Checking out chip and PIN

The Northampton trial report 2003

Written and produced by the
Chip and PIN Programme Management Organisation
I would like to congratulate everyone who took part in the chip and PIN trial in Northampton. The success of the trial would not have been possible without everyone coming together to work as a team: card companies, banks, building societies, retailers, equipment suppliers and of course, the people of Northampton.

By the end of the trial over 200,000 chip and PIN credit and debit cards had been issued and around 1,000 outlets, including shops, restaurants, pubs, hotels and petrol stations had taken part.

Chip and PIN is an important weapon in tackling plastic card fraud that will specifically eradicate the problems of ‘skimming’ (where card details are electronically copied from a card’s magnetic stripe without the cardholder’s knowledge and used to make an illegal copy of the genuine card), and fraud on lost and stolen cards. In 2002, card fraud cost the country £424 million. With that figure projected to grow to more than £800 million by 2005 if we do not act to reduce it, it’s important for all of us to play our part in introducing chip and PIN nationwide as quickly as possible.

The trial of chip and PIN has provided excellent results and I am encouraged that the lessons learnt in the trial will be taken forward as the scheme is rolled out across the country with the majority of transactions becoming chip and PIN by 2005. As well as fighting fraud, chip and PIN has also proved to be an efficient, secure and customer-friendly system.

Chip and PIN is an excellent example of business actively seeking ways to prevent crime. If we all continue to work together with schemes like this we can step up the fight against crime.

Hazel Blears
Minister of State, Home Office
(Crime reduction, policing and community safety)
Executive summary

This report looks at the three-month chip and PIN trial which took place in Northampton starting in May 2003. Each area of the report looks at the experience of different groups of participants involved in the trial and the lessons learnt for the national rollout which will see the majority of card transactions becoming chip and PIN by 2005.

Crucially, the report looks at the experience of customers in the trial. More than 120,000 people were given new chip and PIN cards and the knowledge gained from their reactions to every stage of the process, from receiving the card to making their first transaction in each type of outlet, is invaluable.

The report also looks at other key groups involved in the trial - large and small retailers, banks, building societies, card companies and technology suppliers.

A successful trial

The chip and PIN trial was a success. Collaborating in the biggest change to the way we pay since decimalisation, the banking and retail industries worked together in an unprecedented way.

We already knew that the technology worked. We were, however, interested in checking out the technology in action, making sure we ironed out any glitches and, crucially, seeing how customers learnt about the new technology and reacted to it before chip and PIN is rolled out across the country.

Customers took to the new system extremely well and attitudes towards chip and PIN were very encouraging. The media also gave heavyweight coverage to the scheme and highlighted its importance as a key weapon in fighting card fraud in the UK. Communications, from centrally co-ordinated advertising and public relations to individual bank and retailer publicity, were also tested in advance of rollout and were well received by customers.

Fighting plastic card fraud

- Chip and PIN is being introduced to fight plastic card fraud head-on
- UK plastic card fraud reached a record high in 2002 with £424 million worth of fraudulent transactions. Counterfeit card fraud was the largest category amounting to £148 million in 2002, followed by cardholder not present fraud (such as telephone or internet transactions) amounting to £110 million and lost and stolen cards at £108 million
- More than £1 million worth of card fraud is committed every day - that’s a fraudulent transaction every eight seconds
- Chip and PIN will tackle more than 60% of plastic card fraud by directly targeting counterfeit fraud and fraud committed on lost and stolen cards.

Customers

- On the whole, customers in the trial really loved the new system
- They had a very positive attitude about the improved security and they found chip and PIN easy to use
- Media coverage of the trial was extensive, both in Northampton and across the country, with many opportunities for cardholders to see or hear about chip and PIN
- Market research among Northampton consumers, three months into the trial in July 2003, showed that 89% were aware of chip and PIN and 83% were in favour of its introduction
- The trial did show, however, that for cardholders who do not currently know their PINs, there was a communications obstacle to overcome. For a proportion of credit card users, and among those who do not generally use cash machines, there was some continuation of signing, as customers arrived at the checkout not knowing their PINs
- Some cardholders also saw privacy as an issue and were worried that people could watch them entering their PIN. This is being addressed as a priority issue for the national rollout.

Retailers

- Almost 1,000 large and small retailers took part in the trial including shops, supermarkets, pubs and restaurants
- The trial included retailers who owned their own integrated point-of-sale terminals and those who leased terminals from banks. And many types of PIN pads – fixed, those on cords or wireless – were trialled
- Retailers in the trial found that chip and PIN technology, although more complex than magnetic stripe, was easy to use, staff training was not too onerous and high levels of customer service were maintained
- The key lesson learnt by retailers in the trial is that time is the crucial factor. Allowing enough time for planning, testing, training and implementation is critical to success. Retailers across the country who own their own integrated point-of-sale equipment are urged to work with their banks and suppliers to review the issues and work involved in implementing chip and PIN.

