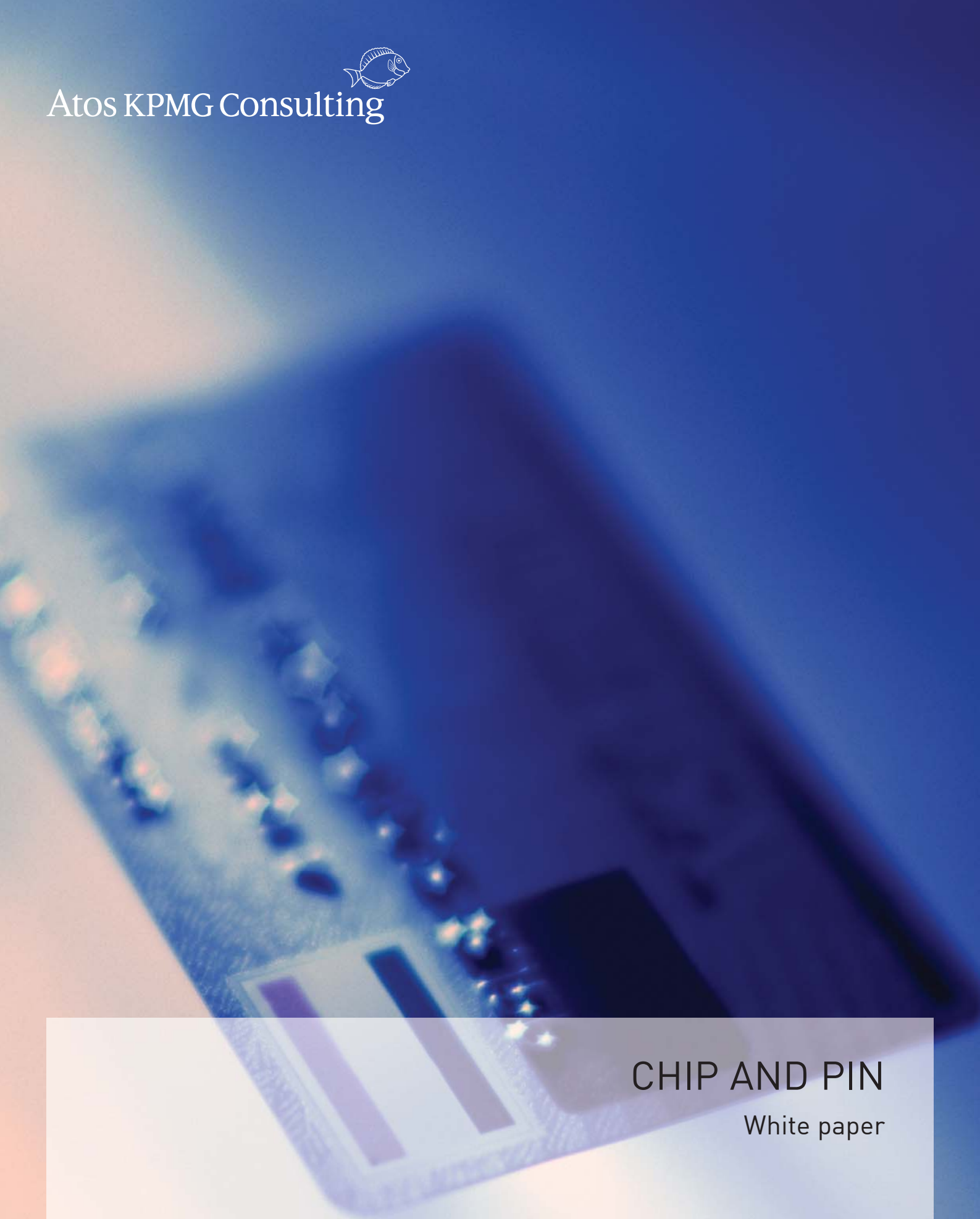
Atos KPMG Consulting



CHIP AND PIN

White paper

COUNTDOWN TO 2005: RETAILERS TO PAY PRICE OF CARD FRAUD

EXECUTIVE SUMMARY

In the biggest shake-up since decimalisation in 1972, consumers and retailers will soon be offering their customers a whole new shopping experience. Following in the footsteps of France and other European countries, 2005 will see shoppers use payment cards containing a chip and then enter a four-digit PIN code to authorise payment. Chip and PIN (as it's become known) has huge implications for retailers, their customers and sales staff.

