



# The smart card revolution – is the market ready for EMV?

Market analysis report

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**More than 80 per cent of European and Middle East banks view migration to the Europay, MasterCard Visa (EMV) standard and smart (or chip) cards as at least an ongoing or high priority. This is a key finding of a research project conducted by Finextra Research in November 2002, which has used various sources of information to build a profile of the market's migration to EMV.**

**However, while many banks realise the importance of EMV, this does not necessarily translate into mature ongoing EMV projects. Many banks remain at the planning stage and the report shows that budget restrictions in many institutions are a key concern for banks planning their EMV migration.**

**Perhaps not surprisingly, progress made in implementing EMV projects varies significantly according to the country or region. The business case for migration also differs in each country and has an impact on the attitude of banks in prioritising EMV.**

**The involvement of the relevant central bank, regulatory body or industry association is a significant factor influencing acceptance of EMV. Multi-application potential as well as other cost-saving benefits are driving factors in regions where there is a lower incidence of cardholder fraud.**

**The report also shows that market education about the benefits of migration is vital together with customer education.**

## **Methodology**

This report is based on the findings of a Finextra survey and publicly available information sources. Finextra surveyed 38 individuals selected from European and Middle East banks on their views of EMV and the introduction of smart cards.

Each individual has direct responsibilities for part, or the entire ATM network, of their respective banks. Two-thirds are in charge of 251-500 ATMs, one-third is responsible for 501-5,000 ATMs and one executive manages over 10,000 ATMs. In some circumstances these individuals are also responsible for their bank's point of sale (POS) terminals.

In addition to the individuals surveyed, five one-to-one interviews were conducted with payments organisations and systems integrators in Europe and the Middle East. All data and graphs published within this report are based on Finextra's research.

**EMV is an agreed standard, driven by the recently merged Europay and MasterCard, and Visa, designed to ensure interoperability between chip cards and terminals on a global basis. Many industry players are eager for EMV specifications to roll out earlier than the much-publicised European deadline of January 2005 to help combat rising levels of plastic card fraud. In most European countries, banks are preparing for the rollout of chip cards, ATMs and host switches required to support the EMV standard.**

Banks in the Asia-Pacific region have a deadline of 2006 for EMV compliance, while other regions also face mandates. Banks and card organisations in the US have not yet set a deadline for EMV, partly due to concerns about the flagging state of the economy. Although the US is predicted to have over 21 million smart cards in circulation by the first quarter of 2003, there is still a long road ahead of American banks and their card programmes. Business support is sluggish because of the reluctance by retail firms to replace existing payment structures. Beyond the economy there is no US business case as there are currently low levels of fraud, partly due to all transactions being authorised on-line. The American Express Blue card contained a chip, which was used only for e-commerce, but was portrayed as the 'in' card. Other issuers responded by issuing smart cards in a 'me too' chase.

Payment cards have changed little since first launched with a magnetic stripe as the mechanism to provide security. Stripe cards are prone to fraud because of the ease with which they can be copied (skimmed). The consequence of this is that individuals' cards can be easily cloned and then used by fraudsters in non-contact or 'Card Not Present' environments, such as telephone or internet transactions and in face-to-face transactions, such as at POS terminals. Cloned cards take the details from a stolen card and copy them onto the magnetic stripe of another card (a blank card) and use it in stores. Merchant staff tend not to check whether the details on the card match those acquired electronically, but they usually just check for a signature match. Although the transaction signature checks out, the fake element is in the electronic details.

Smart cards will reduce counterfeit fraud dramatically due to their embedded security features. The chip within smart cards allows offline authentication of the card and also the user via a personal identification number (PIN). The smart cards issued in the UK are using Static Data Authentication (SDA), the same as the current technology in France. The French adopted smart cards in the 1990s leading to dramatic reductions in fraud.

Now the UK is leading the way with EMV – a different standard to the French smart card standard – and hoping for similar results. France is also planning to migrate to EMV to comply with the rest of Europe, but there is less urgency since the incumbent standard has been a success. However, France is seeing increases in cardholder fraud due to cross-border transactions. There has been a growth in transactions by French cardholders in other countries and by other countries' cardholders in France.

Smart cards have inherent smart features, which make them an invaluable tool for banks to look after their customers. Chip card intelligence and information storage is far greater, since the chip is a mini-computer capable of multiple applications. For example, smart cards can track a customer's transactions, allowing banks to market particular services to individual customers.

Card organisations, hardware and software suppliers and other sell-side parties have published many statistics and articles on EMV. Much less is known about the views of financial institutions, which will need to invest heavily to have the infrastructure required for EMV compliance. This report provides an objective and independent view of the attitude of European and Middle East financial institutions towards EMV. The progress of EMV projects is analysed and project-related problems are highlighted.

