “huge strides” in issuing chip cards over the last eighteen months. “When you look at the European experience, where EMV migration took years, the progress we have made over the last two to three years is not insignificant – some 600 million cards have been issued to consumers.”

A further spur to EMV migration for the US is the fact that 40 percent of card volumes at EMV-compliant locations comes from foreign-issued cards being used by tourists, something which suggests merchants who are not EMV ready could see their tourism-related revenues decline.

With a market as large and complex as the United States, Visa’s streamlined approach to chip deployment is essential in reducing cost, complexity and time to market.

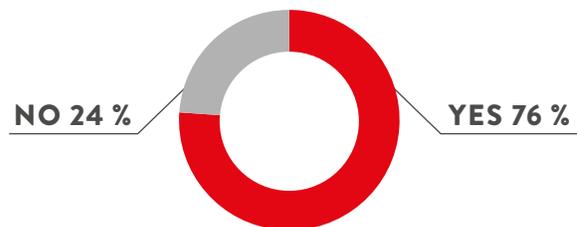
Simon Hurry, Visa Inc.

EMV IMPACT ON CARD USE

Will EMV adoption drive card use?



Will EMV adoption drive use of mobile payments or contactless?



Source: Worldnet

VISA QUICK CHIP

Visa created Quick Chip processing in response to reported concerns from merchants and consumers that EMV transactions were perceived as taking longer than traditional mag stripe. Aimed squarely at high-volume retail outlets such as food stores and others where transaction time is critical, Visa Quick Chip allows for early removal of the payment card while relying on standard EMV processing.

Following the generation of an online cryptogram, the card can be removed whether the final amount has been tendered or not. The technology, which is suitable for both on-line and physical use and is compliant with any standard terminal, allows PIN processing to be performed as part of standard EMV processing. If signature is selected, the signature panel is deferred until authorisation is

received. The final amount tendered is displayed prior to sending the authorisation request.

The overall effect of Quick Chip is to reduce average processing times on chip cards from seven seconds down to two seconds – something that’s particularly important in situations where the cardholder hands over their card to the clerk in a restaurant, for instance.

For virtual merchants and those offering e-commerce solutions as part of their retail package, Visa has created an Online Only chip implementation package which is significantly quicker and less complex to integrate into existing payment arrangements for merchants.

THE ACQUIRER PERSPECTIVE

» **90 percent of those surveyed** believe that national merchants had been the fastest to adopt EMV, with 65 percent believing hospitality and restaurant will be the slowest to implement the new technology.

According to data from Ingenico, currently only one million of the 14 million merchant acceptance locations in the US are EMV compliant, suggesting very significant room for growth in the merchant acquirer market.

However, market data from the EMV Migration Forum suggests that outsourced third-party acquiring companies have been growing at 15-20 percent per year in 2014 and 2015, indicating the leap in demand for EMV-ready technologies, and the fact that 40 percent of all transactions in the US happen through the one million EMV locations suggest that at least some consumers are

comfortable with using the new technology.

Nonetheless, significant challenge remains a coherent pathway and easy-to-implement software and hardware tools for merchants. Bill Rorick, VP at ID Tech, notes, “As hardware providers, we need a way to talk to existing devices to update their firmware. Some customers who have already invested in mag stripe technologies may be unwilling to bear the cost of an upgrade, although they are prepared to engage once they understand the process.”

This situation is made more complicated by the fact that in some financial institutions, issuing and acquiring are distinct businesses. In others, merchant acquiring is now wholly outsourced. BBVA has already achieved a 40 percent rate of EMV compliance among its merchant base, yet as Adam Spencer, National Director of Merchant Acquiring at BBVA comments, “issuing and acquiring can be very separate functions: there’s a need for clear internal communication, and consistency in the approach to merchants, when selling EMV.”

Allen Friedman from Ingenico Group believes that there is a case for acquirers to further incentivise merchants to migrate to EMV – “because EMV transactions are lower risk than mag-stripe-and-signature transactions, the merchant should be rewarded for migrating to EMV.”

The process of EMV development, certification and testing can be a time consuming, involved and often frustrating one for those new to EMV implementation.