So why do it? To reduce the escalating levels of payment card fraud and associated criminal activities. In France, where Atos Origin helped pioneer the introduction of chip and PIN, the cost of fraud has fallen by 80% since its introduction ten years ago. The proof is there and what the UK is now adopting is a tried and tested solution to its mounting £430 million annual card fraud problem. Chip and PIN comes to the UK on 1 January 2005 and a 50% reduction in fraud is already anticipated by 2007.

For retailers, the countdown to chip and PIN has begun. They need to upgrade their Point of Sale (POS) systems and will inevitably need software and hardware upgrades to read data held on the chip and for customers to enter their PINs on keypads away from prying eyes. Of course they can choose to flout international standards but the price is high. Liability for card fraud will switch from card issuers to the establishment in which it was committed from 1 January 2005. For retailers that's a direct hit at their bottom lines. The discerning criminal, with alternative avenues blocked, will inevitably target those stores still processing signature transactions.

This paper examines the UK fraud epidemic and the success of chip and PIN in Europe. It provides a step-by-step plan to chip and PIN implementation and, based on Atos KPMG Consulting's market experience, examines some of the issues and pitfalls that retailers can expect to face. It considers the people and process issues as well as

Will you be ready for 2005?

We have leading payment card experience, proven methods and tools that will ensure you can be.

the technology requirements. The over-riding message is clear. Chip and PIN is on its way. Everyone is working to the same timetable and resources are finite. Act now or be prepared to pay the price for card fraud. The clock is ticking ...

Ten facts you need to know

- In the UK there are 42 million cardholders with more than 110 million debit and credit cards.
- Card fraud costs the UK more than £1m every day.
- A fraudulent transaction occurs every 30 seconds in the UK.
- The UK is Europe's biggest culprit, accounting for 75% of card fraud each year.
- If card fraud continues to rise at a projected 50%, the UK will be landed with an £800m bill by the end of 2005.
- Chip and PIN technology, pioneered in France and adopted elsewhere in Europe, comes to the UK on 1 January 2005.
- Creating a vastly more secure environment, chip and Pin is expected to prompt a 50% reduction in card fraud in the UK by 2007.
- From 2005, retailers will be held liable for fraudulent card transaction where they fail to comply with international standards.
- Over 75,000 PoS terminals and 35,000 ATM machines, plus associated front and back office systems, will need to be upgraded.
- France has seen its own fraud levels reduce by 50% since introducing chip and PIN ten years ago.

NECESSARY COST OR MAJOR OPPORTUNITY

Payment card fraud prevention is a top priority for the UK banking and retail industries.

The migration to chip and PIN is one of the most important challenges for UK banks and retailers in over 20 years. With independent expert advice, it's a great opportunity to deliver benefits to both the consumer and retailer beyond simply addressing the growing issue of payment card fraud.

The end of everyday card fraud

Payment cards account for over 50% of UK high street expenditure and one in five payment cards in the UK already carry a chip. With the introduction of chips into payment cards, consumers will be able to pay for goods and services by entering their 4-digit code on key pads at the point of sale instead of signing a paper receipt.

Chip and PIN provides a much more secure environment for around 42 million UK consumers to use their credit, debit and charge cards. It combines two effective security features. The first is a microchip on the payment card that holds personal data more securely than the current magnetic stripe; it is much harder to counterfeit. The second is the PIN, which is much harder for fraudsters to obtain and copy than a signature and proves that the consumer is the person that they claim to be. Security for the consumer is significantly increased as the card is never out of their sight – unlike current swipe cards – thereby reducing opportunities to counterfeit.

It is hoped that by introducing this system, which has been commonplace in several European countries, most noticeably France, for a number of years, there will be a substantial reduction in card fraud, which has reached epidemic levels in the UK.