## Fraud reduction

The main business driver for EMV, especially in the UK, is the need to reduce card fraud. Visa International's EU region expects 75 per cent of cards and 90 per cent of terminals to be EMV-ready by January 2005. This is predicted to dramatically lower the estimated \$2.5 billion claimed by criminals in global fraud every year. European organisations that miss the deadline stand to be labelled as non-compliant and will be held liable for the losses incurred through fraudulent transactions. Liability will shift from financial institutions to merchants taking responsibility for fraudulent use of cards, which will change the economics of banking. It passes on the financial burden of dealing with loss to retailers.

According to the UK's Association of Payment Clearing Services (APACS), credit card fraud losses in the UK amounted to nearly £430 million in 2002, up 53 per cent in two years. Although it is certainly true that the UK is pushing EMV because of its high level of card fraud, this is not the only driver. Some financial institutions appear to be prepared to wait and see what occurs closer to, and after, the 2005 deadline, rather than make significant changes to infrastructure and technology now. Fraud is predicted to move to the areas of least resistance when EMV becomes a reality. Countries with lower security standards for financial transactions will experience an influx of fraud. As a result,

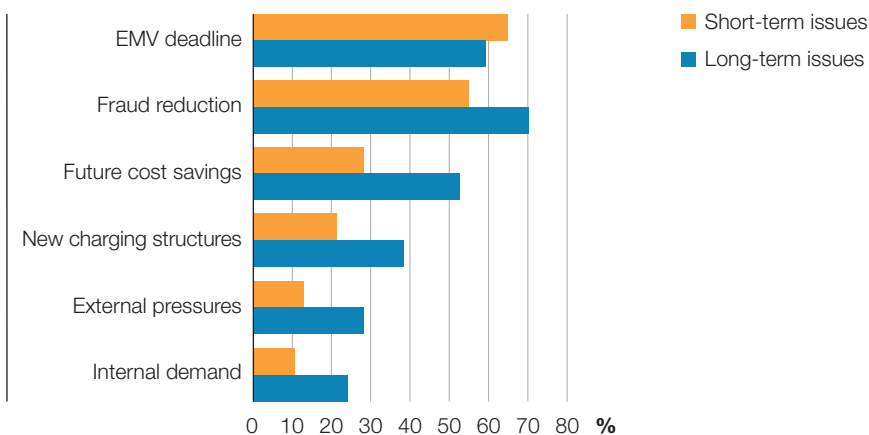
card organisations are pushing for EMV to be adopted globally and simultaneously. The issue of fraud is not a domestic one, it is a global problem requiring a global solution. Merchants are being strongly urged to take EMV migration seriously to avoid the full force of fraud-related losses. They can protect themselves against fraud by installing PIN-capable EMV devices.

The often-quoted example in this area is France, where the introduction of smart cards has cut fraud by 95 per cent. Reduction of fraud is being cited as the fundamental reason for the UK market to invest in EMV-compliant technology.

**Figure 1** illustrates the concurrence of respondents' views with this general market perception. The EMV deadline with its associated liability shift is seen as the main driver, indicating the awareness of the issue in the short term, while fraud reduction is the principal concern for financial institutions over the longer term.

Other significant drivers for moving to EMV include the new charging structures being put in place by card issuers so that chip card transactions cost banks less to process than those made on magnetic strip cards. Other issues include banks looking at what the competition is doing and internal pressures. These considerations include strategic goals to comply with the EMV standard for cost saving reasons, a marketing advantage in terms of offering value added

**Figure 1 – Short and long-term drivers to EMV compliance**



services to their customers and not being branded as a non-compliant bank.

When asked what other methods could help to prevent fraud, PIN at POS was the clear number one choice – see **Figure 2** for survey results. Other fraud reduction methods also rated highly, demonstrating the importance of this issue to financial institutions. Customer education is ranked in second place, highlighting the fact that loss due to fraudulent transactions is not just the responsibility of banks. Consumers need to play a part by modifying their existing behaviour by looking after their cards and becoming more aware of common fraud methods.

### Multi-application possibilities

While the EMV deadline is the principal driving force for financial institutions, EMV compliant smart cards offer other incentives. ATMs have changed little since they were first introduced 30 years ago, while the financial services market has moved on considerably. More importantly, the public has become more sophisticated and willing to accept new technology. Banks (and partnering retailers) now have the opportunity to widen the potential of ATMs to cover a whole range of new offerings, some of which are escalated because of the introduction of smart cards.

Smart cards have the potential to process multiple

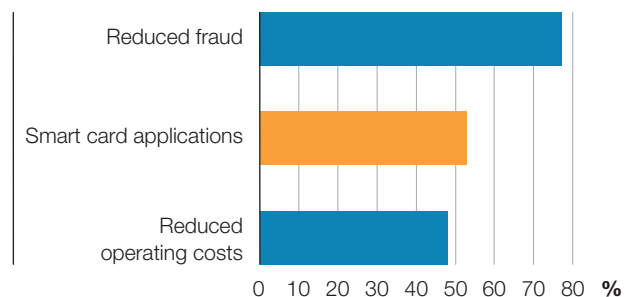
applications via the smart chip on each card. These mini-computers allow for value-added services including loyalty schemes, mobile phone top-ups and payment of utility bills. The key driver for smart cards in non-UK financial institutions, which have a fraction of the fraud-related issues, is multi-application services. However, **Figure 3** shows that the European and Middle East banks' financial institutions surveyed still expect fraud reduction to provide the main cost benefits following EMV migration