The banking industry

- For banks and building societies, the trial was a success proving that the technology works in the real world. The trial was the first live opportunity to test the management of the complex card issuing processes and cardholder reactions to the use of PINs at the point-of-sale
- There was also a need to understand the implications and application of the detailed approvals processes introduced by the international card schemes, in particular, MasterCard and Visa. These processes proved to be challenging but are a vital element in ensuring that customers can easily and safely make payments anywhere in the world - just as they do today
- By the end of the trial, the banking industry had installed 999 stand-alone terminals, had worked with larger retailers through the approval processes, issued more than 200,000 PIN-enabled credit and debit cards and had upgraded 173 cash machines so they could offer PIN services such as the ability to change PINs.

Suppliers

- Chip and PIN is a large, complex project and it needs the involvement of a wide range of technology suppliers – each has its own role to play
- The trial demonstrated that there is a place for large, small and specialist companies working together on chip and PIN
- The suppliers involved in the trial learned many valuable lessons and during the rollout they will be ideally placed to support retailers in the UK and in other countries
- Certification proved to be the main challenge for suppliers. Every piece of hardware and software must be approved and every possible configuration between equipment and cards must also be certified. This was sometimes underestimated and so took longer than anticipated. For national rollout, early planning and scheduling is therefore essential.

Banks and the largest retailers are ready to rollout chip and PIN across the UK so that the vast majority of card transactions are chip and PIN by 2005. The Programme now needs to secure the involvement of a wide range of suppliers and almost 20,000 retailers who own their own point-of-sale equipment.

This massive programme will touch the lives of more than 42 million people. More than 850,000 retailer terminals, 120 million cards and 40,000 cash machines will be upgraded. By hosting the largest trial of its kind in the world in Northampton, the banking and retail industries are prepared with the experience and knowledge they need to make this historic change happen.
What is chip and PIN?

Chip and PIN is a new, more secure way to pay with a credit, debit or charge card. Customers simply tap in their four-digit number rather than signing a voucher to pay. Microchips on the cards store data more securely than the current magnetic stripe, making them much harder to counterfeit. The PIN proves customers are who they say they are, unlike a signature that can easily be copied.

Chip and PIN will radically cut the amount of fraud committed on plastic cards in the UK.

The chip and PIN trial in a nutshell

In May 2003, a three-month chip and PIN trial started in Northampton. The town was the first in the UK to have the new fraud-busting system, with signatures replaced by personal identification numbers (PINs) when paying with plastic.

By the end of the trial more than 200,000 PIN-enabled credit and debit cards had been issued and around 1,000 outlets, including shops, restaurants, pubs, hotels and petrol stations took part. Northampton is demographically representative of the UK as a whole and the trial tested how chip and PIN worked and how best to communicate the change to the public. Chip and PIN will continue in Northampton and will be rolled out right across the UK with the majority of transactions becoming chip and PIN by 2005.

Who’s behind chip and PIN?

The chip and PIN trial was backed by the UK’s banks, card companies, building societies and retailers, the British Retail Consortium (BRC) and the Association for Payment Clearing Services (APACS). These organisations came together in an unprecedented way to set up a joint programme to implement chip and PIN. A central organisation, the Programme Management Organisation (PMO) was set-up to coordinate the programme.

Along with almost 1,000 smaller outlets, the following retailers took part in the trial: ASDA, The Co-operative Group, The Link, McDonald’s, Marks and Spencer, Morrisons, Next, Pets at Home, Safeway, Scottish & Newcastle Retail, Shell UK, Spar, Tesco and Wilkinson. Chip and PIN will continue in Northampton and will seamlessly move to the rollout phase.

Banks, building societies and card schemes taking part were Abbey National, Alliance & Leicester, American Express, Barclaycard, Barclays Bank plc, The Co-operative Bank, Egg, HSBC, Lloyds TSB, MasterCard, Nationwide, The Royal Bank of Scotland Group, Switch and Visa.

A global initiative

The UK is one of the first countries to introduce chips on cards meeting new global specifications, EMV (Europay/MasterCard and Visa). In time, cards will be accepted around the world using the same security checks. The UK chip and PIN trial is the biggest in the world to date.

Card fraud: the facts

UK plastic card fraud reached a record high in 2002 with £424 million worth of fraudulent transactions. Counterfeit card fraud was the largest category amounting to £148 million in 2002, followed by card not present fraud amounting to £110 million and lost and stolen cards at £108 million. Chip and PIN will tackle head-on more than 60% of plastic card fraud by directly targeting counterfeit fraud and fraud committed on lost and stolen cards.

- More than £1 million worth of card fraud is committed every day - that’s a fraudulent transaction every eight seconds
- Without intervention card fraud is projected to grow to more than £800 million by 2005
- A domestic PIN-based system in France has seen a 90% reduction in domestic fraud since its introduction over ten years ago
- There are many prevention measures in place to tackle other fraud types. These include an address verification and card security code checking system available to retailers who accept card payments over the phone or internet. In the future chip card readers and PIN pads might be attached to cardholders’ computers, digital TVs or phones to further protect these types of transactions
- Free guidance for retailers and other information on card fraud prevention initiatives is available from www.cardwatch.org.uk
Cardholders in the trial

What customers are saying about chip and PIN

Customers taking part in the chip and PIN trial really loved the new system. They had very positive attitudes about the improved security chip and PIN offers and have found it very easy to use. Throughout the trial, independent market research was conducted to measure consumer attitudes. The research involved interviews at home where people were asked about their personal experiences and views. A number of targets were set for trial and these were exceeded.

