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Dear Subscribers,

For the last couple of months ID theft has been big news, so its no surprise that this month ID Cards are back on the agenda of the UK Labour Party after their election win. Britain's first national ID card since the war will, in the Governments eyes, safeguard Britain's economic stability by combating fraud and tackling illegal immigration.

The Cards will carry biometric data but apart from facial any other form of biometric data, such as fingerprints or iris scans, has yet to be decided. The Queen in her speech to the British nation this month stated that legislation allowing national ID cards would now become a priority. This comes as a surprise because earlier in the month, Smart Card News reported that the UK national ID card scheme was under threat due to major problems that had occurred with the Cornish Key Smart Card.

The other hot topic at the moment is e-passports. Last month we reported that without greater flexibility in deadlines for European visitors to the US without a visa, there could form a major rift between European and US relation. In this month's edition the US Bureau of Public Affairs justifies and explain why all travelers under the Visa Waiver Program must present a machine readable passport to travel to the US without a visa. Randy Vanderhoof of the Smart Card Alliance also gives his views on e-passports and the ways in which the security of these e-passports can be heightened.

RFID technology has recently been used to track everything from lost US military weapons and supplies to escaped convicts. In this respect Dr David Everett of the Smart Card Group has reviewed, what he feels, is the best market research reports on RFID out there in the market. Smart Card News then delves further into the world of RFID and looks at the technology. Near Field Communication is a growing technology sponsored by Philips and Sony, which has evolved from RFID and in this edition we take a look at its growth and growing influenced within the Smart Card industry.

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# Sheffield Launches European Centre of Excellence for Smart Cards



Sheffield City Council has introduced 174,000 Smart Cards for all its citizens. In 2002, the UK council decided to take part in the European Commission's eEpoch Project, which was established to help develop security and interoperability between different Smart Card initiatives across Europe.

The key purpose of this project is to improve people's confidence and trust in online public services. Other aims of the project were to enable cross-border electronic signatures for legal purposes, to offer reliable identification based on data in government databases and to ensure secure authentication of the cardholder on the basis of PIN codes and biometrics.



The project was coordinated by Etra Research and Development, who organised all the meetings to update the members of the project, on the development of schemes. In addition to Sheffield's Smart Card scheme, other partners included national identity card scheme providers in Spain, Germany and Italy, the Spanish police, Israel's national insurance scheme and other cities including Bologna, in Italy, and Issy les Moulineaux, in France. The total project cost approximately 3 million euros, with 35% coming from the European Commission.

In 2003 Sheffield City Council's deployment of Smart Cards used for e-voting won them the EU Best Practice award at the 2003 eEurope Awards for eGovernment in Commo, Italy. Sheffield's strategy throughout the project has been to build upon the expertise locally available in Smart Card technology. As a result, and to ensure that major gains were made in the future compatibility of Smart Cards produced in Sheffield for the European market, Sheffield opened a new European Centre of Excellence for Smart Cards and SmartMedia.

Opened this month by the UK Head of e-Government, Ian Watmore, this new European Centre of Excellence for Smart Cards and SmartMedia, is a UK Smart Card resource hub for e-Government research, project management, consultancy, accreditation and training. Having established itself as a European leader in the field of Smart Cards and their use in the promotion of social inclusion, Sheffield City Council's e-Government and ICT Units plan to manage the centre which will further serve to expand their portfolio of successful EU funded projects and partnership links with other leaders in the field.

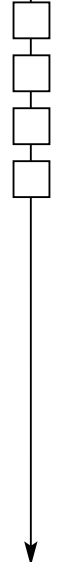


*Ian Watmore*

The centre is a coup for Sheffield's economic regeneration of the region and in addition to building strategic alliances with other local authorities nationwide; Sheffield has seen consolidation with the Home Office and the Cabinet Office, attracting considerable interest and support from organisations such as the DTI, the Department for Transport and the Transport Operators standardisation initiative, The Passport Office, Sun Microsystems, Accenture, EDS and the ex Royal Mail PKI unit.

UK Government and European projects linked to the Centre include the ODPM eInnovations project; LASSeO - Local Authority Smartcard Standards Organisation; four new eTen Projects; SmartCities - the European-wide Interest Group for cities with Smart Card schemes and e-Forum, working to develop an international network with SOCITM, the UK Society of Information Technology Managers.