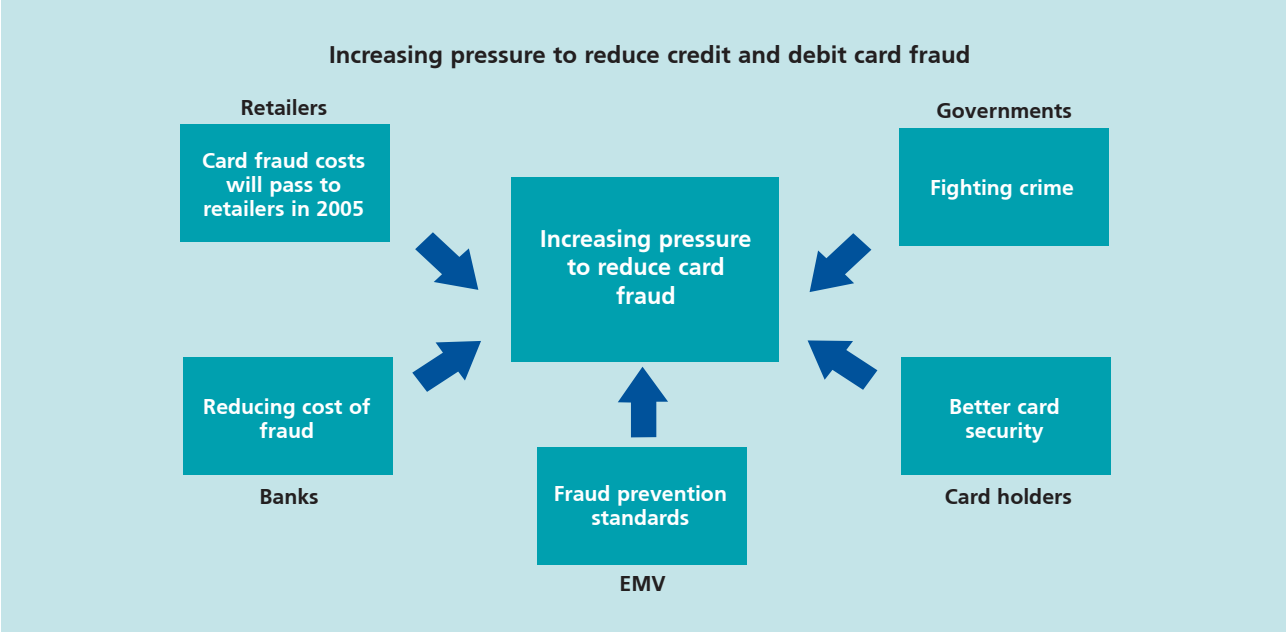
As a reminder of the issue, card fraud cost the UK approximately £430 million in the 12 months to the end of August 2002, accounting for 75% of Europe's payment card fraud. Counterfeit fraud, up by over 100%, accounted for £107 million of the UK's total £300 million payment card fraud in 2000. Projecting the annual rise at 50% through to 2005, counterfeit fraud on UK cards alone could reach £800 million unless the issue is addressed. Following the chip and PIN implementation in 2005, it is estimated that total fraud could fall by £450 million per annum in the UK.

Following the full rollout of chip and PIN cards and PIN at PoS, APACS (Association for Payment Clearing Services) estimates a drop in payment card fraud to approximately £280 million by 2007 and, in percentage terms, forecasts a fall by 13% in 2005, 20% in 2006 and by 15% in 2007.

Chip and PIN is seen as the biggest change facing UK consumers and retailers since the introduction of decimalisation in 1972.

Following the chip and PIN implementation in 2005, it is estimated that total fraud could fall by £450 million per annum in the UK.

HOW TO MOVE SUCCESSFULLY TO CHIP AND PIN



The new chip cards and their PINs

More than 35 million chipped credit and debit cards have been issued in the UK and, during 2003 and 2004, more than 100 million credit, debit and charge cards will be re-issued with chip and PIN capability.

At the moment most of the counterfeit card losses are borne by the card issuers but, from January 2005, liability for fraudulent card transactions and lost and stolen card fraud will pass to the party that is not chip and PIN certified and compliant. The chip and PIN programme is aimed at those transactions where the cardholder and card are present at the time of the transaction. Card holders will have to remember their 4-digit PIN number. 'Cardholder not present' transactions (*eg* over the phone) are outside the scope of the programme.