*Chris Lee, President,
North American Strategic Partnerships
and Emerging Markets, Moneris*

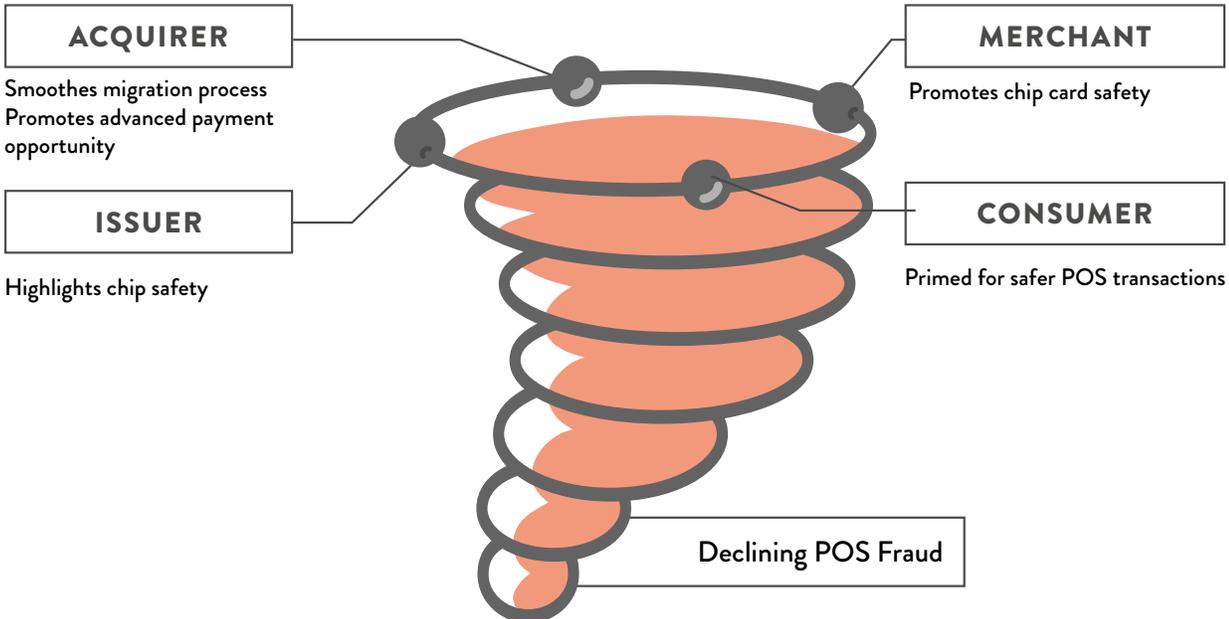
The good news is that coherent, packaged solutions for EMV migration in the US appear to be at hand. According to David Dove at Cardtronics: “We are ready with the hardware and software portions of a

packaged solution, and we are anticipating a busy Q2 and Q3 this year as more acquirers and merchants gear up to accept EMV cards.” Shan Ethridge, VP at GM North America Financial Services at Verifon, confirms this view: “There was a feeling prior to the October 2015 shift in liability, that retailers were adopting a “wait and see” approach: now that the holiday season is out of the way, we anticipate a spike in demand for EMV compliant terminals and processing software.”

All markets that have already migrated to the EMV standard have experienced growth in EMV card numbers and acceptance as an exponential curve; a slower start which grows rapidly as both consumers and merchants recognise the benefits of the new standard in interoperability and fraud reduction. The road to EMV can be seen as a ball rolling faster as financial institutions issue more cards, build the EMV acceptance base through merchant acquiring. Consumers and merchants then begin to recognise the benefits of EMV in terms of reduced risk of fraud and data breach and greater choice, and demand begins to increase... leading to further card issuance, acceptance and greater recognition of the benefits of the new standard.

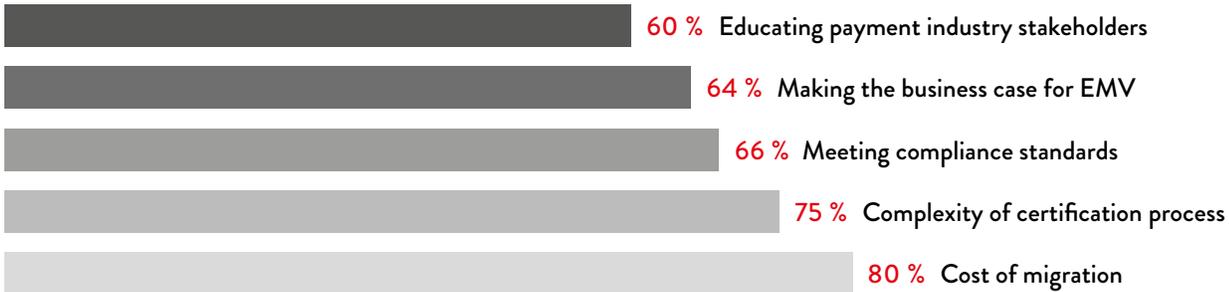
All the evidence points to 2016 as a banner year for EMV in the US, with rapid growth in both issuing and acquiring. The above model, based on the experience of markets such as Ireland, the UK, EU and Canada, suggests that consumer and merchant demand for EMV is set to grow rapidly in the second half of 2016, leading to further demand for EMV cards and greater acceptance of these cards among merchants.

THE VIRTUOUS EMV CIRCLE



WHY IS IT SO DIFFICULT?