Ken Bellamy, Head of e-government at Sheffield City Council, said "We have been delighted at the strong display of industry support for the initiative, particularly with our new established links with regional electronics companies, with whom we are extending demonstrations to local SMEs over the course of the year. The centre is not only raising Sheffield's reputation in the field but stimulating the local economy too."





## Smart Cards

### National ID Under Threat

A problem with Smart Card scanning machines has cast doubts over the UK's plans to introduce National ID cards. Trials of the Cornish Key Smart Card scheme, which cost the UK government £1.5 million has been withdrawn due to machines on buses not being able to read the cards and causing major inconveniences. The Smart Cards were allocated to around 50,000 people and were used to gain access to public services such as concessions on the buses and library membership. A recent review of the project also concluded that the card used in the pilot was not affordable in the longer term.

### Scotland's First City Pass

Visitors to Edinburgh will be able to see more of the city for less with the launch of the city's new European style visitor Smart Card. The Edinburgh Pass has been developed by VisitScotland, Edinburgh in conjunction with the Scottish Enterprise Edinburgh & Lothians, The City of Edinburgh Council and Applied Card Technologies Ltd.

### Yorkshire Travel Smart Card

A new Smart Card scheme allowing bus and train passengers to travel throughout South Yorkshire is being trialled next year after a funding package of £7m was provisionally agreed. The £7m scheme, known as Yorcard, will launch on three bus routes in Sheffield and on trains between Sheffield and Doncaster in the summer of 2006. Passengers along the chosen routes will be able to load cash credit or pre-paid tickets onto their Smart Cards, which can then be presented at automatic card readers when they get on or off buses or trains on the routes.

### Keycorp and Thales Sign Agreement

Keycorp Limited and Thales have achieved a major milestone in their relationship by signing a distribution agreement. The announcement follows the signing in January of a Memorandum of Understanding in which the companies agreed to cooperate in the development, manufacture and sale of highly secure payment systems.

The distribution agreement represents the first concrete stage of that process and reinforces the long-term strategic vision shared by both companies. Its objective is to position Thales and Keycorp among the top three in the global payments market.

### Ticketing in Scotland Moves Ahead

Ecebs Limited has announced that the Scottish Executive have ordered 6500 ISAMs (ITSO Security Application Modules) to deliver a transport application on the new Scottish citizens voluntary entitlement card. The Scottish Executive is seeking to develop and modernise all aspects of public transport delivery in Scotland. These responsibilities will be part of the remit of the new Scottish Transport Agency. ISAMs are required in an ITSO system to provide the trust upon which the scheme is based. The purchase of these ISAMs is the first step in implementing an ITSO-based scheme across Scotland.

### New GlobalPlatform Specification

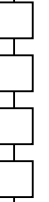
GlobalPlatform has announced a new device specification released - GPD/STIP v2.2 - which defines the basic functionality required by Smart Card accepting devices in order to support mobile services. In addition to outlining the basic functions of a device required to support mobile services, the mobile definition - otherwise known as the 'GlobalPlatform Mobile Phone Profile' - also introduces an Application Programming Interface (API) for contactless cards. GPD/STIP v2.2 also defines functionality for devices used for Electronic Fund Transfer at Point of Sale (EFT/POS) applications, via the introduction of a dedicated GlobalPlatform EFT/POS Profile.

### Gemplus Buys Setec

Gemplus International has agreed to buy Finnish Smart Card company, Setec Oy (Setec). A maximum of 30 million will be paid for Setec depending on a defined order backlog at the end of 2005. The purchase is subject to certain standard closing conditions, including regulatory clearance, and it is expected to be closed by June 2005.

### First EEPROM Dual Smart Card IC

Samsung Electronics Co Ltd, has developed two dual interface Smart Card ICs - product names S3CC9GC and S3CC9GW with 72kB and 144kB of embedded Electrically Erasable and Programmable ROM (EEPROMs) respectively. These Smart Card ICs meet Smart Card IC specifications for financial transactions and can store all types of personal and biological data that will eventually be required for electronic passports. According to market research firm, Dataquest, the demand for combi cards is expected to rise 50% from 250 million to 516 million by 2008.