Many retailers have already experienced losses as a result of counterfeit fraud. The introduction of chip and PIN is designed to provide protection from future losses of this type. Retailers will have to decide if they want to cover the cost of card fraud in their stores or upgrade their Point of Sale (PoS) systems and card handling procedures to be chip and PIN compliant.

It is envisaged that fraudsters will begin targeting those retailers who are still processing signature transactions.

Handling the new cards at the PoS

If retailers rent or lease their PoS equipment, their supplier will arrange for the equipment to be upgraded to support chip and PIN.

If retailers own their own PoS equipment, they will need to upgrade both hardware and software so that it can read the information held on the chip and enable cardholders to enter their PIN via a keypad. Hardware and software will need to meet the new EMV (see definition overleaf) standards.

It is important to understand the EMV standards and possible enhancements in both functionality and encryption technologies. The choice of PoS device is very important in order to future proof, and thereby protect, the retailer's investment.

The EMV standards

The EMV standards are internationally agreed standards for chip payment cards, originally agreed by MasterCard Europe and Visa. EMVCo is an organisation owned and managed by MasterCard and Visa; EMVCo maintains EMV standards. The primary role of EMVCo is standards maintenance to ensure interoperability and acceptance of payment system integrated circuit cards on a worldwide basis.

The EMV specifications

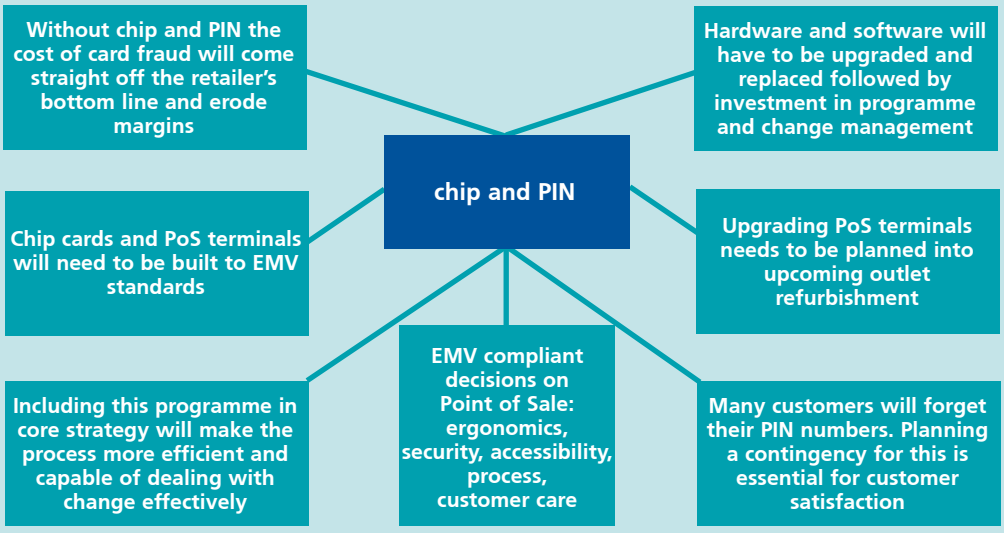
EMVCo is also responsible for the approval process that defines test requirements and test cases that are used for terminal compliance testing. The current specifications are based on the ISO/IEC 7816 standards.

EMV specifications require supplementary specifications from other payment systems for its internal card processing of the transaction. It also requires additional vendor specific elements to build a complete card. Additional specifications are also needed to have a complete design for a terminal.

The PoS terminals

On the acceptance side, over 750,000 PoS terminals and 35,000 ATM machines will need to be upgraded, along with associated front and back office systems.

The business reality – 'protecting your bottom line'



Can chip and PIN give a positive payback?

Our experience in France and the UK has shown us how the change to chip and PIN can be used to enhance your bottom line.

Retailers will need new technology and PoS terminals, or upgrades to their existing PoS terminals, to be able to accept new chip cards and be compliant with the EMV version 4.0 standards published in December 2000. Making the complete change will be a task of exceptional scale, involving not just process and technology changes but also a change in the payment behaviour of some 42 million cardholders and 1.5 million retail staff.