Main challenges to implementing EMV in 2016



Top 5 challenges

Source: Worldnet

THE MERCHANT PERSPECTIVE

HOW SLEEPY'S PREPARED FOR EMV, INCREASED SECURITY AND REDUCED ITS COSTS

Sleepy's worked with Ingenico Group to deliver improved transaction security and lower costs to their business.

Sleepy's is the largest privately-held specialty mattress and bedding accessories retailer in the US, with more than 1000 stores. In 2014, Tom Citrano, Director of Quality Assurance and Dan Dubinsky, Director of System Development at Sleepy's were tasked with upgrading payment technology by the end of 2015. Sleepy's current payment technology was not prepared to accept EMV chip cards, debit cards or new forms of mobile payment such as Apple Pay. "If you take a look at the industry, payment technology has significantly changed so much in such a short span of time. We knew that we needed to upgrade our POS system to keep up with it", said Tom Citrano.

Tom and Dan discovered that upgrading could also improve upon other business efficiencies. Sleepy's was seeking a solution that offered larger displays and signature capture. They were also seeking to integrate a third-party point to point encryption (P2PE) solution in to the mix to increase payment security and reduce PCI scope. Lastly, they needed a solution that would not only accept different forms of payment, but also provide them with the flexibility to

connect directly with an acquirer rather than through a gateway.

Ingenico Group provided Sleepy's with iSC Touch 480 smart terminals and the IngEstate terminal management system. The smart terminals allowed Sleepy's to accept debit cards, EMV chip cards and NFC/contactless payments from their customers. The terminals also included large touch-screen displays that enabled signature capture, whilst the IngEstate terminal management system allowed Sleepy's to remotely manage their entire payment estate.

This implementation resulted in reduced processing fees for Sleepy's by connecting directly to an acquirer and thus eliminating gateway fees. The work also meant that Sleepy's became EMV and contactless ready, benefitting from the ability to offer multiple payment options to their customers, including contactless payments, and the higher levels of transaction security offered by the EMV standard.



» **Survey respondents** cited the certification process, time taken to implement EMV and the need for better merchant education and training as the top three obstacles to EMV migration.

Merchant acceptance is perhaps the greatest challenge facing the US payments market's migration to EMV standards, alongside the provision of bundled software and certification packages. Although most of the major chains have now completed their migration pathways, these chains only constitute a maximum of 20 percent of all of the US's acceptance locations. Insights from interviews suggest that large national retailers such as Home Depot, Walmart and Target are now seeing up to 70 percent of their transactions on chip cards: yet it is the more than 70 percent of the merchant base not yet engaged in the migration process which presents a challenge.

Kevin Lemmons from ACI notes, "the liability shift of itself has not caused the merchants in the US to be as aggressive in their adoption of EMV technology at the POS, as hoped." According to Jeff Robison from WorldPay, "Consumers appear to believe that EMV improves the security of their purchases. Some merchants want to know: why am I being asked to invest in new equipment, how much time will it take before I can take chip cards, and what's the benefit to me of this change?"

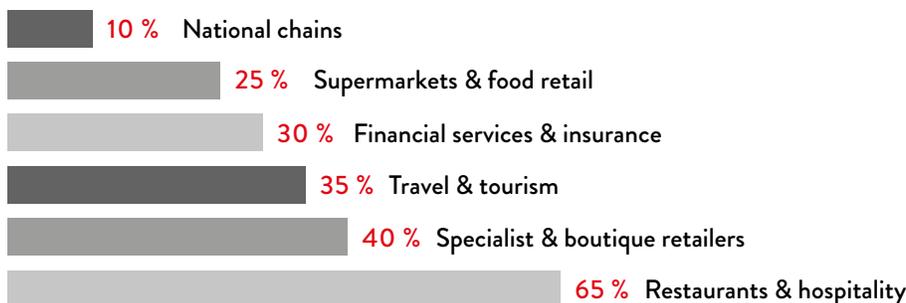
Reluctance from some merchants has been coupled with market complexity to create an often perplexing landscape for EMV migration. As Randy Vanderhoof of the EMV Migration forum says, “When EMV started, people didn’t really understand how many third parties were involved in the US market – for instance, there are 20 to 30 payments processors servicing this market.”

The solution to this difficult situation lies in a clear product offering and a consistent education campaign about the benefits of EMV migration to those small and medium enterprise (SME) merchants that have yet to migrate to EMV. Joe Cohane of Relevant Consulting recognises some progress, praising Visa’s launch of an accelerated integration platform allowing software companies to certify for EMV integration – but there’s no doubt that a more concerted approach is required.

A campaign that looks beyond the mundane benefits of liability avoidance and fraud prevention to address the challenges facing main street retail would yield better results in making the case for EMV. In particular, insights from the interviews highlight the potential for EMV transactions to rebuild consumer trust in in-store transactions.