Part of the reason for the lower level of interest in multi-application functionality is lack of customer awareness, coupled with the lack of a business case. The other is the difficulty in gaining common agreement on the deployment of new services. Complex new services/transactions when delivered through ATMs can be done through their own networks and potentially reciprocal networks. The latter requires agreement between institutions and switching organisations and, therefore, is likely to stay at the cash/balance inquiry level. There is also a lack of context in the debate over whether extra ATM services are worthwhile or not. While a traditional ATM outside a bank is never likely to see much variety in use apart from cash withdrawal, there are opportunities in other ATM environments. Kiosks and ATMs within supermarkets or inside bank buildings are prime locations where customers have an incentive to make use of loyalty schemes and top-up mobile phone credit.

**Figure 2 – Other fraud reduction methods excluding EMV**



**Figure 3 – Cost benefits following EMV migration**



Customers are more likely to use these services in a temperature-controlled, user-friendly environment where there are fewer people in the queue.

Multi-application services also need to be discussed within the context of the customer involved. Financial institutions need to segment their customers and target different applications at each audience. This is one of the key benefits of smart cards – the potential for enhanced customer relationship management (CRM). The alternatives to traditional banking are well documented. Customers now have a range of options available to them to effect basic transactions. Financial institutions have recognised the importance of CRM techniques in customer retention and increased revenues by encouraging the uptake of alternative banking services. At the most basic level, banks can distinguish between the majority of customers who simply use ATMs for cash withdrawal and a smaller set of high-value customers who would use a range of other well-targeted and relevant services.

The discussion of value-added services is often flawed and misdirected. There is significant potential for return on investment (ROI) if organisations roll out these schemes intelligently. Services need to be focused on key sectors of the market, the infrastructure needs to be set up correctly to induce customers to use services and most importantly, banks and merchants need to co-operate to make it easier for customers to

access these services. Once all these forces combine, the benefits of smart cards will filter back into revenue streams for the enterprise.

In terms of the types of new applications available on smart cards, the most popular seems to be loyalty schemes – almost three-quarters of respondents claimed to be considering offering these via smart cards. This was followed by e-wallets, mobile phone top-ups and payment of utility bills, which all generated a significant response, as shown in

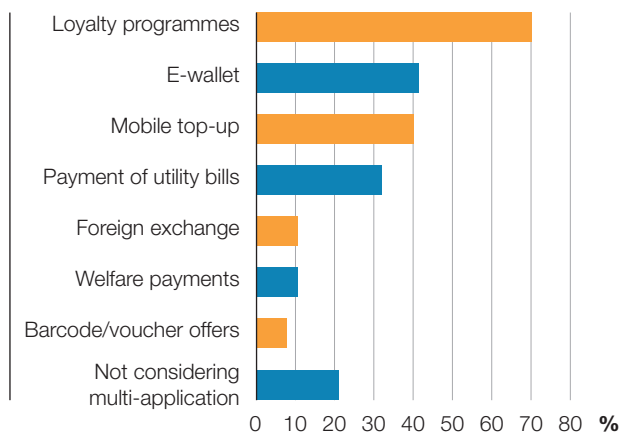
Figure 4.

### Other benefits

According to Nick Lawford, a UK consultant at global information and communications technology group LogicaCMG, banks are generally missing out on key opportunities to extend the business case for EMV smart cards by failing to thoroughly investigate a broader range of commercial issues, including:

- Reduction of fraud charges and release of capital;
- Increasing usage by sub-prime customers without additional exposure and bad debts;
- Improving business through the monitoring and analysis of the changing patterns of applications, fraud and credit;
- Achieving better customer service and improved credit management for enhanced customer retention and usage;
- Working with industry associations

Figure 4 – Multi-applications banks could offer on smart cards



**Card organisations, hardware vendors and software solutions providers are behind the drive for the EMV standard. The implementation of EMV with associated smart card issuance will mean a major overhaul of systems within financial institutions. New hardware and software will have to be integrated with existing systems so that all the processes converge together. Given the impending deadline of January 2005 in Europe, vendors are naturally keen to point out the need to begin EMV projects sooner rather than later.**

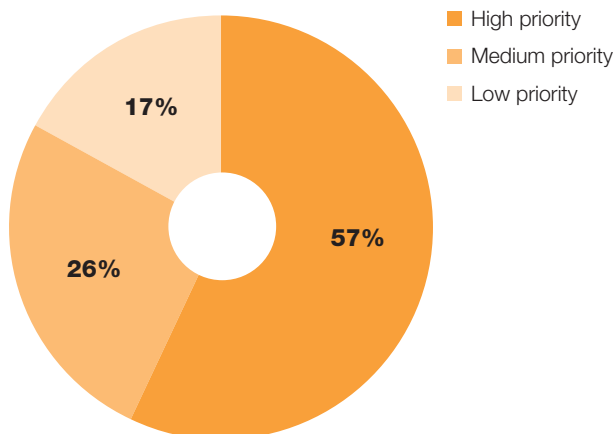
EMV is a standard for interoperability but not for a smart card (or device) itself. Any country, region or bank needs to produce a smart card and terminal specification that conforms to EMV. Products are available with some vendors for off-the-shelf applications but these are not always suitable for all markets.