The customer experience

These cardholders will also experience change at the PoS. There are the obvious ones, such as no more signatures and the need to remember and key in a 4-digit PIN. But, there are more subtle changes too. For example, the protection of their PIN from prying eyes (electronic, cashier or other people in the queue) is vital. Should fraud occur because someone has your PIN number, it will be harder to get a refund from the card issuer. The transaction time may take longer. This may not be down to the retailer's system requesting on-line authorisation due to floor limits, but because the payment card itself will now also decide whether, based on its knowledge of 'normal' usage, to request authorisation for the transaction. All of this requires attention to ergonomics and staff training.

The timetable for change

As the deadline for chip and PIN approaches, communication of the issues becomes ever more prevalent.

Many retailers will not have given any thought to what they have to do to meet the 2005 deadline for fraud liability shift, nor the effect the changes will have on their business. Chip and PIN conferences are being held to highlight the issues and ensure retailer awareness.

2003 – Trials and raising awareness

May 2003 saw the first 'trial' of chip and PIN in the UK. The trial which took place in Northampton has been organised by the 'UK chip and PIN Council'. The main objective of the trial is to help confirm the best ways to roll out the technology and to begin communication programmes to consumers nationwide to raise the awareness of the imminent arrival of chip and PIN.

Northampton was chosen as a true representation of a UK town with a broad spectrum of retailers, leisure, and hospitality companies agreeing to participate in the trial. During the spring of 2003, a total of 150,000 consumers, over half the adult population in Northampton, have been sent new-style cards from their banks.

Shops, pubs and hotels, restaurants, supermarkets and garages across the town have implemented new chip and PIN technology. This means that consumers with the new cards are being asked to key in their 4-digit PIN number rather than signing a receipt when they pay.

An increasing number of retailers will install chip and PIN terminals during the summer of 2003. If successful, some retailers are already planning to accelerate the rollout nationwide ahead of the deadline.

2004 – Retailers need to act

Between now and the end of 2004, retailers will need to implement chip and PIN handling technology at their point of sale, train their staff, educate their customers and implement processes to handle inevitable problems, such as forgotten PINs. Retailers need to plan for customer disability issues, such as PIN entry by visually impaired people.

The implementation of the new processes and technology requires end-to-end testing (from chip card to settlement)

Unsure what to do?

We can help you with all aspects of chip and PIN from initial assessment, through to national rollout and to managed operations.

with the card acquirers to gain certification for the financial transactions and the systems. This needs to be planned with the card acquirers and can be time consuming. Test transactions (generated by test cards sent out by the acquirer bank) need to be generated and run through the complete system. Then the card issuer has to check the results. The tests will need to be repeated in full if any problems are encountered. With such a large-scale changeover, bottle necks in the certification process are anticipated. Early planning is essential.

2005 – Nationwide chip and PIN

The deadline for the change of burden of fraud from the financial institutions to the retailers is 1st January 2005. If chip and PIN technology is not implemented by this date, liability for fraud will rest with the establishment where the fraud was committed.

The main challenges in the UK are behavioural rather than technical. Most debit cardholders use their PIN number to withdraw cash from ATM machines. 97% of UK cash withdrawals at ATMs are made with debit cards. A prerequisite of the project is that all cardholders are able to change their PINs – ATMs will be the predominant method.

It is estimated that 80% of credit card holders will change their PIN to align with their debit card. In the main, these changes are expected to take place over the two-year rollout period and then only changed if PINs are compromised. It may take time for UK cardholders to get used to managing multiple PINs.

Although there will be major changes to the way that consumers interact at the point of sale, it is expected that the uptake will be fast as consumers are used to using numeric keypads in everyday life, *eg* cash machines, security entry, *etc*.

Initial feedback from the UK trials in Northampton is that consumers favour the ease of use and higher security that chip and PIN brings/offers. This may become a differentiator when choosing where to shop.

Payback on investment for the wise retailer

Retailers will be looking for ways to recoup the cost of the chip and PIN technology that they have installed. This may come from 'add-on' services to new terminals such as loyalty programmes using electronic purses that are available on the cards to instantly credit or debit loyalty points.