WHO IS THE SLOWEST?

Which industry sectors are proving slowest to adopt EMV?



The demands on merchants have increased, but resources have not; however, we are now seeing some movement

Allen Friedman, Ingenico

While e-commerce sales have tripled in the decade and a half since the beginning of internet retailing, in-store sales continue to fall. Chip transactions at the checkout could help reverse some of the decline. At the same time, US membership of the group of 80 or so EMV-ready markets opens the door for a new generation of retailers to build secure, cross-border e-commerce businesses. Adding the last piece of the omnichannel commerce puzzle in the process.

As Jeff Robison of WorldPay remarked, “so far, for SME Merchants, it has not been an easy transition to EMV and some have yet to become EMV enabled.” With small boutique and specialist retailers and high-volume, low-value merchant locations such as baseball stadiums and concert venues among those that are less likely to want to shift to EMV standards, the research suggests that merchant communication and education programs are key to success of maintaining regulatory inertia in the years ahead.

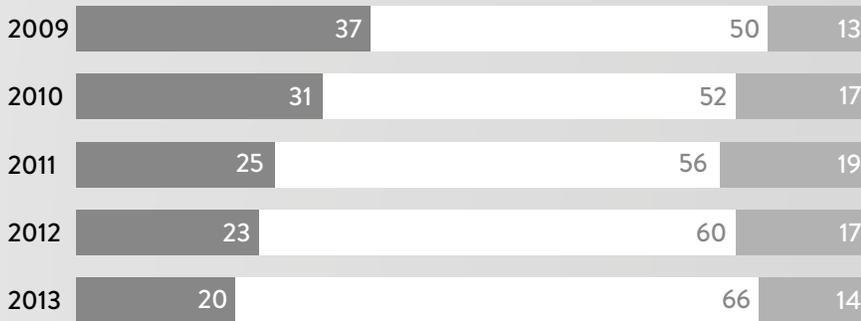
The complexity of the US market, underlines the need for strong industry-wide leadership in encouraging smaller merchants to migrate to EMV-ready platforms.

Source: Worldnet

DROPPING LIKE A STONE - EURO POS FRAUD

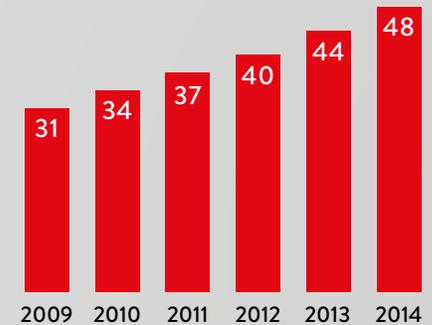
Card fraud relative to overall card transactions

Fraudulent card transactions in Europe by fraud type (%)



● POS ● CNP ● ATM

Number of card transactions (billion)



Source: Card payments, all EU countries, European Central Bank

THE CONSUMER PERSPECTIVE

» **Survey respondents** viewed better consumer education as a critical success factor for EMV migration in 2016

EMV, EH? HOW CHIP CARDS TOOK OFF IN CANADA AND EUROPE

According to Julie Pukas, Head of Bankcard Business and Merchant Solutions at TD Bank, “EMV migration is not a ‘one and done’ experience. We went into this process fully aware of the complexity it could present. Thanks to a strong and consistent communications campaign with merchants, especially in the SME sector, we found the conversion process to be relatively easy and have seen a significant reduction in fraud. My advice to issuers and acquirers would be to start early, educate merchants and be prepared for complexity. Pan-industry communication is key to success.”

As with Europe and the UK, comprehensive PR and advertising campaigns at Point-of-Sale and elsewhere in Canada, including bus shelters, drove home the message that chip cards are more secure than traditional mag stripe cards and, through the capacity to store digital wallets and tokens, ready for online and mobile environments. The entire Canadian financial services industry and the card brands supported this campaign, which ran throughout 2008, and included the “CHIP IN” education initiative.

The Canadian EMV MIGRATION

EMV IS A TECHNOLOGY DESIGNED TO ADD ADDITIONAL SECURITY FOR MERCHANTS AND CONSUMERS WHEN PROCESSING CARD-PRESENT TRANSACTIONS.



CARD-PRESENT

Transactions in which a physical credit or debit card is inserted into a payment terminal.



CARD-NOT-PRESENT

Transactions in which no physical card is present such as telephone, online, and in person with no card.



What's changed since 2008?