The areas covered in the market research included awareness, favourability and usage of chip and PIN.

Awareness

Awareness of chip and PIN grew very quickly in Northampton. Three months into the trial in July 2003, 89% of people said that they had heard of the new way to pay and 86% recognised the name 'chip and PIN'.

Ease of use

People who had used their chip and PIN cards to pay in Northampton overwhelmingly said it was easy to use with 98% saying so and only 2% disagreeing.

Favourability

The research also asked people if they were in favour of the introduction of chip and PIN. Throughout the trial support grew from 73% saying they were slightly or very much in favour at the beginning of the trial to 83% saying the same three months later. Those ‘very much’ in favour grew from 36% to 60% in the same period.

Knowledge of chip and PIN

Three months into the trial, only 17% of people in Northampton said that they knew nothing or very little about chip and PIN. This figure dropped throughout the trial from 26% in May. The number of people saying they knew a lot or a fair amount grew from 31% in May to 48% in July. Customers who had not yet received a chip and PIN card in Northampton were asked how they felt about using the new system in the future. The results are very encouraging for the rollout with 78% saying they were either positively looking forward to using it or prepared to use it, with a further 13% saying they wanted to know more first. Only 4% said they would not use it.

PIN services

PINs could be changed in the Northampton trial by cardholders using PIN services at their bank’s or building society’s cash machine. Awareness of PIN services was high with 96% of people saying that they were aware they could change their PIN if they wanted to.

Changing payment methods

The introduction of chip and PIN in Northampton did not appear to affect the ways people paid for things. The way people reacted to chip and PIN did vary to some degree depending on existing use of cash machines and PINs. Some cardholders, around 15% took longer to use their chip and PIN cards for the first time as they did not know their PINs when the new cards first arrived. For example, these included people who did not know the PIN for their credit card or people who were not used to using cash machines. During the rollout of chip and PIN special attention will be focussed on these groups.

The main single concern among cardholders, although it was only expressed by a small proportion of people, is privacy and the fear of being overlooked when entering a PIN. Retailers will need to ensure that good practice is applied through the national rollout, for example taking care over the placement of PIN pads, ensuring that privacy shields are intact, and doing everything to train staff to show customers how to enter their PIN in a discreet and safe way. People can also be encouraged to shield PIN pads with their hands although some people said they were embarrassed doing this as it suggested a lack of trust in others.

Customers also expressed a certain amount of frustration that there were still some shops where they could not use chip and PIN in the trial, demonstrating an appetite to use the new system.

Communicating with customers

An active advertising and public relations campaign ran throughout the trial in Northampton with excellent results. While this is encouraging for the rollout, that campaign will be much less concentrated and more complex. The main objective of the trial communications was to make sure that customers knew about chip and PIN and were comfortable with it by the time they came to use their new cards. A market research survey measured the effectiveness of the communications in readiness for the national rollout.

The mix of advertising included radio, newspapers, posters and bus sides. Public relations generated heavy media interest in Northampton and across the country. More than 500 press articles or broadcast interviews were seen or heard by readers, listeners and viewers which is the equivalent of around 160 million opportunities for cardholders to see or hear about chip and PIN. Some 40 journalists visited Northampton in person to see the system for themselves. Local radio proved to be a particularly effective medium.

Central communications were supported by direct communication from the banks who issued new cards. The cardholder market research results showed that awareness of bank direct mail was much higher than usual. Retailers backed this up with in-store communications including posters, stickers and leaflets and the cumulative effort achieved very positive results.
Cardholders in the trial

Meeting the needs of people with disabilities

An important part of the Northampton trial was to assess how best to take into account the needs of people with disabilities. The trial highlighted important lessons for the national rollout. In-depth research was carried out with a panel of people representing a wide range of disabilities and who were issued with the new-style cards and asked to test them out.

The circumstances of people with disabilities vary enormously and this obviously affects their attitudes and capability to use chip and PIN. For some groups, such as those who find it difficult to write a signature, chip and PIN offers great benefits while for others it can pose problems.

The research asked the panel about their views of the whole process, from receiving their new card from the bank to using it in the shops, including:

- information from the bank
- receiving your PIN
- expectations of chip and PIN
- mechanics of the process
- the PIN pads.

Information

The research emphasised that the documentation sent out about chip and PIN needed to be easily accessible. Language should be clear and there was a preference for the use of material which used pictures and diagrams. The size and shape of materials, such as leaflets, needs to be manageable. The size of print in leaflets needs to be large and alternative formats would be welcomed, for example audio tape communications for blind or visually impaired people.

Expectations of chip and PIN

In general, the expectations about chip and PIN among disabled cardholders are positive. For many people, chip and PIN was seen as offering the prospect of an easier, more convenient way of paying with plastic compared with using a signature. Exceptions to this include, among others, those with head injuries and people with Alzheimer's disease. It is likely that some people in these groups may be unable to remember a PIN - these customers will continue to be offered signature as an option by their card issuer.