## Contactless Cards for Taipei

ASK's contract has been renewed by Taipei Smart Card Corporation to provide contactless cards based on Mifare chips with new cheerful logos. TSCC involves Taipei City government, Taipei Rapid Transit Corporation, 13 private bus companies and several banks. Launched in 2000 when ASK made a first delivery of 500,000 cards, the project gradually spread over the city for mass transit in buses, metros, public off-road car parking lots and taxis.

## South African Smart ID Card

South African Safety and Security Minister Charles Nqakula has announced that all citizens of South Africa will be issued with Smart Identity Cards in 2006 to keep track of citizens' movements. These cards will replace the old green bar-coded ID books. Smart Cards would also be issued to some 40,000 legal refugees in South Africa.

## Smart Cards for Indians Abroad

Overseas Indian affairs ministry (OIA), headed by Jagdish Tytler, has announced they are planning to issue Smart Cards to Indian workers migrating abroad. The sudden increase in demand for Indian workers abroad and the problems faced by them - the most recent being in Malaysia and West Asia - have prompted the government to frame a policy in this regard.

The ministry plans to provide emigrant workers with an e-Smart Card that will contain information about them, their passport details and contact numbers. It will be accessible anywhere in the world and usable as an identity document. This is seen as a solution to smuggling of workers, says OIA secretary Krishna Kumar.

## Hampshire Selects ActivCard

Police officers, staff and partner agencies from the Criminal Justice System within Hampshire Constabulary are to use the ActivCard Enterprise Access Card solution for integrated physical and logical access. Hampshire Constabulary serves a population of over 1.8 million people and covers 1,500 square miles of Hampshire and the Isle of Wight.

## ID Data Edge Ahead in Bracknell

ID Data has been awarded a contract to provide Bracknell Forest Borough Council with a managed service for the councils multi-application edge Smart Card.

Under the 3 year contract ID Data will supply CardBASE MASCOT and ChipPurse software systems, Smart Cards, card personalisation, fulfilment and issuing services together with support of all user terminals and call center services for the edge card.

## Trüb Joins the MULTOS Consortium

Trüb has joined the MULTOS Consortium. As a Systems member, Trüb will contribute to the MULTOS consortium's business activities, and be involved in the future development of guidelines relating to off-card data preparation and personalisation of applications for MULTOS and MULTOS step/one cards.

## First Certified Security ID Printer

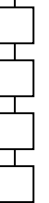
Trüb AG has become the first card and eDatapage security printer in the world to ever pass through and successfully conclude this procedure implemented by the "International Confederation for Printing and Allied Industries" (Intergraf). Trüb was awarded the highest possible qualification as a security printer. It attests that the strict rules and regulations pertaining to product and production security have been fulfilled and that they satisfy the auditors.

## Medicare Card Sparks Privacy Fears

The Australian Federal government has announced they plan to roll out an all-in-one Medicare Smart Card across Australia. This new Medicare Smart Card scheme is currently being trailed in Tasmania could go nationwide in an attempt to reduce paperwork in major health and welfare agencies. The card will not only provide access to a range of government services, it will also contain highly sensitive information about the health records of individuals. However there are fears that this new Smart Card could act as a default ID card, fuelling fears over privacy.

## Termination of e-Passport Program

SuperCom, Ltd has announced that the U.S. Government Printing Office (GPO) issued a Notice of Termination for Convenience involving the Company's participation in the three-phase testing of technology for a new electronic passport. While an earlier termination notice was withdrawn after discussions with the U.S. Government, the Company's attempts to persuade the Government to withdraw the current termination notice have been unsuccessful to date. The notice terminates SuperCom's contract awards for the Electronic Passport Program.





## MoMo Smart Card to be Rolled Out

HarvestNet Sdn Bhd plans to roll out 100,000 units of their Money in the Mobile (MoMo) Smart Card. Jointly developed with their Japanese partner, NEC Soft Ltd, the MoMo Smart Card uses a contactless IC chip technology and Radio Frequency Identification (RFID) developed by Sony. The card is about one sixth of a normal credit card and can be used as part of most mobile devices such as Mobile Phones, PDAs, MP3 Player and wearable accessories.