2008

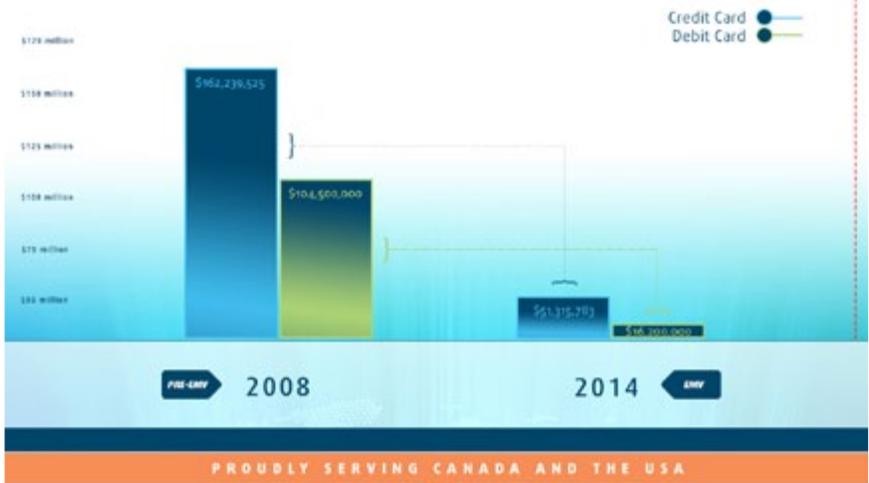
A NEW BEGINNING FOR RETAIL

2008 is the year Canada joins the global EMV migration in attempt to curb a growing trend of card-present fraud issue among retailers and local businesses.

Post 2008, the rate of fraud within card-present transactions will significantly change.

It's 2015. Where's the impact?

COST OF DOMESTIC CARD-PRESENT FRAUD



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In the UK, the card industry created a specific web address – www.chipandpin.co.uk – and a logo for use in billboard advertising and at POS locations to support the migration to chip cards between 2002 and 2006. As with the Canadian experience, an online presence was supported by PR, advertising and POS campaigns to support both issuers and merchants in the migration to EMV. Demand for chip in the UK grew so rapidly that by the end of Q4 2005, some 55 million cards, or 87.5 percent of all cards in issuance, were chip and pin enabled.

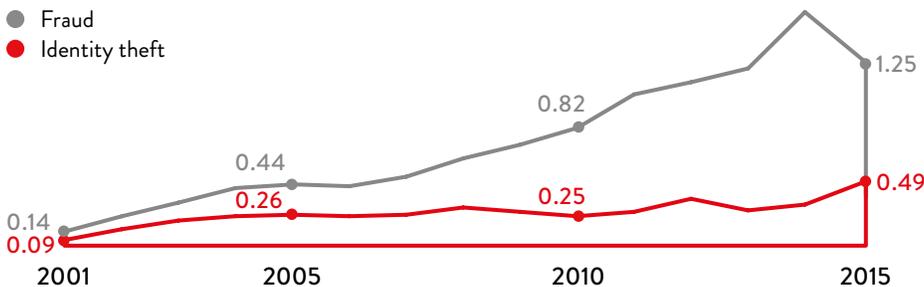
Efforts in the US to support the migration to chip with a communications campaign are just beginning, with all those interviewed for this report recognising the need for more and better communications from the industry.

Some executives in the card business believe that consumers ought to be unaware of the switchover to EMV; this argument contends that EMV is a different means of handling transactions, and that consumers should be unaffected by the experience. Allen Friedman from Ingenico, however, disagrees: “Consumers realise that the EMV process is more secure. Given the potential challenge of getting consumers to switch to PIN, chip cards plus signature is an attractive proposal for the US market.”

Some retail chains and consumers have reported dissatisfaction with the length of time EMV transactions are perceived to take compared to mag stripe and signature. To counter this perception, Visa introduced Quick Chip to reduce transaction time to two seconds. According

AM I BEING CONNED?

Consumer complaints of identity theft and fraud, No. of complaints (million)



Source: Consumer Sentinel Network Data Book for 2015, Federal Trade Commission 2016

to some industry experts, though, the difference in transaction times is just a perception, rather than a reality. Heather Petersen, CEO of National Merchants Association, says: “Consumers are saying that EMV transactions take longer. We tested this in-house, and the reality is that the process for handling a chip transaction is different to mag stripe transactions, but not necessarily longer.”