It was particularly encouraging that those with visual impairments thought that chip and PIN would work well for them.

The PIN pads

One of the most important findings to come out of the research related to the mobility of the PIN pads themselves. Many people with disabilities have difficulty reaching up to a high counter, so PIN pads which could be moved, such as those with long, flexible cords, were praised.

Disability research – main findings

Generally, research among people with disabilities was very positive. For those who already use cash machines, chip and PIN was seen as an extension of something they already did and was not ‘a big deal’. For other groups, it was seen as ‘enabling’ and easier than signing. However, the research was equally valuable in pinpointing the specific needs of different groups and these learnings will be used as part of the national rollout process.

More research is planned with disabled cardholders as part of the national rollout to check that their needs are met. Any cardholders with disabilities who have problems with chip and PIN will be able to discuss their individual needs with their card company or bank.

Key lessons from the trial: cardholders

- Customers take to chip and PIN extremely well and generally love the new system
- Awareness and favourability in Northampton were very high during the trial
- People found it harder to adapt to PINs on their credit cards and those who do not use cash machines took longer to make the change
- Privacy was the most widespread concern and will be a critical issue to address during rollout
- Disabled customers generally viewed chip and PIN positively, but experience varied depending on the type of disability.

“With chip and PIN I’d be able to buy expensive things like clothes without having to carry lots of cash or needing my husband there to pay for everything”

Cardholder with cerebral palsy

“I thought that if I had to stand up and punch the number in on the desk then I wouldn’t be able to manage that. But as it’s on a long cord you can just have it on your lap, it’s actually easier than signing”

Cardholder with MS - wheelchair user

“I changed my PIN number at the cash point to something I remember, it’s easy”

“Punching in the number is a one handed job. It’s easier than signing”

“Very straight forward. It’s easier than I thought it would be”

“I think it’s been a great success”

“There have been some teething problems with the equipment but you expect that don’t you?”

“It’s a good system - I feel more secure using a PIN number than my signature”

“Using a PIN is definitely quicker than signing”

“I mean, it’s no different from using a cash point, is it?”

“It’s been everywhere - press, local radio...”
The retailer experience

The experience of retailers participating in the Northampton trial will help other retailers across the country to implement chip and PIN successfully. By sharing their results openly, trial retailers have provided detailed information on how to avoid some of the potential pitfalls and how to plan for and implement chip and PIN realistically. There are many benefits for retailers in introducing chip and PIN, from security to customer service advantages. The key issue now for retailers is when they will start planning with a view to implementation.

Overall, the Northampton trial proved that chip and PIN works. Major retailers did encounter teething problems, which were of the same magnitude as they would usually encounter for any technology project of this size. Teething problems were usually uncovered quickly and resolved within a week or two and customers and retail staff reacted enthusiastically.

A more detailed report aimed specifically at helping retailers plan and implement chip and PIN (“Rolling out chip and PIN: a retailer guide to lessons from the Northampton trial”) is available to download as a PDF document free of charge from www.chipandpin.co.uk.

Time is critical

If there is one key lesson for retailers from the trial, it is the need to engage early with chip and PIN. Time is a crucial factor. Allowing enough time for planning, testing, approvals, training and implementation is critical to success. As a minimum, retailers who own their own integrated point-of-sale equipment will need to allow up to 30 weeks for the planning, procurement and implementation processes including the preparation of the financial case for changing to the new technology. The time needed will depend on the complexity of a retailer’s systems and the level of integration required.

Team work

● Trial participants found many delays could be attributed to poor communication between the key parties - the retailers themselves, suppliers and the banks. Working closely and communicating well with everyone involved was critical.

Consider people with disabilities

● Retailers should think well ahead about access for people with disabilities, for example how PIN pads are located and positioned in-store. The Chip and PIN Programme has consulted with many disability groups and the Disability Rights Commission (DRC) to help retailers ensure they meet their responsibilities under the Disability Discrimination Act.

Training is critical but easy to learn

● Cardholders will use checkout staff as the first port of call for any questions they might have. The trial confirmed that training was crucial in implementing chip and PIN and ensuring customers had a positive shopping experience. Training should also specifically address any differing needs of disabled customers

● Training doesn’t need to take long for each employee. Many retailers found that implementing effective cashier and staff training could be accomplished in as little as 15 minutes per individual. Once trained, retail staff did not need to perform many transactions before becoming fully competent. A small and steady trickle of chip and PIN transactions (about three per shift in a major supermarket) was enough to get them proficient and to operate effectively at the checkout.

● Some retailers found that there was a tendency among a few of their staff to continue using the old technology by getting customers to sign. In these instances, retailers should pay particular attention to the monitoring of their chip and PIN implementation to ensure transactions are processed appropriately.

Transaction times are good

● With both stand-alone terminals and integrated POS systems, retailers experienced no adverse impact on customer service, as queuing times were not increased by the introduction of chip and PIN. As the trial progressed, chip and PIN transaction times reduced as staff and customers became more familiar with the new system.