## EMV Migration Fuels Ingenico Boom

Since the beginning of the 2005, business for Ingenico has been booming in Spain and Portugal. After obtaining four major certifications in the area of EMV migration, Ingenico received large-scale orders from CECA and SERMEPA, two major groups of Spanish banks. The two groups have ordered over 50,000 electronic payment terminals (EPT) deliverable in the first half of 2005. All told, over a million EPTs will be affected by EMV migration.

In Spain, the EPT installed base includes over 950,000 units (including 600,000 Ingenico terminals). The country boasts the highest ratio of EPTs to population in Europe, i.e. 1 terminal per 42 inhabitants, as opposed to a European average of 1 per 75. Portugal, a country totalling 125,000 terminals, is in line with this average.

## VeriFone Gains Barclaycard Approval

VeriFone Inc has received full Barclaycard Business approval for their YESpay's end-to-end Chip and PIN bureau service, EMBOSS, with VeriFone's SC 5000 secure consumer-facing payment solution. YESpay's EMBOSS helps retailers migrate their existing EPOS estates to Chip and PIN at a cost equivalent to a bank-owned terminal.

## ActivCard/MasterCard Agreement

ActivCard Corp has signed an agreement with MasterCard to deliver the first Chip Authentication Program (CAP) approved authentication server that is capable of operating over multiple channels. MasterCard's member banks will use the ActivCard 4TRESS Authentication Server to authenticate users and transactions in non face-to-face environments, such as e-commerce, online and phone banking, Mail Order/Telephone Order (MO/TO) and m-commerce.

## S-Token Application for MULTOS

Euro-Smartict has announced the successful realisation of the S-Token application on MULTOS Smart Cards. S-Token can be used in a standalone application or an active-X component for accessing the Smart Card. The cardholder simply inserts the Smart Card into the reader, enters the appropriate PIN and challenge/response mechanism is calculated.

## Cheshire Lead the Way with ITSO

Cheshire County Council has become the first authority to receive Smart Card certification from ITSO following testing at Integri. The "Cheshire Travelcard" test samples were produced from pre-approved Mifare 4K cards, supplied by Magnadata, and loaded with an ITSO stored travel product by Cheshire County Council on equipment supplied by ESP System.

## Incard Achieves SmartTrust WIB 1.3

Incard, a provider of Smart Card solutions, has successfully achieved SmartTrust WIBC 1.3 certification for its Mokard 64k SIM. Coupling full SmartTrust WIB functionality with full Java card 2.2.1 technology and Global Platform 2.1 compliance. Incard is now one of the few company's that can extend its comprehensive product portfolio with a card offer that meets the requirements of even the most demanding GSM, UMTS and CDMA market.

## E.ON Chooses Omnikey Readers

Omnikey and Giesecke & Devrient (G&D) have announced they are to provide E.ON Energie AG with Smart Card technology and Smart Card readers. The Smart Card used in conjunction with the Omnikey CardMan 3121 and CardMan 4040 readers will enable the employees of E.ON Energie to log onto their computers, gain secure access to personal data on the corporate intranet and encrypt emails.

## DoCoMo "Mobile Wallet" Series

NTT DoCoMo, Inc has developed the 3G FOMA 901iS series, five handsets equipped for mobile-wallet e-money, ticketing and other handy mobile smart-card functions. DoCoMo expects the new series to fuel the continued nationwide expansion of convenient mobile-wallet services. The 901iS is also expected to further boost the popularity of handsets equipped with FeliCa IC card technology, which have sold more than 3.34 million units to date.





The 901iS is DoCoMo's first series in which all models are equipped for mobile-wallet functions. Approximately 20,000 stores are currently offering the mobile-wallet services nationwide

## Biometrics

### BIO-key Wins US Biometric Contract

BIO-key International, Inc have been awarded a contract by Belknap County, NH for BIO-key's Pocket-Blue handheld mobile product and VST, BIO-key's biometric fingerprint matching technology for network and system security. This award is part of Belknap County's expansion of the mobile data solution to address recommendations from the Department of Homeland Security to share criminal information regionally and across agencies.

### Pilot Multi-Biometric Visas

SAGEM was chosen to integrate a pilot test of Europe-wide multi-biometric visas. Known as Biodev, the trial is scheduled to begin in the first half of 2005 and will last one year. SAGEM will equip several consulates abroad as well as European border posts. SAGEM is supplying the enrolment stations and the multi-biometric technology (facial and fingerprint recognition) necessary to create and personalise the travel documents.