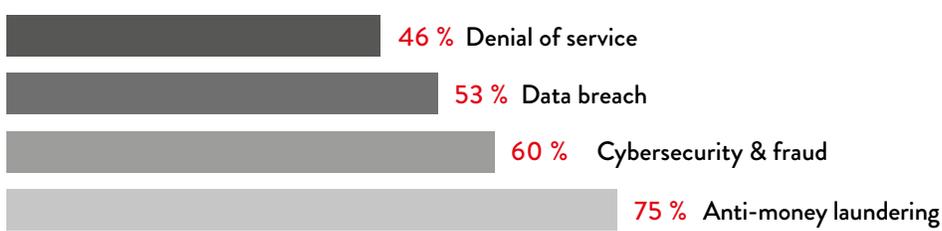
There’s so much information out there, and not a lot of it is comprehensive: education is a real challenge.
Heather Petersen, CEO, National Merchants Association

One thing the entire industry agrees on, though, is the need for more consumer education about the benefits of EMV. Kevin Lemmons of ACI notes that “We all recognise the need for better consumer education, but I’ve not seen any campaigns to date that educate the consumer.” For Heather Petersen, both consumers and merchants would benefit from concerted education campaigns from the card business: “Come the 2016 holiday season, the cat will be out of the bag and consumers will be having to undertake EMV transactions. Both the merchant and consumer communities would benefit from understanding more about the benefits of EMV.”

Some retailers, such as Banana Republic, have taken the time to educate clerks about the differences in handling EMV transactions. But smaller retailers simply don’t have the time or knowledge to invest in this kind of training, as Petersen says: “Most of our merchants are ‘mom and pop’ shops where the owner is the cashier. It’s harder to reach these people: they want to keep their doors open rather than learn about card fraud threats.”

TOO MANY RISKS TO MENTION?

What are the biggest risks facing your organization?



Top 4 challenges, greatest risk

Source: Worldnet

» COMPLETING THE CIRCLE

ALL WRAPPED UP: THE IMPORTANCE OF PACKAGED SOLUTIONS

» **80 percent of respondents** to our survey identified cost of migration as the biggest challenge facing EMV migration in the United States. The complexity of the US payments market, with its wide range of debit processing arrangements, plus the rapidly-changing face of the payments business itself, have both been factors. As Bill Nichols of Anywhere Commerce puts it, “the number of demands being placed on processors is intense. The migration process is moving extremely slowly and we’re not getting options to merchants fast enough – it’s getting tough to manage the certification process.”

Allan Friedman from Ingenico Group confirms this view, “the questions around testing and certification have got bigger and resources have not moved proportionately – small merchants are not moving because of the investment required in time, training and infrastructure upgrade costs.” However, Jack Jania, SVP of Strategic Alliances at Gemalto, is less pessimistic: “When you compare the complexity of the US market to that of Europe, progress has been made - all independent retailers now have EMV compliant POS terminals available, and large acquirers have upgraded their back office systems in support of EMV.”

According to the participants in the research, the market needs a scalable and customised solution that will reduce the cost of infrastructure investment and provide a single platform for all kinds of payment.

Reliability and the capacity to reduce the costs associated with infrastructure upgrades – including the time taken to move to EMV compliance – are also critical factors.

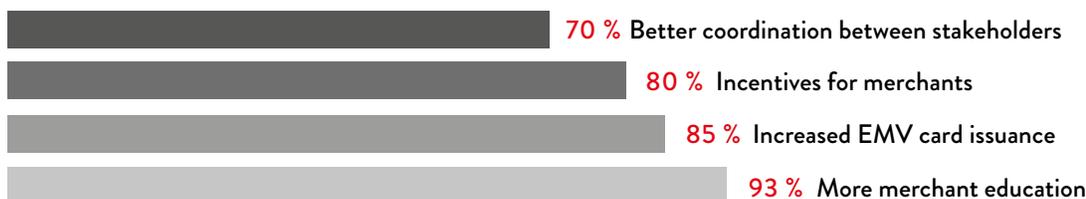
Most professionals interviewed for this report agreed that the last three quarters of 2016 will see the shift to EMV compliance accelerate in the merchant community. As Shan Ethridge, general manager for North America Financial Services at Verifone puts it, “Now retailers are through the holiday season, they are ramping up and looking to processing and technology firms to help them get EMV compliant systems in place.”

Establishments have been dubbed EMV-ready but the software is lacking and integration is difficult... certification is a real challenge.

Joe Cohane,
Relevant Consulting

WE'RE ALL IN THIS TOGETHER

What is needed to drive EMV migration in 2016?



Top 4 choices

Source: Worldnet

THRIVING THROUGH INNOVATION

The payments landscape is shifting at an enormous rate as new technologies such as ApplePay, GooglePay and peer-to-peer payments systems gain ground. At the same time, banks have seen their margins in traditional markets from currency transfers to mortgages reduced dramatically as new digital players emerge with the capacity to offer customers greater flexibility and lower costs. Both financial services companies and merchants themselves are at a higher risk of disintermediation than they have ever been in recent history.

For Adam Spencer at BBVA, EMV represents a cornerstone on which to secure the bank's future at the heart of the payments business. As he explains, "We look at payments as a whole – consumer lending, merchant acquiring, loyalty and card issuing: EMV is one of the guiding principles we have to secure all of these transactions." As Spencer sees it, the capacity to be flexible and alert to emerging technologies is key to success: "You never know what the next innovation is going to be – but just because there's innovation, that doesn't mean there's going to be adoption."