The increased levels of security may allow more unmanned payment terminals (*eg* petrol forecourts) and the use of self-scanners, RFID *etc*. In some cases, an incentive from the card acquirers will be reduced MSC (Merchant Service Charge) to those retailers who are early adopters of chip and PIN technology.

There is also the opportunity to enhance and reduce the costs of remote terminal management (*eg* software updates, fault finding, maintenance). The implementation of a new generation of card handling hardware and software makes it easier to use managed services, like those provided by Atos KPMG Consulting, to ensure a cost efficient and effective terminal support and maintenance service.

Worried about the impact?

Chip and PIN is as much about people and process as it is technology. Our extensive experience has shown us how to successfully deliver a complete solution.

Successful transition to chip and PIN

In France, which is at the forefront of the European market in implementing chip and PIN, Atos Origin played a leading role in establishing chip and PIN in PoS loyalty card systems. We are one of the few consultancies and systems integrators with proven working solutions and implementation methodologies. Our knowledge, gained in France, of the initial go-live period and management of the customer and retailer staff experience, is vital to ensuring a smooth transition.

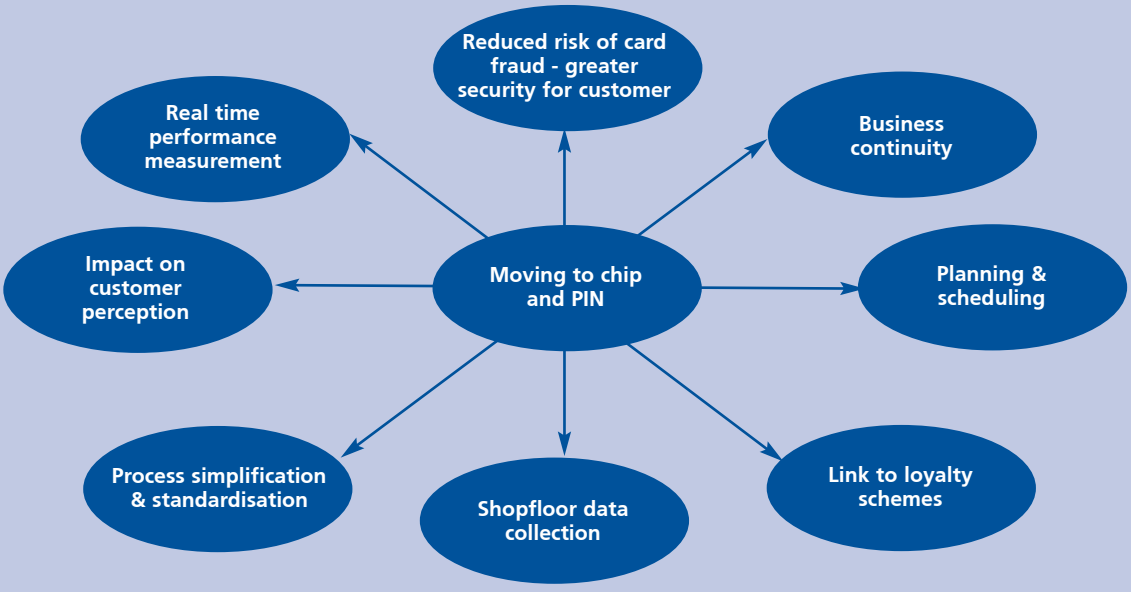
We also understand how to enable a retailer to get the best from its equipment providers and the acquiring banks, during both the initial set-up and ongoing operations.

We are working in the UK and France with market-leading supermarkets and petrol retailers to help ensure they make the best solution decisions for their type of business and take full advantage of the opportunities that chip and PIN can deliver.

Methodology

Our methodology addresses the key strategy, people, process and technology and can be extended into the provision of managed operations. The diagram overleaf illustrates the key stages of the methodology that we have successfully used for our clients.