During the trial it was demonstrated that chip and PIN can be faster than magnetic stripe (for example, one supermarket achieved an average saving of four seconds per chip and PIN transaction). However, precise transaction times varied by retailer with some finding chip and PIN to be quicker than magnetic stripe transactions while others found that both systems took broadly the same amount of time.

Privacy is a concern

● A small proportion of customers were concerned about privacy when they entered their PIN. Retailers can help by making sure privacy shields are used properly and that PIN pads are positioned correctly, which is as close to horizontal as possible. If PIN pads are wireless or used with wires, retailers should encourage customers to move them to a position where they feel most secure. Customers can also be shown how to shield PIN pads themselves for extra security.

Key lessons from the trial: retailers

● Customers and staff both adapted quickly and enthusiastically

● Time is critical for retailers implementing chip and PIN; testing and approval was often underestimated

● Retailers should consider the needs of people with disabilities in their planning phase

● Privacy is a key concern for customers and retailers need to ensure they take this into account

● Overall, the Northampton trial proved that chip and PIN works. Major retailers did encounter teething problems, which were of the same magnitude as they would usually encounter for any technology project of this kind. Teething problems were dealt with quickly

● Training is critical but does not take long for each employee

● Transaction times are good and reductions were achieved in trial. In the tracking research, no customers said it took them longer to pay

● Privacy is a key concern for customers and retailers need to ensure they take this into account.

Case study: supermarkets

Four major supermarkets took part in the trial - ASDA, Morrisons, Safeway and Tesco. Implementation went well in each. Staff and customer reaction was good and transaction times positive.

Consumers could see real benefits as Bryan Wisker, customer focus manager at ASDA’s store in Corby explains: “As well as the obvious security benefits it offers customers, the new system saves them time and hassle.”

Graham Pye, store manager of Safeway, Kettering Road highlights the simplicity of the system: “Our customers seem to be quite comfortable with entering a PIN instead of signing their name and people are certainly keen that it foil the fraudsters.”

“Credit card fraud is an important issue for customers,” says Chris Myton, service manager at Tesco Northampton South. “Not only does chip and PIN cut down on the opportunity for fraud, but there is increased accuracy of the card readers and cards. This helps us reduce time customers spend at the checkout and improves our customer service.”

Andy Low, store general manager for Morrisons in Northampton said: “We’re encouraged by the way in which the PIN payment method has been welcomed at our store. Both our checkout staff and customers seem equally at home when it comes to the use of the PIN method of payment.”
Banks, building societies and card companies

Chip and PIN is the biggest change in the way that we pay for things since decimalisation. This large and complex project demanded unprecedented collaboration between the UK’s banks, building societies and retailers in the Northampton trial. In the trial, the banks and building societies worked on two levels, as acquirers and card issuers.

- Acquirers are banks that process a retailer’s card transactions. Acquiring banks worked in the trial to install equipment with around 960 retailers who have bank-owned terminals. They also worked closely with retailers who owned their own integrated point-of-sale equipment.

- The card issuers had issued more than 200,000 PIN-enabled credit and debit cards by the end of the trial. Chip and PIN card transactions grew steadily throughout the trial with over 167,000 successful transactions by the end. The number of declined transactions was normal, but in addition there were some minor configuration glitches which were easily corrected; retailers were almost always able to proceed with the transaction using other means.

In addition, most issuers upgraded cash machines during the trial so they were able to offer PIN services. This allowed cardholders to change their PINs and unlock their cards at cash machines. In total, 173 cash machines were upgraded in this way in the trial.

Cash machines
- The rollout of PIN services went well with PIN services proving to be reliable
- Cardholders who do not normally use a cash machine were slightly slower at adjusting to the idea of entering their PIN when paying
- Cash machines are a crucial component of the new chip and PIN infrastructure allowing cardholders to select their preferred PIN.

Acquirers
- The trial provided a crucial opportunity for acquirers and card schemes to test and refine their approvals processes for retailers’ point-of-sale equipment. During the trial, improvements were identified including a tightening of timescales
- Some retailers experienced teething problems when they first went live and acquirers should ensure that appropriate configuration checks are performed whenever a major retailer switches on
- During the trial some acquirers also refined their training and installation materials for retailers with bank-owned terminals. As a result retailers activated the new equipment more quickly after it was delivered
- The trial demonstrated that significant volumes of bank-owned terminals could be deployed over a short period.

General lessons from the trial
- From the point of view of the banks and building societies, the trial was a success; it confirmed that the volume of cards to be issued and terminals placed for rollout is achievable
- The technology worked successfully and was robust, stable and reliable. A few technical issues were discovered, usually in the first few days after switching over. During the trial, 55 ‘incidents’ were recorded out of a total of 167,000 chip and PIN transactions
- The vast majority of technical issues were resolved very quickly. A few, more serious incidents took up to a few weeks to resolve. No issues that could not be fixed for rollout occurred
- The effort placed by banks in testing the technology outside the public arena (in closed trials prior to the public launch in Northampton) was a key factor in delivering a successful trial.