Banks see EMV as an important issue. As **Figure 5** shows, the majority of financial institutions surveyed rated EMV compliance as high priority, while 83 per cent of respondents rated EMV as at least medium priority and claimed to have an existing EMV project in place.

When probed in detail, a large proportion of the 85 per cent claiming to have an existing EMV project in place are actually only at the planning stage – whether it is for ATMs or card issuance. When ranked against a scale of readiness for EMV, this is only considered phase two of a potential seven steps. The seven steps are illustrated in **Figure 6** and demonstrate the process a financial institution has to go through during its migration to EMV – starting from planning through to completion. However, certain financial institutions indicated that they are at the specification and implementation stages, suggesting that some are better prepared for EMV compliance than others.

The picture for POS terminals is slightly different. Although marginal, the majority of respondents claimed that their POS networks are at rollout stage for EMV readiness. Other popular responses include the planning stage, implementation and testing – all suggesting that POS terminals are further developed down the seven-stage scale. This could be attributed to liability moving to merchants once the EMV deadline comes into play – making merchants push harder for early adoption. However, while card issuers are slower to issue EMV chip cards, POS terminals will continue to read the magnetic stripe, even though some are ready to read the smart card chip.

**Figure 5 – Financial institutions rating the importance of EMV compliance**





## Readiness for EMV

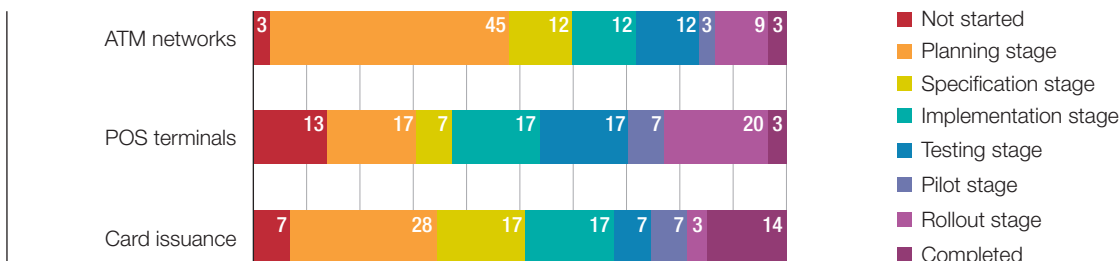
Although most financial institutions recognise the importance of EMV, the number of institutions ready for EMV adoption is considerably less. With two years to go to mandatory compliance in Europe and three years in Asia-Pacific, there is little time left to start on a project as large as migration to the EMV standard. Card organisations are offering financial incentives for early adoption. Visa, for example, is changing charging structures so that chip card transactions cost banks less to process than those made on magnetic stripe cards. Banks slow to upgrade their networks to support the new technology will continue to lose money through fraud and be penalised by the payment networks. Secondly, companies that fail to adopt the new standard by 2005 will be liable for losses due to fraud as well as being branded as non-EMV compliant organisations.

Over 65 per cent of all respondents believe that fewer than 10 per cent of financial institutions in their region are ready for EMV and only 10 per cent of respondents believe that over 30 per cent of institutions in their region are ready. These results are not particularly surprising, especially since the deadline is not imminent. It seems that many financial institutions would prefer to observe other market players making early investments in EMV, rather than investing up front themselves.

Unsurprisingly, the vast majority (90 per cent) of respondents believe that their particular organisation is at least on a par with its competitors in terms of readiness for EMV. Some 34 per cent felt they were ahead of other banks in their region. The results shown in **Figure 6** prove that EMV projects in financial institutions are at various stages but that the majority felt they are at the planning stage, indicating that respondents are right to assume that competitors are on a par.

The key elements of an EMV project include installing new hardware – ATMs and POS terminals – issuing EMV smart cards to customers and possibly changing host systems to support EMV. On the hardware side, survey responses indicate that most banks are not yet beyond the implementation stage. POS terminals are a little further down the line, with 20 per cent of organisations having rolled out the machines, even though 85 per cent of organisations have yet to issue smart cards.

**Figure 6 – Readiness for EMV based on a seven-stage approach**



However, over half have fitted their existing ATMs with smart card readers, shown in **Figure 7**. A reason for this apparent lack of synchronisation between the two elements is that hardware has a longer lifecycle than cards. Many banks have taken the opportunity to fit smart card readers to their ATMs when upgrading this technology in anticipation of the future move to EMV. Smart cards issuance is less of a problem due to a lack of readiness of EMV infrastructure and software to process transactions (see **Figure 7**).