Exploiting chip and PIN creates an opportunity to address related business issues and deliver improved business performance



OUR 'CHIP AND PIN' IMPLEMENTATION METHODOLOGY

Impact assessment	Develop solution	Roll out and implementation

Activities

Impact assessment

- Identify ergonomic impact of introducing chip and PIN
- Identify what operational changes will be necessary
- Identify how sales processes will change
- Identify staffing impact
- Identify level of systems and equipment change
- Develop Readiness Assessment and Business Risk Profile

Develop solution

- Develop high level strategy
- Business case preparation
- Confirm target architecture
- High level design
- Process design
- Detailed systems design
- Options review and decision
- Implementation planning
- Develop benefits plan
- Procurement documentation
- Tendering process

Roll out and implementation

- Process definition and business requirements capture
- Infrastructure mapping and design
- Detailed solution design
- Implementation planning
- Rollout management
- Testing schedule - agreed with acquirers
- Update store procedures and operating guidelines
- Solution build
- Data cleansing, migration and test
- User Acceptance Testing (UAT)
- Pilot testing
- Acquirer testing
- User training
- System roll-out planning and go-live
- Transition support

Outputs

Impact assessment

As assessment of readiness to implement chip and PIN and an outline plan of actions, including:

- Option analysis
- Implementation time
- Bottom line benefits
- Cost models and options
- Supplier and procurement options
- Management and operational service option

Develop solution

Detailed plan including:

- Costs and final business case
- Ergonomics: eg finding space for PIN pad and PoS
- Process: eg deciding whether cardholders or cashiers insert the cards
- Compliance: security, disability
- Process: end-to-end design
- Training: courses for point-of-sale staff
- PoS and PIN operational process
- Customer care propositions

Roll out and implementation

- Chip and PIN embraced by the organisation
- Robust solution that cuts costs relating to card fraud

Toolset

People:

- Communication and training
- UAT and pilot testing
- Operational support

Process:

- Accelerated process design
- Workflow
- Test and validation

Technology

- PoS systems
- Technology options (eg RFID)
- Application Integration
- Business Intelligence

Programme management

Elapsed time

5-10 days → **30-90 days** → **3-12 months**

SOME ISSUES OBSERVATIONS

Below is a list of just some typical issues that a retailer might face and our experience in defining effective and efficient solutions.

Issues	Atos KPMG Consulting observations
Business impact	
Chip and PIN Strategy and programme delivery	It is important to consider how chip and PIN can enhance the retail strategy. It may provide opportunities for consolidating store and loyalty cards, co-branding, enhanced functionality, *etc*. The delivery of the new business and IT solution is not a trivial undertaking. For example, we have programme managed the vendor selection and initial stages of the rollout of a chip and PIN compliant solution to BP's UK service stations.
Business Case (ROI)	We can fast track Business Case formulation using proven industry templates. It is important to be realistic about the type of solution which best fits the needs and financial constraints of the business and understand the options.
Business risk profile	It is important to understand the impact of change and identify those areas where the retailer and their customers are most vulnerable to fraud both pre and post chip and PIN.
Ensure the benefits are obtained	There are numerous benefits to be taken from this change as this potentially touches all aspects of the business; not least the customer shopping experience. It is important to recognise, manage and deliver the benefits to the bottom line.
Operational impact	
Functionality of hardware - now and future	Understanding your 'chip and PIN' strategy, as part of your long-term business strategy, is important to selecting the right solution and vendor to meet current and future needs.
Integration / replacement of existing equipment	There are many options from stand-alone devices to fully-integrated PoS solutions. Each has its pros and cons and many retailers may require more than one solution. Also, when assessing ROI and other factors, there is a decision to be made on whether to rent, lease, make or buy all or parts of the solution.
Head office processing, infrastructure impact and data management	These new cards will be able to capture customer data better and so plans may be needed to increase CRM capabilities. There are also changes to the Consumer Protection Act that, whilst not linked to chip and PIN, will increase the burden of proof of purchase on the retailer; this may require additional data capture.
Acquirer support capacity	There is concern that the current banking networks may initially struggle to handle the volume of on-line authorisations. There will also be a bottleneck during the terminal set up, testing and certification period. Fallback agreements or plans will need to be in place.
Security of solution	It is important to consider the security of solutions in terms of protecting a customers PIN code. e.g. CCTV or queues at the PoS. A current client opted for a PIN pad that had a shield over the pad to prevent a third party from overseeing the input.
Customer impact	
One size does not fit all - outlet profiling	The profiling of the channels to market is important as there may be more than one solution depending on certain criteria. *eg* size of outlet, counter space, customer footfall, *etc*.
Transaction times and their effect on the customer experience	Transaction times become an issue where a retailer is dealing with low value, high volume trade (*eg* Garage forecourts and convenience retail). Also the need to go on-line and send larger records may have a significant impact over current card processing. Some commentators have indicated up to four times longer than current transaction times.
Ergonomics of solution	It is important (*eg* the Post Office terminal disability issue) to be fully compliant with the relevant legislation (*eg* security, disability, CCTV). Also, the store configuration, footfall, typical queue sizes, *etc*. will have significant impact on PoS solution design. This is a key soft skill that Atos KPMG Consulting already has from chip and PIN implementations in France.
Shift of fraud to store cards and/or cheques	A retailer needs to consider its forward strategy for its own 'store' cards and cheque acceptance. The introduction of chip and PIN may also increase the levels of shoplifting.
Consumer PIN management and Customer management	The consumer may be confused with the number of PINs they have to remember and there must be careful staff training and agreed procedures for handling customers who claim to have forgotten their PINs.