The personalisation of the contactless chips complies with ICAO (International Civil Aviation Organisation) standards, which will soon be applied to future secure passports. In particular, the technology protects against identity theft and fraud. The pilot test will also allow authorities to verify whether or not documents issued and personalised with different equipment by clients and suppliers in five European countries are interoperable.

### VeriFone/Pay By Touch Partnership

VeriFone Holdings, Inc. has announced it has signed a joint development and marketing agreement with Pay By Touch, aimed at furthering the adoption of consumer biometric payment solutions. Under the agreement, the companies will work together to enhance the security, encryption and compatibility of each other's solutions. In addition, both companies will offer the Pay By Touch consumer biometric payment service as an integrated offering with VeriFone's family of payment solutions.

Both companies will also collaborate on new product development, marketing, and sales of the integrated solutions.

### Palm Vein for Tokyo Hospital

Fujitsu Limited has announced its development of a room access security system utilising its contactless palm vein authentication technology, for room access security of the Department of Planning, Information and Management of the University of Tokyo Hospital. The University of Tokyo Hospital's deployment represents the world's first implementation of Fujitsu's palm vein authentication technology by a university or hospital for room access security.

### Utah Stores Offer Biometric Payments

Residents of Utah, USA, can now conveniently and securely pay for goods with the touch of their finger at Combos convenience stores in Provo and Spanish Fork, Utah using BioPay technology. BioPay uses a person's unique finger image and their chosen PIN# (typically their phone number) to authorise a debit from their checking account.

Once enrolled, the customer can pay with their finger at any other BioPay payments location across the United States. Combos installed BioPay in February 2005 and have processed over 1,000 biometric payments in slightly over 2 months. Customer enrollments have increased by 30% per month in the latest month.

## Radio Frequency Identification

### The US Get Smart over Lost Weapons

The US Pentagon has announced they are planning to phase in Radio Frequency Identification (RFID) chips to help track and locate weapons and supplies. In 2002 the US lost track of 1.2 billion US dollars in weapons and supplies that were sent to Iraq. The initial phase will start with the two largest US supply depots in Pennsylvania and California using the smart chips and then rolled out to the other 17 military depots throughout the US.

The Pentagon aims to have the smart chip technology fully in place by 2007. Under the rules, non-profit organisations will also be required to use the chips, including charities that rely on the Air Force cargo planes to deliver disaster relief supplies.





## RFID Contract for Prisoner Tracking

Alanco Technologies, Inc has been awarded a contract to develop and provide modified TSI PRISM inmate tracking technology for a prison pilot project in Europe.

The solution combines Alanco's TSI PRISM and AeroScout, Inc.'s WiFi-based Real Time Locating Services (RTLS) technology. The pilot program, which consists of a four-company consortium, requires a wireless system transmitting over the European-approved 2.4 gigahertz (GHz) band rather than the 900 megahertz (MHz) band utilised in Alanco's U.S.A. TSI PRISM installations.

## Boeing Support DoD RFID

Boeing has announced they have become the first defence contractor to support a US Department of Defense (DoD) initiative to use Radio Frequency Identification (RFID) to better manage its receipt of goods from the defence industry. A Boeing shipment of F-15 parts sent in late April was the first to transmit data electronically from a boxed shipment through the DoD's e-commerce system, Wide Area Workflow, using RFID technology.

The move to RFID facilitates more refined and smarter asset visibility, and efficient tracking capabilities for the DoD, which increases the speed and accuracy of deliveries of critical items to military troops across the globe.

## New USA Rafsec RFID Facility

RFID tag manufacturer UPM Rafsec is to build a new RFID tag production facility in Fletcher, North Carolina, USA. The investment further strengthens UPM Rafsec's position in the North American market where demand for EPC (electronic product code) compliant RFID tags is growing dramatically.

The new factory, located in the vicinity of Rafsec's US pressure sensitive labelstock production facility, will specialise in the production of high-quality UHF (ultra high frequency) tags.

The investment is part of a 24 million US dollars (19 million euros) investment program which, when fully implemented, will enable an annual capacity of one billion RFID tags. The new factory will begin operations in the final quarter of 2005.