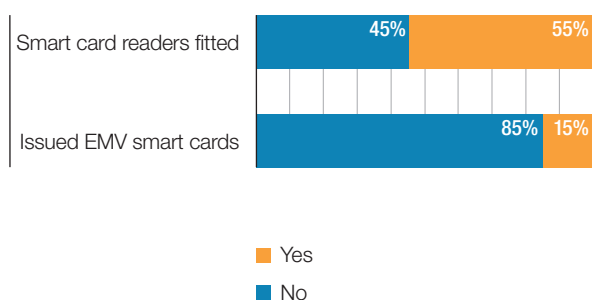
According to the survey results, most financial institutions will opt to upgrade existing solutions rather than make large scale changes to new hardware and software. This was an expected finding as traditionally, banks move cautiously when a large investment is required, especially when it is not clear where the ROI will come from. This is particularly applicable to low fraud regions. Banks will choose the path of least resistance to comply with the standard. However, banks with older, internally developed back office systems will find migration more expensive and complex. Banks using out of the box software can upgrade solutions, saving some of the cost.

Almost 90 per cent of organisations expect to be in live production with their EMV projects in 24 months, thus meeting the 2005 deadline in Europe. Average confidence levels in finishing EMV projects on time is about 75 per cent. In some cases, particularly in lesser-developed ATM markets, respondents may not necessarily realise the full scale of EMV projects.

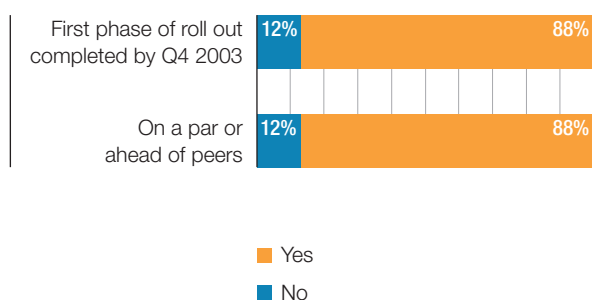
Overall, the survey suggests that banks are aware of the issue and have some plans in place but have not yet reached the more difficult latter stages of migration. It is critical that banks begin to prepare for EMV if they have not already done so. As previously illustrated, there are as many as seven stages to an EMV implementation programme, each requiring significant time and investment. Each phase requires completion before the next phase can begin. Any project hurdles at an early stage can have a significant impact on the strategic plan for EMV migration.

While most organisations are not yet ready for EMV, almost nine out of ten banks believe they are on a par with the rest of the market within their regions. While the task of achieving compliance is certainly not without its difficulties, banks appear to be far enough into projects to make reasonably strong predictions of timely completion.

**Figure 7 – Smart card issuance vs. ATM acceptance of smart cards**



**Figure 8 – Financial institutions' readiness for EMV**



## Regional variations

According to Visa, by 2005 the majority of regions around the world will have implemented some sort of smart card programme. They will take their lead from the EU followed by Asia Pacific, Central Europe, Latin America, Canada and finally the US, as fraud moves from region to region. Once the majority of regions are chip-card ready, fraud will be reduced significantly, bringing card issuers onto a global EMV platform.

The following section is a selection of examples of EMV progress in different countries and regions. It is the result of several one-to-one interviews conducted by Finextra and illustrates what some industry players consider to be the influencing factors that determine a region's state of readiness for EMV.

- In the UK banks are pushing ahead with EMV projects. A regional public trial of EMV smart cards will take place in Northampton in March 2003. This involves banks and major retailers in the country's first major test of the new payments infrastructure. As a project manager at one of the UK's largest banks points out, retailers have a vested interest in participating in the EMV migration process due to the liability shift that will occur after 2004. Without co-operation, retailers could attract fraud due to their systems being easier to penetrate. More importantly, they may be liable for losses due to fraud.
- In contrast, Dutch financial institutions do not see EMV migration as a priority, according to Roeland van Pinxteren, Associate Director at LogicaCMG. The low (but rising) level of fraud, now three per cent in the Netherlands, has historically offered a weak business case for migration. But there is the threat of 'image risk' – the drawback of being branded as a non-EMV compliant country. This, as well as the probability of fraud-shift from compliant countries to the Netherlands, is the main driver for Dutch banks. The reason for this is the relatively low level of debit card fraud in the Netherlands. As banks see it, there is little ROI from the large initial cost of implementing an EMV programme. They also recall the high cost of deploying electronic purse programmes in the late 1990s.
- Van Pinxteren says that the Netherlands is mainly a debit card country with credit cards having a low market share. Banks may be looking to migrate the acquiring side of their business first, with debit cards following later. Interpay, a bank-owned clearing organisation in the Netherlands, will meet in early 2003 with a view to discussing the EMV issue and offering guidelines on how and when Dutch banks will migrate. The speed of implementation is a strategic issue in many banks and this will determine their approach to multi-application chip cards and the migration of debit and credit cards to EMV. Once Interpay comes forth with a definitive statement on the details of migration in the Netherlands, banks will begin to implement their plans. Currently, most Dutch banks have a varying awareness of the issue but have yet to start on EMV projects.
- The Spanish market appears to fall somewhere between the UK and the Netherlands. SERMEPA is one of the main payments transaction processors in Spain, along with Sistema 4B and CECA. Apart from developing its own software, SERMEPA is also responsible for defining the specification and development of financial applications for all components of the EMV chain. SERMEPA oversees POS terminals in Spain – it has received accreditation from EMV as an authorised 'laboratory' to certify EMV level 2 terminals. SERMEPA is keen to point out the importance of EMV migration but naturally it is up to the discretion of each individual bank as to how much importance is attached to this issue.
- The Middle East market varies slightly again. ACI Worldwide is a global provider of payment solutions. According to Bob Ainey, head of sales at ACI Worldwide (EMEA), considerable progress has been made in this region regarding migration. After the initial market-awareness exercise by the card organisations, migration to EMV was not heavily pushed. This was partly due to external factors such as the global slowdown, making it unlikely that banks would be receptive to initiatives requiring a large initial investment. Now the Saudi Arabian Monetary Authority (central bank) has issued EMV standards, other banks in the Middle East's biggest market for financial services will face firm directives to migrate.