SUMMARY

Payment card fraud is a top priority for the UK banking and retail industries.

Reducing fraud

Chip and PIN is a major coordinated global initiative aimed at reducing the escalating levels of payment card fraud and associated criminal activities.

- Retailers will need to implement chip and PIN by the end of 2004 or they will be forced to bear card fraud costs and will continue to receive charge back costs.
- Fraud costs come straight off the bottom line of a retailer's business.
- The clock is ticking – retailers need to act now.

Getting ready

Retailers need to be able to positively answer the following questions:

- Are you going to be ready for chip and PIN?
- Have you got detailed plans in place?
  (If not, you need to act now).
- Do you understand the issues and options for your business?
- Can you be sure you will have access to the skills you need?
  (All UK retailers have the same timetable and resources are finite).

Atos KPMG Consulting experience

Atos KPMG Consulting has a proven track record and vast experience in payment cards and payment card processing.

French card markets

Atos Origin hosts the VISA purchasing platform (GIE SP) on behalf of the main French banks (Société Générale, BNP Paribas, NBP, Crédit Lyonnais, and CCF) associated in a dedicated group (GIE Purchasing).

Atos Origin manages 180,000 PoS terminals, 750 ATMs with 1.5 million cash withdrawals per month, and provides 5 million card transactions per year to cardholders. We provide the software solution that connects to the retailers and was also at the forefront of the move into chip and PIN in France.

For example, we deliver services to:

- Primagaz - Front-end processor, processing fuel card, printing invoice/statement, online services.
- Shell - Front-end processor, printing invoice/statement, customer services centre, cardholder/marketing database.
- TotalFinaElf - Front-end processor, processing fuel card, printing invoice/statement, customer services centre, online services.

UK card markets

Atos KPMG Consulting processes more than 400 million transactions, worth over £10 billion per year. We accept over 60 different card types and support over 35 PoS terminal types; probably the broadest range available in the market today.

We have a portfolio of blue chip clients including Texaco; Spar; Total; Tesco; BP Oil; Shell; The Royal Bank of Scotland Group and Sainsbury's.

Our service capability provides the complete transaction process chain from cardholder, to point-of-sale, to front office, to back office, to acquisition, to funds transfer, to payment and cardholder invoicing. For example, one in three garage forecourt payments are made on Atos KPMG Consulting implemented systems including Texaco, BP, and Tesco.

We are currently working with many of our existing clients on chip and PIN initiatives. For example, at BP, Atos KPMG Consulting provided the terminal, hardware and software, the installation services, polling and processing, programme management and a seven day helpdesk service.

To conclude

Whether it's a new system, or a review and upgrade of existing business process/technologies, we will deliver a solution that is totally integrated with your business strategies, fully implemented and expertly supported in the long term.

We are able to deliver design, build and operational resources and capabilities to ensure retailers are ready for, and exploit the functionality of, chip and PIN technology. Atos KPMG Consulting provides an accelerated 'one-stop shop' approach that offers the retailer independent advice and choices. We already have extensive knowledge of chip and PIN implementations in Europe and the UK.

TESCO

Shell

SPAR

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