Innovations such as Visa Quick Chip, see page 11 of this report, have enabled the accelerated adoption of EMV in the US over the last 18 months. However, the industry needs to continue to respond to new developments including payment solutions on the Cloud, Near-Field Communications (NFC) and contactless payments, as Chris Lee of Moneris recognises: "We will begin to see EMV standards

expand to the mobile cloud environment. These will be digital wallets using EMV standards that leverage the traditional route and payment rails laid for the ecommerce channel, but layering in their own wallet technology. EMV is progressing payment hardware and software innovations and making positive impacts on the security methods in use today."

In line with the findings about the challenges experienced in merchant certification, interviewees for this report understand that upgrading systems for EMV alone is not a viable option. New solutions must be sufficiently agile to respond to the rapidly-changing payments landscape – a fact reflected by Jack Jania of Gemalto who underlined that contactless and mobile capabilities are included with all new POS terminals now being distributed across the US, regardless of whether the merchant is planning to make use of them.

While respondents to the research agreed that EMV will be adopted as the new standard for emerging technologies, any new payments solutions adopted must also be flexible enough to cope with the advance of omnichannel processing and acquiring, in preparation for the way tomorrow's merchants will be doing business: mobile, contactless, via the cloud and on the internet. Online, all the time – even at the checkout.

EMV has opened up the opportunity for NFC and contactless or mobile payments.

Kevin Lemmons, ACI

EDUCATION, EDUCATION, EDUCATION

After certification, respondents to our survey viewed merchant and consumer education as the biggest challenge facing the migration to EMV for the US card industry. Heather Petersen at the National Merchant's Association offers the blunt assessment that "we [the card industry] weren't prepared for the move over [to EMV]", and most others interviewed for this report concur with this view, adding that the absence of a Government mandate for EMV migration, present in most European markets and Canada, has only added to the challenge.

Some interviewees, such as David Dove from Cardtronics, have had direct experience of TV and Radio stations reporting slow transaction speeds for consumers at point-of-sale, and clerks telling him in stores that consumers "don't like" using chip cards. According to Dove, much of this negativity stems from a lack of understanding about EMV, what it is and what it can do. Shan Ethridge of GM North America Services at Verifone agrees: "it's not uncommon to see some confusion at the checkout – who's going to pay for this? Retailers need to be better educated regarding the benefits of EMV."

Most participants interviewed for this report are looking to the major card brands and issuers to take up the reins of this challenge, however the European and Canadian experiences suggest that a single pan-industry voice can most effectively communicate with consumers and with the hard-to-reach SME merchant community (see case study, page 16). Although both processing firms, technology firms and financial institutions run their own merchant

education programs, dependence on the card brands still remains, as Adam Spencer of BBVA notes "We're reliant to a large extent on the card brands for counsel, for educating the merchants and talking to the consumer."

How we communicate across the industry in the United States could have been better. We've had different voices talking to merchants and consumers.

Julie Pukas, Head of Bankcard Business and Merchant Solutions, TD Bank

Experience elsewhere in the world suggests that a significant and targeted advertising and PR campaign, sustained over many months, will be required. With both EMVCo and the EMV Forum stepping up to this task, many in the industry hope that merchant and consumer education will improve in the second half of 2016 and in to 2017.

Alongside the known benefits of EMV – namely, reducing fraud risk and improving interoperability with the rest of the world's payment infrastructure – perhaps more emphasis needs to be placed on EMV's role in future payment technologies such as cloud-enabled and NFC payments. If merchants and consumers understand that they are preparing for tomorrow's payments landscape in adopting EMV technologies, then this – coupled with greater flexibility and ease in certification – will go a long way to speeding the adoption of the new standard in the US.

EVERY MIGRATION ADDS VALUE

» **67 percent of respondents** believe EMV will speed up the adoption of contactless payments by merchants. Half of those surveyed say that making a better business case for EMV to the merchant community will be critical to success.

Many in the industry see 2016 as the crucial period for EMV Migration. Everyone agrees that EMV is the future, including Bill Nichols of Anywhere Commerce. However, some anticipate a challenging year ahead, including Joe Cohane of Relevant Consulting: “There’s another year of pain ahead for the card industry. It may be 12 to 18 months before consumers start to see the benefit of EMV cards in the US.”

Looking out one year, many card industry professionals predict rapid growth for EMV cards in 2016. David Dove from Cardtronics estimates that 20 percent of all card transactions in 2016 will be EMV enabled, and 50 percent of ATMs will be EMV ready by the end of 2016, with the balance being ready in 2017. According to Simon Hurry of Visa, “We saw EMV card issuance grow more than six fold in 2015, and EMV ready merchant locations are also growing exponentially. The key statistic, though, is the percentage of EMV enabled transactions, and at some large retailers we are seeing 70 percent of credit card purchases taking place as chip transactions.”