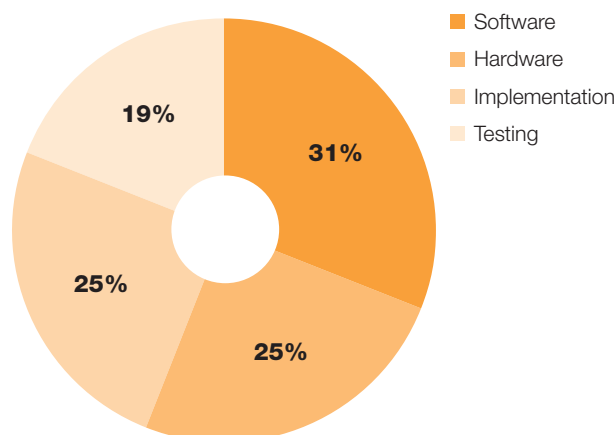
- Scandinavia appears to be ahead of most European countries in terms of readiness for EMV. There is an interest in embracing new technology and minimising fraud while opening up multi-application possibilities. According to the head of cards at a major bank in Finland, the bank has an EMV project and is keen to adopt the standard. Survey results also indicate that Scandinavian banks are making good progress in achieving EMV compliance.

## EMV resources and budgets

One of the key concerns of financial institutions is the level of investment required to fully comply with the EMV standard. Hardware and software will require significant upfront investment and there are inherent project costs such as implementation and testing. Although there is a widespread belief that banks are most concerned about the costs for purchasing technology, the survey results indicate that banks see costs for implementation and testing to be on a par. See **Figure 9**. To a certain extent this finding demonstrates that organisations are aware of the challenges involved in getting EMV compliance right. Banks realise the importance of a smooth rollout of EMV smart cards, since there is a significant embarrassment factor if customers are affected adversely. The split between hardware, software, implementation and testing within EMV project budgets is roughly equal.

In terms of size of EMV budgets, there was no clear pattern. Planned investment ranges from under \$1m at the low end to over \$10m for larger projects.

**Figure 9 – Breakdown of resources invested in EMV projects**



## EMV issues and problems

As with all major changes in standards, there is room for confusion and unexpected hurdles that delay projects. In the case of EMV, respondents view the lack of adequate budgets as the major problem in reaching EMV compliance, as shown by **Figure 10**.

Public domain discussion suggests banks are unwilling to invest heavily in EMV compliance when there is a weak business case for doing so. Industry journals often write about the majority of countries in continental Europe having nowhere near as much fraud as the UK. As such, non-UK financial institutions have little cause to make EMV a financial priority. While there are certainly other sources of ROI such as the revenue potential of multiple-applications this requires education, both on the bank and customer side. And of course, retailers need to be fully involved in the EMV migration.

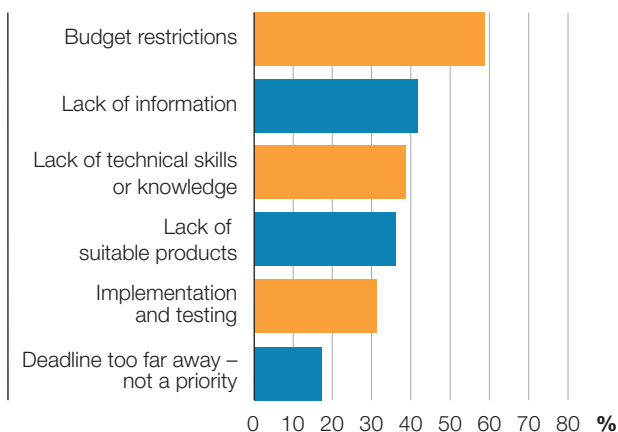
The first round of implementation may be with single application cards – those with just the payment application on the chip – as this will be cheaper in the short term. Once financial institutions see the potential return from extending their cards to other applications, multi-application cards are expected to gain in circulation. Applications can be much more diverse, such as offering loyalty schemes, and are likely to involve joint ventures with the banks issuing the cards.