Card issuance
- Issuing the new cards in Northampton went smoothly
- As expected, card issuers face a slightly greater challenge with credit rather than debit cards. Most cardholders are used to using a PIN with debit cards, for example, when withdrawing cash at cash machines. Fewer people were aware of the PIN for their credit card
- Credit card holders and those who do not use cash machines will benefit from special attention during the national rollout of chip and PIN.

Key lessons from the trial: banks and building societies
- The trial confirmed that rollout targets for the banks are achievable
- The technology worked, but the extensive closed trials carried out before the public trial were essential; some elements of these closed trials will need to be continued into rollout
- Credit cards are a slightly bigger challenge than debit cards as fewer people know their credit card PIN
- People who do not use cash machines also found it a bit harder to adapt to using a PIN and will receive special attention
- PIN services at cash machines are a crucial element.

Case study: banks and building societies
The banks and building societies found customers made the switch over to chip and PIN comfortably. The trial showed that when customers become aware of chip and PIN they actively wanted the new cards and to use them quickly. Going forward to rollout, there will be a need to reassure customers that they will get one of the new cards in due course, usually as their cards expire, although timing will vary between each card issuer.

Archie Kane, chairman of APACS (the Association for Payment Clearing Services) and group executive director of Lloyds TSB says: “For the banking industry the trial was a great success. Its implementation went very smoothly and we found cardholders had little problem making the change. We were also delighted to find that there was a clear demand from cardholders not involved in the trial to find out when they will get one of the new cards.

As a result the challenge for us as an industry will be to ensure we manage our customers’ expectations. The scale of this project - which involves upgrading over 120 million UK cards – means it can’t be done overnight. This means each card issuer will have its own timetable for rollout - customers don’t need to request the cards as they will get them in due course with full instructions. Once they have a new card they will find they are increasingly prompted to pay by PIN instead of signature when shopping as more and more retailers switch on.”
Chip and PIN technology suppliers

Chip and PIN is a large, complex project and it needs the involvement of a wide range of suppliers. There’s an opportunity for large, small and specialist companies working together.

For large retailers, chip and PIN is a complex integration project involving front-end and back-end systems, hardware and software, operations and training. For some smaller and medium-sized retailers, it should be a much simpler exercise involving procurement of a standard package from a supplier with some limited integration with existing systems. As today, banks will propose suitable terminals that smaller retailers can buy, lease or rent.

Buying chip and PIN is a bit like buying a hi-fi. You can buy it as separate components or as one packaged system. Separate components can offer more flexibility but can also mean harder work and more resource for the retailer. There is no right answer and there will be many options to suit each retailer, depending on their budget and other priorities.

Certification

- Certification is a big issue. Every piece of hardware and software must be approved, and in addition, the particular configuration used by the retailer must be certified by the acquiring bank.

“We believe that retailers do not want to become involved with the intricacies of the EMV specifications, and this is why we designed a PIN pad with all the EMV functions integrated in it. We have used the trial to learn how to deploy this PIN pad in a wide range of different retail environments.”

- In the trial, suppliers were obviously new to the certification process and some initially found it confusing and time-consuming.
- It is vital that new suppliers of chip and PIN solutions familiarise themselves with the certification processes. At a minimum, they should obtain the Guideline “Certification Process Description” which describes the various certification processes run for POS devices, and the Recommendation called “PIN pad Evaluation”. These documents are available by registering with the Chip and PIN Programme at www.chipandpin.co.uk.
- Each part of the certification process has its own timescales. It is easy to underestimate the time required for certification so starting the process as early as possible and booking a test slot at an accredited laboratory as soon as realistic dates can be given is important.
- Other good sources of information are EMVCo (www.emvco.com), www.corporate.visa.com and MasterCard “M/Chip Functional Architecture for Debit and Credit” (obtainable through acquiring banks).

Suppliers should encourage retailers to act now

- It is also crucial that technology suppliers encourage their retailer customers to consider implementing chip and PIN as soon as possible otherwise there is a danger of bottlenecks forming during 2004 if everyone tries to implement at the same time.
- Suppliers of point-of-sale software should discuss requirements with retailers and should seek out compatible solutions with which they can integrate. This needs to be done very soon, in order to allow the retailers to meet the liability shift deadline.
- Suppliers should discuss the needs of people with disabilities with retailers to make sure that suitable provisions are worked into each solution.

Suppliers should:

- Register with the Chip and PIN Programme at www.chipandpin.co.uk to gain access to a private, closed-user site to download participant documentation and receive the latest news as soon as it breaks.
- Take part in online ‘ask the expert’ forums about the Chip and PIN Programme, including current issues and topics.
- Direct retailers to the website, and use the participant documentation, to ensure that retailers are getting the most accurate, up-to-date information.

Key lessons from the trial: technology suppliers

- There are opportunities for all types of suppliers – large and small – working together.
- Certification is a big issue and can initially be confusing and time consuming.
- Suppliers should encourage retailers to consider a move to chip and PIN without delay to avoid a possible bottleneck in 2004.
- Suppliers should register with the Chip and PIN Programme.

Case study: hospitality

Restaurants, pubs and hotels took part in the trial, testing a variety of solutions. Flexibility and security were the most important elements. Scottish & Newcastle Retail, McDonalds and the Blue Plate Café found chip and PIN working well.