All professionals interviewed for this report also agreed that Card Not Present (CNP) transactions would continue to see the largest share of growth in terms of revenue and number of transactions, further cementing the perception of an “omnichannel” approach to retailing as the future, combining physical stores, e-commerce and Mobile or Telephone Order

(MOTO) into one seamless whole.

The complexities and scale of the US market notwithstanding, experience from other markets suggests that putting the right infrastructure in place is key to the successful migration to EMV platforms. Across the rest of the world, successful dialogue with major retailers was followed by a longer period in which the existing payments infrastructure was upgraded or replaced in smaller merchants while EMV chip card issuance increased dramatically. If the US follows this pattern, 2016 will be a year of widespread chip card issuance and rapid increases in EMV compliant merchant acceptance.

Further liability shifts – for gas stations and other high volume, low value merchants – in 2017 and 2018 will no doubt strengthen the case for EMV in parts of the merchant community, but the industry must enhance its efforts to demonstrate the benefits of EMV in terms of fraud reduction and data security to both merchants and consumers. Supporting this view, 64 percent of our survey respondents identified the need to make the business case for EMV as a crucial success factor in the adoption of the new standard.

EMV represents an opportunity for the card industry to deliver a safer, more secure global payments infrastructure. As the largest single payments market in the world, EMV migration in the United States will be critical to the success of this mission. Seen in

this context, every migration – every card, every merchant, and every transaction – has significance, each one adding to the adoption of the new standard. An effect that will enable the amplification of the benefits of EMV as adoption spreads across the country.

A more collaborative approach will be needed to realise this in the years ahead however. More needs to be done to educate merchants and consumers not just about the present benefits of EMV, but also of the future potential of the standard as the bedrock of the omnichannel, or “ubiquitous commerce” approach to payments – the ability to pay for goods and services anywhere at any time with any device.

Ensuring that financial institutions, card brands, processors and merchants continue to maintain their role at the heart of consumer payments, will require an ongoing commitment to innovation. A commitment that prioritises a seamless customer

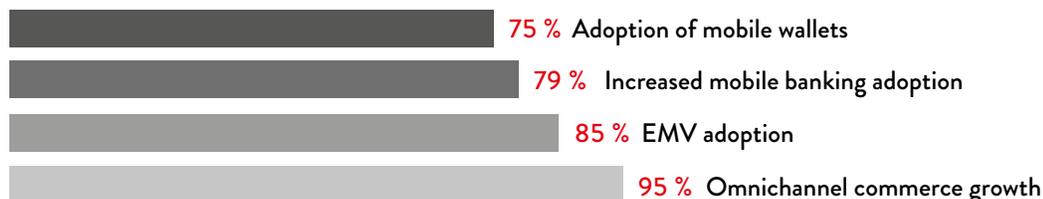
experience, combined with technological adoption and collaborative communication of the benefits to consumers today and into the future. The winners in the circular payment race will share in a dynamic payment landscape that will continue to grow regardless of external economic headwinds. Those that remain fixated on the twentieth century’s payment square could, quite literally, find themselves stuck in a corner.

EMV is coming. Third party processors and tech companies are now seeing revenue growth of between 15 to 20 percent, and that’s all thanks to the push towards EMV.

Bill Nichols
Anywhere Commerce

THE DOOR TO THE DIGITAL FUTURE

Factors with greatest impact on banking & payments in 2016



Top 4 choices, some or high degree of impact

Source: Worldnet

» INTERVIEWEES



Joe Cohane
Relevant Consulting



Bill Nichols
AnywhereCommerce



David Dove
Cardtronics



Heather Petersen
National Merchants Association



Shan Ethridge
Verifone



Julie Pukas
TD Bank



Allen Friedman
Ingenico Group



Jeffrey Robison
Worldpay



Simon Hurry
Visa Inc



Bill Rorick
ID TECH



Chris Lee
Moneris



Adam Spencer
BBVA Compass



Kevin Lemmons
ACI



Randy Vanderhoof
EMV Migration Forum

ABOUT WORLDNET

Founded in 2007, Worldnet is a leading provider of enterprise grade omni-channel payment platform solutions to an established base of international corporate clients in North America and Europe.

We provide Partners with a fully-hosted version of the Worldnet Platform, to deliver an advanced range of 'own-brand' EMV-enabled products and services across multiple payment channels including eCommerce, Mobile, POS and iPOS. The Platform is highly scaleable and provides both multi-currency processing and multi-lingual support capabilities.

Based in Dublin, Worldnet has major partner relationships across Europe and North America.

We invite you to join us on our journey.



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