Adding new applications to smart cards may not be straightforward. But the industry is likely to see dynamic update methods via the Internet or ATMs rather than the need to halt existing cards and re-issue new ones. Respondents to the survey showed an awareness of these dynamic methods and expressed an interest in using these to add applications subsequent to issuance.

As **Figure 11** shows, other high-level hurdles in getting to EMV compliance include lack of information and technical knowledge. This is a rather worrying finding as information and technical skills are the key to getting EMV migration right and on time. This issue can only be resolved if banks, retailers, card organisations, vendors and consultants all work together. Expertise of EMV exists in the marketplace but may not be flowing freely throughout. The lack of technical skills is particularly startling for card organisations pushing the migration, as this will have a significant impact on implementations and testing.

Over 30 per cent of respondents also claimed there is a lack of suitable products in the marketplace to aid migration to EMV. This should be good news to vendors who may interpret this as lack of knowledge of their own particular product in the broad European market.

**Figure 10 – Main hurdles in getting to EMV**



One-sixth of respondents claimed EMV is not a priority because the deadline is too far away. This is unwelcome news to card organisations keen to emphasise the need to start EMV projects sooner rather than later.

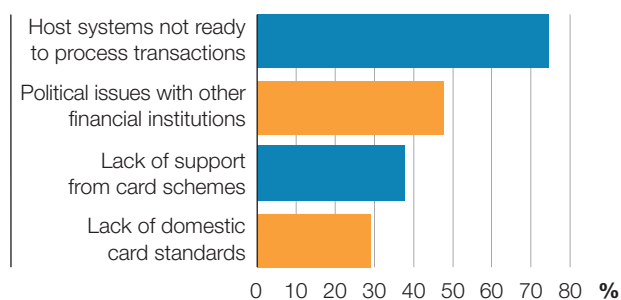
In terms of lower level project delays, the results highlighted one of the key issues that banks need to deal with. As **Figure 11** shows, host systems are not ready to process EMV transactions. This is a crucial cost issue for banks as any change to the host system involves major synchronisation and integration issues. Three-quarters of all respondents claim their host systems are not yet ready for EMV. But to a certain extent, all the delays shown in the graph are beyond the banks' control. Lack of domestic standards is a key issue in this context too. As mentioned earlier, both the Middle East and the Netherlands are examples of where the participation of financial institutions is largely dependent on the involvement of the local regulatory authority. Several interviewees said that until this point, banks often see EMV as just one of the many regulatory projects on their list. The others are compliance with the Basel II directives, IAS 39 and anti-money laundering initiatives.

## The implementation conundrum

While the benefits of migration to EMV standards are considerable for countries such as the UK, others see less of a business case for investment. As mentioned earlier, the Netherlands is a classic example of a country where banks are not necessarily thinking of EMV in the short term although there is certainly an awareness of the issue.

According to Van Pinxteren, banks see a considerable value in advice and project support with implementations and testing. A typical EMV project can take two to three years. Van Pinxteren says knowledge of EMV resides with a small set of people within a bank and part of the job of those interested in selling EMV to the institutions is to provide education and raise awareness.

**Figure 11 – EMV project related delays**



## Growth of ATMs and POS machines

The worldwide market for ATMs is predicted to grow by 35 per cent over the six years from 2001 to 2007, according to a report by Retail Banking Association. There are currently over 1.1 million ATMs operating worldwide, a figure which will rise to more than 1.5 million by 2007. The ATM replacement market is predicted to be even more buoyant; 1.1 million machines will be purchased as replacements by 2007. By this time, seven out of 10 ATMs shipped will be replacements for older machines.

The survey results confirm these industry statistics and predictions, with 69 per cent of respondents planning to expand their ATM networks. Most of the increases will be relatively small – between 10 per cent and 20 per cent – while a few respondents are looking to double or even triple their network size.

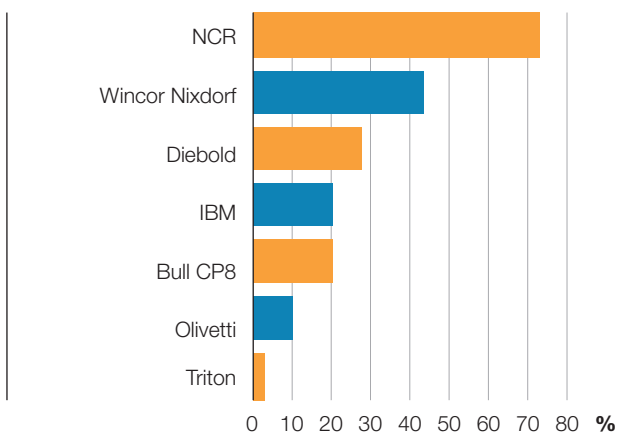
POS terminals also are predicted to grow similarly with three quarters of respondents planning to expand their networks. These increases are based on networks of various sizes. For POS networks, the results were distinctly skewed towards smaller infrastructures. Only 18 per cent of respondents had more than 10,000 POS machines in their network.