Steve White, Systems Manager at Scottish & Newcastle Retail says: “Installing chip and PIN for the hospitality industry is complex because of the huge variety of pubs and restaurants. A one size fits all approach doesn’t work as all solutions have to be individually crafted to take into consideration the environment and its customers. We decided to trial a range of solutions across 22 pubs including both fixed and wireless PIN pads. We learnt a lot for rollout and generally found that customers liked the new system.”

American-style restaurant, The Blue Plate Café, has a bank-owned terminal and used wireless PIN pads during the trial. Manager, Terry York says: “It’s been great to be able to try something so new so early. It generated a lot of interest with customers and we’ve had no big problems. We now go to the table for customers to pay so they are happy they never lose sight of their cards.”

“McDonald’s has a very challenging environment in that any card system must be quick to operate and with high reliability,” says McDonald’s project accountant, Ryan Whittaker. “The trial has been useful, with no adverse customer reaction, and McDonald’s looks forward to the wider use of PIN rather than the fraud-prone signature. The initial results show the chip to be more reliable than the magnetic stripe but with a need to speed up the reading of and dialog with the card.”
What the media said

During the trial, media interest was very intense. A large number of journalists visited Northampton including those from national and local press, TV and radio. There was lots of coverage - press articles, television and radio news - which was broadly very positive, accurate and helped cardholders understand the changes coming in.

Case study: on the high street

A number of big-name high street retailers took part in the chip and PIN trial including The Link (Dixons), Marks and Spencer, Next, Vodafone and Wilkinson. They were delighted at the enthusiasm of their customers and staff.

Eddie Clerck, System Development Controller at Wilkinson says: “We found that both our own team members and customers adapted very well to the new system. Customers have generally been very favourable about chip and PIN because they recognise it is more secure for them, although a few were a little uncertain at first. A full in-house training programme was carried out with team members at the two branches to ensure that the launch was as smooth as possible for shoppers and for our own employees.”

Rebecca Saunders-Hyde, Vodafone store manager comments: “The trial was good for us. We won’t need to spend so much time checking signatures and card numbers with chip and PIN because they recognise it is more secure for them. We’ve had no real problems,” said Will. “My only concern has been how easy our PIN pad would be to use as customers just follow the prompts. “We’ve had no complaints from customers. The fact that chip and PIN is “an excellent idea.” Zsolt says that his PIN pad on a wire has been straightforward to use, remembering their PIN and had no slight worries about entering their PIN when entering their card, although a few were a little concerned. “I definitely think that chip and PIN is a good idea and so do my colleagues. We’ve all found it really easy to use as well.”

Case study: small retailers

Almost 1,000 smaller retailers who lease payment equipment from their banks took part in the Northampton trial. They found the switch to chip and PIN easy to make – no hassle and no additional cost.

Men’s clothes shop, Montague Jeffrey based in the centre of Northampton was part of the trial almost from the start. Manager, Jonathon Williams, was very enthusiastic: “I definitely think that chip and PIN is a good idea and so do my colleagues. We’ve all found it really easy to use as well.”

J onathon’s customers also adapted well. “Customers have found it easy to use. A couple of older customers were a little concerned about being overlooked when entering their PIN and had slight worries about remembering their PIN but everyone has been keen to use the new technology,” he says.

The story is similar at Blenders, a specialist tea and coffee merchant. Zsolt Benedek, the co-owner, thinks chip and PIN is “an excellent idea.” Zsolt says that his PIN pad on a wire has been straightforward to use as customers just follow the prompts. “We’ve had no complaints from customers. The fact that people have been quite so keen to try the new technology has been a surprise,” says Zsolt.

Over at Spinadisc, an independent record store on Northampton’s busiest shopping road, Abington Street, there were around 50 chip and PIN transactions a day by June. Manager, Will Raybould, said: “The trial has been going really well.” He also said that the equipment was very easy to install and that once up and running it was pretty self-explanatory.

“We’ve had no real problems,” said Will. “My only concern has been how easy our PIN pad would be for people with disabilities, particularly those in wheelchairs. I am hoping to replace it with a more flexible version after the trial as we want to accommodate all of our customers.”
**Frequently asked questions**

**General**

**What is chip and PIN?**
Chip and PIN is a new, more secure way to pay with a credit, debit or charge card. In the future you will simply tap in a four-digit number rather than sign a receipt to pay.

**What is a microchip?**
A microchip on your debit or credit card stores your card data more securely than the current magnetic stripe - it is much harder to counterfeit.

**What is PIN?**
A PIN (Personal Identification Number) is your 4-digit number which proves you are who you say you are. You tap in your PIN to verify a payment.

**Can I use my card in France?**
Yes. All your cards (even those with chips already in them) will need to be replaced in order to allow you to use your PIN when you pay. In most cases your cards will be replaced when they expire.

**What happens if I key in the wrong number?**
Don't worry if you key in the wrong number - you have three chances to get it right. If you enter the wrong number three times in a row your card will be "locked". This stops anyone who isn't you using your card and having more guesses at your PIN. If your card is locked please contact your card company who can re-advice you of your PIN and unlock your card.