## Market in Figures

### Oberthur's First Quarter 2005 sales

Oberthur Card Systems sales for the first quarter 2005 were 118.1 million euros up from 2004 figures of 102.8 million euros. During the first three months of the year, the company delivered 43 million micro-processor cards compared to 34 million in Q1 2004, a 27% increase year-on-year.

With 19.6 million cards delivered, vs. 20.5 million the previous year, sales of payment cards - 31.7 million euros - decreased by 6.5% versus the first quarter 2004, which had been marked by an exceptional card re-issue program in Switzerland. Notwithstanding these volumes, shipments in the payment market grew by 10% on a year-on-year basis.

The sales in the Identity & Security segments reflect the first successes of Oberthur Card Systems' unique positioning in this sector with an increase of 80.8% compared to Q1 2004. Most of the increase for this segment comes from the Pay-TV market and sales of identification cards. The company shipped 3.6 million cards compared to 1.5 million during Q1 2004 - up 139.4% in volume year-on-year.

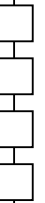
### Gemplus Reports 1st Quarter 2005

Gemplus has reported the results for the first quarter ended March 31, 2005. Their net sales down 2.1% year-on-year from 197.3 million euros in 2004 to 193.1 million euros, impacted by extraordinarily strong sales in the quarter a year ago. Gross profit was also up at a rate of 61.9 million euros compared to 2004 where the figure was 61.3 million euros.

### G & D Release Annual Sales Report

Giesecke & Devrient (G&D) have increased their sales by 10.5%, to 1.16 billion euros. Earnings rose by 40%, reaching 69.7 million euros. Net profit was 38.4 million euros, equivalent to an increase of 36% over the previous year's 28.2 million euros. G&D generated around 85% of its sales abroad.

The increase in sales in 2004 was sustained chiefly by the card segment. While sales in the Banknote and Paper / Currency Processing and Services segment, at 588 million euros, remained stable at the previous year's level, the Card segment achieved a gain of 24%, to 568 million euros.





## SCM Reports First Quarter 2005

SCM Microsystems, Inc has announced results for the first quarter ended March 31, 2005. Revenues in the first quarter of 2005 were 10.8 million dollars, within the range of management guidance of 8 million dollars to 11 million dollars. This compares with revenues of 13.2 million dollars in the first quarter of 2004. By product segment, first quarter 2005 revenues included 4.0 million dollars from sales of Digital TV security modules, 5.0 million dollars from sales of Smart Card readers and other products for PC and network security, and 1.7 million dollars from sales of OEM flash media reader technology.

## SAFLINK Reports First Quarter 2005

SAFLINK Corporation have reported their financial results for its first quarter ended March 31, 2005. Revenue for the first quarter of 2005 was 2.2 million dollars, compared to 2.3 million dollars for the fourth quarter of 2004 and 802,000 dollars for the first quarter of 2004. The Company reported a net loss of 6.8 million dollars in the first quarter of 2005, compared to a net loss of 6.6 million dollars, in the fourth quarter of 2004, and a net loss of 2.0 million dollars, in the first quarter of 2004.

## Infineon Reports Second Quarter 2005

Infineon report results of their second quarter and first half of financial year 2005. Their second quarter revenues were 1.61 billion euros, down 12% sequentially. Net loss in the second quarter was 114 million euros, down from net income of Euro 142 million sequentially; second quarter EBIT decreased to negative 117 million euros from positive 211 million euros in the prior quarter. Total revenues for the first half of financial year 2005 were Euro 3.42 billion, up 4% from 3.29 billion euros in the same period last year.

## Lipman Reports First Quarter 2005

Lipman Electronic Engineering Ltd has announced financial results for the first quarter ended March 31, 2005. For the first quarter of 2005, revenues were 54.2 million dollars, an increase of 69% over revenues of 32.1 million dollar for the first quarter of 2004. Our revenues increased due to the consolidation of Dione's operations, which were acquired in October 2004, as well as increased sales in Turkey, India, Latin America and the United States.

## On the Move

### New Board for Pay By Touch



Pay By Touch has announced that Davies B. Beller has joined the company as Executive Vice President, Chief Financial Officer.

Beller, who has been a member of the Pay By Touch Board of Directors since early 2004, will remain active on the Board as he moves into this new role with Pay By Touch, effective immediately.