## Key vendors

ATMs are provided by a relatively small number of large vendors including Diebold, NCR and Wincor Nixdorf.

**Figure 12** shows the most popular ATM vendors as ranked by the survey respondents. On the software side, the proactive vendors in EMV transaction processing include ACI Worldwide, Alaric, Nomad and Mosaic Software. In terms of card issuance, Oberthur Card Systems is one of the biggest suppliers; the company has been quoted as the number one supplier of Visa and MasterCard cards worldwide.

**Figure 12 – ATM vendors currently supplying ATMs to financial institutions**



## Growth of ATMs and POS machines

The worldwide market for ATMs is predicted to grow by 35 per cent over the six years from 2001 to 2007, according to a report by Retail Banking Association. There are currently over 1.1 million ATMs operating worldwide, a figure which will rise to more than 1.5 million by 2007. The ATM replacement market is predicted to be even more buoyant; 1.1 million machines will be purchased as replacements by 2007. By this time, seven out of 10 ATMs shipped will be replacements for older machines.

The survey results confirm these industry statistics and predictions, with 69 per cent of respondents planning to expand their ATM networks. Most of the increases will be relatively small – between 10 per cent and 20 per cent – while a few respondents are looking to double or even triple their network size.

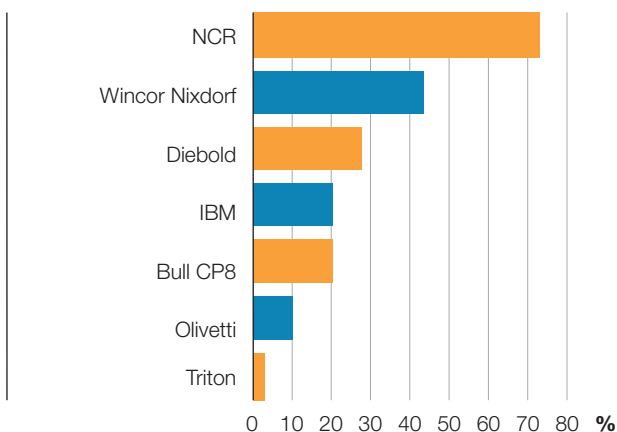
POS terminals also are predicted to grow similarly with three quarters of respondents planning to expand their networks. These increases are based on networks of various sizes. For POS networks, the results were distinctly skewed towards smaller infrastructures. Only 18 per cent of respondents had more than 10,000 POS machines in their network.

## Key vendors

ATMs are provided by a relatively small number of large vendors including Diebold, NCR and Wincor Nixdorf.

**Figure 12** shows the most popular ATM vendors as ranked by the survey respondents. On the software side, the proactive vendors in EMV transaction processing include ACI Worldwide, Alaric, Nomad and Mosaic Software. In terms of card issuance, Oberthur Card Systems is one of the biggest suppliers; the company has been quoted as the number one supplier of Visa and MasterCard cards worldwide.

**Figure 12 – ATM vendors currently supplying ATMs to financial institutions**





EMV is a major issue for banks and the retail community. Credit card fraud costs retailers massive sums of money in lost profits every year and adversely impacts bank balance sheets. The card organisations, MasterCard (with Europay) and Visa are behind a global move to the new EMV standard, which is aimed at reducing this fraud significantly and also modernising banking services. Some countries and regions are ahead of others in the drive to adopt EMV. Better education and continued awareness-raising, as well as the participation of retailers and the wider community, will make the process quicker and smoother.

Considerable technical expertise and vendors with proven technology exist in the marketplace but may not be universally known or understood by the industry. The lack of widespread acceptance of the technology is a major handicap for cardholder organisations driving the migration to EMV.

This report has highlighted some of the key issues involved and the progress banks are making to adopt the EMV standard. There is still a long way to go to arrive at global EMV adoption but there are some encouraging signs. The market now requires the full support of national and supra national banking authorities and senior banking professionals to embed the new standard in card transactions.

# Information



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## >> About Level Four

Level Four provides best-of-breed ATM test and development software to retail banks and ATM manufacturers. Since 1995, Level Four has been working with leading financial institutions to unlock the profit potential of their ATM delivery channels. Level Four's key offering is the ATM Channel Development Suite, a comprehensive suite of integrated modules that enable rapid development of new ATM applications and full end-to-end testing of ATM networks. By providing software solutions with measurable economic benefit to its customers, Level Four has built an impressive customer base including Royal Bank of Scotland and Abbey National. Level Four has offices in Dunfermline, Scotland and in London. Visit Level Four on the web at [www.levelfour.com](http://www.levelfour.com).