**Will my new chip and PIN card still need to be signed on the reverse?**
Yes. You'll need this to use your cards in shops that are more used to the system this may speed up even more and chip and PIN could become a valuable weapon in cutting queue times.

**What do I do if a customer's card becomes locked at the point-of-sale?**
You should advise the customer to contact their card company. The customer may need to provide an alternative card or payment method for their transaction.

**How will I know if the transaction has been successful or declined?**
The terminal will give you these messages exactly as it does now. Authorisation will be a similar process but will only happen if the correct PIN has first been entered into the PIN pad.

**What will the fallback procedures be if either the point-of-sale terminal fails to read the chip or the customer forgets their PIN?**
When the chip and PIN system is introduced, there will be a transition period. If the chip fails, fallback to magnetic stripe and signature may be permitted. If the cardholder forgets their PIN, fallback to signature may be permitted. These options will be discontinued as soon as it is practical to do so.

**What is the liability shift?**
On 1st January 2005, there will be a change in the rules that determine liability for fraudulent card transactions. After that date retailers will become liable for losses where a chip and PIN card is used fraudulently at a terminal that is not chip and PIN enabled.

**Will point-of-sale (PoS) equipment need upgrading?**
If a retailer rents their point-of-sale equipment, their supplier will arrange for their equipment to be upgraded to support chip and PIN. If a retailer owns their own PoS equipment then they may 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.

**How much will this cost me?**
This depends whether your equipment is owned by yourselves or a third party. You will need to seek further information from your acquiring bank.

**What staff training will I need to provide?**
Each retailer should determine their own training requirements in conjunction with their acquiring bank. In addition to this the Programme Management Organisation (PMO) has put together a training video to aid staff training. Visit www.chipandpin.co.uk for details on how to order a copy.

**Cardholders**

**Will I have to have new cards?**
Yes. All your cards (even those with chips already in them) will need to be replaced in order to allow you to use your PIN when you pay. In most cases your cards will be replaced when they expire.

**What is positioning yourself in front of the PIN pad?**
Making sure you enter the PIN discreetly and positioning yourself in front of the PIN pad. Of course, you should never tell anyone your PIN, write it down or keep it with your card!

**Retailers**

**What will chip and PIN terminals be like?**
All terminals will need to have a chip card reader and a PIN pad for cardholders to key in their PIN. Some terminals will incorporate a PIN pad into their design and others will have a separate PIN pad connected to the terminal.

**What will using chip and PIN at the point-of-sale (POS) be like?**
Either the customer or the checkout staff will insert the chip and PIN card into a card reader attached to the point-of-sale terminal. The card reader will identify whether a card is PIN enabled. If it isn, the customer will be prompted to enter their PIN into a secure PIN pad, instead of signing a voucher.

**Will it be quicker?**
Once staff and customers get used to it chip and PIN appears to be quicker than signing in most retail environments. As staff and customers become more used to the system this may speed up even more and chip and PIN could become a valuable weapon in cutting queue times.

**Suppliers**

**How do I get certified for chip and PIN?**
You should obtain the document "Guideline G6 - Certification Process Description" describing the various certification processes operated by EMVCo, the card schemes, acquirers and APACS for PoS devices and "Recommendation 10 - PIN Pad Evaluation" as a minimum. These documents are available by registering with the Programme Management Organisation at www.chipandpin.co.uk

**When should I book for certification?**
It is essential to start the process as early as possible and to book a slot as soon as realistic dates can be given.

**What is the timescale for the rollout?**
The target is to have a high proportion of point-of-sale terminals converted by the end of 2004.

**How do I order a copy?**
This depends whether your equipment is owned by yourselves or a third party. You will need to seek further information from your acquiring bank.

**What staff training will I need to provide?**
Each retailer should determine their own training requirements in conjunction with their acquiring bank. In addition to this the Programme Management Organisation (PMO) has put together a training video to aid staff training. Visit www.chipandpin.co.uk for details on how to order a copy.
Chip and PIN - the future

Chip and PIN is the biggest change to the way we pay since decimalisation. The Northampton trial, the biggest of its kind in the world, was a crucial exercise in confirming that the UK was ready to undergo this fundamental change.

From every perspective – customers, retailers, banks and suppliers – the trial showed that there are no major barriers to the majority of transactions becoming chip and PIN by 2005. The UK Programme forms part of an international initiative to tackle plastic card fraud head-on. The UK timescales are in line with those for the rest of Europe. Elsewhere in the world, the switch to chip and PIN will generally happen a year later. Plans for the USA have yet to be announced.

Rollout begins in autumn 2003. New chip and PIN cards will predominantly be issued as existing cards reach their expiry dates and retailers are developing their own individual plans. Cardholders do not need to do anything now as banks will contact them when they are ready to issue new cards.

Useful contacts

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www.brc.org.uk

Association for Payment Clearing Services (APACS)
T: 020 7711 6200
F: 020 7256 5527
www.apacs.org.uk
www.cardwatch.org.uk

Disability Rights Commission (DRC)
T: 08457 622 633
F: 08457 778 878
www.drc-gb.org

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