Pay By Touch has also announced the addition of three members to its board of directors: Jack Penrod, Arthur J. Petrie, and Roy Speer. Each new member brings to Pay By Touch a high level of experience in corporate and entrepreneurial governance.

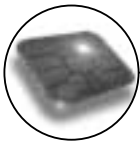
### Texas Expands Team

Texas Instruments Incorporated has announced the expansion of its RFID management team with the addition of three new director positions. The company has named Shawn A. Rogers, director of Wireless Commerce and Tag-it products; Mikael Ahlund, director of RFID Healthcare, and William A. Santini, director of technology development. TI's RFID division is expanding its upper management team as it prepares to launch its Electronic Product Code (EPC) Generation 2 UHF product line for retail and supply chain applications, and grow its RFID business in these emerging markets.

### New Managing Director for Pointsec

Martin Allen joins Pointsec in the UK as their new MD, succeeding Magnus Ahlberg, during a record year for sales and new customers which has so far seen a global growth of 60% compared with the previous year. In his last job Martin Allen drove sales across Europe for Lynuxworks a US-based company.





# Burgeoning SIM Use Sparks Expansion of Indian Smart Card Market

Three key mass market applications including subscriber identity module (SIM), driving licence and vehicle registration certificate and national ID cards are expected to power the expansion of the Indian Smart Card market. SIM in the mobile industry is expected to be the most prominent of these applications, continuing as the single most dominant segment for smart cards in India. The country commonly uses a global system for mobile (GSM) based mobile network, which requires the SIM. The rapid expansion of this segment, in turn, has been offering significant growth potential for Indian Smart Card manufacturers.



"Growth is likely to be fuelled by an increasing cellular requirement in small cities and rural areas. In particular, when private cellular operators foray into rural markets, the growth is expected to drive large SIM requirements," comments Frost & Sullivan Smart Cards Analyst Vihar Bhagwat.



Such positive trends are being reinforced by government policies. For instance, the recent decision to hike the foreign direct investment (FDI) limit up to 74.0% in the telecom sectors is set to boost the Smart Cards market. In 2004, the market share for SIM shipments was estimated at 89.5%. This dominance is expected to wane to some extent over the next five years following the strong performance of applications such as retail loyalty and identification.

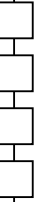
Among other markets gaining prominence are driving licences and vehicle registration certificates. Already, states such as Madhya Pradesh and Gujarat have indicated a keen interest for chip-based infrastructure for these applications. The growth prospects for Smart Cards deployment are expected to soar following the likely adoption of these schemes by other states. Such initiatives are being supported by efforts to develop a clear, uniform and interoperable system for such applications.

The year 2006 is likely to be a pivotal time for the Indian Smart Cards industry with the likely launch of pilot schemes for the national ID card project in 2005. Large-scale rollout is anticipated from 2007 with the project expected to result in the issue of over 600 million national ID cards. However, financial and operational considerations attached to this mammoth project are likely to hamper rapid growth.



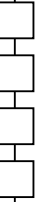
Overall, the Indian Smart Cards market is expected to expand rapidly both in terms of revenue and unit shipments. In revenue terms, the market is forecast to grow from 47.5 million US dollars in 2004 to 248.0 million US dollars by 2009. Unit shipments are to register an impressive annual average growth rate of 48.4%, expanding from 43.1 million units in 2004 to 310.0 million units. The lack of installed infrastructure in many Smart Card segments is likely to be advantageous to the wider deployment of Smart Card solutions. "In India, the infrastructure needed for successful Smart Card implementations is minimal and while this has prohibited growth, it also acts as a potential driving force," says Mr. Bhagwat. "It provides market participants with the opportunity to help customers realise the benefits of Smart Card solutions over non-Smart-Card alternatives, which in turn, is set to build its business case and generate awareness of its benefits." Retail loyalty, closed user group corporate segments and increasing mobile-to-mobile payments are all expected to support market growth.

At the same time, a large population base accompanied by an increase in consumption expenditure is likely to be a major factor sustaining the continued expansion of the Indian Smart Cards market. However, obstacles still remain. Among the key challenges that the Indian Smart Cards market have to contend with include the growth of non-subscriber identity module (SIM) - code division multiplex access (CDMA) mobile subscribers, with competition from cheaper alternative technologies and current operational systems also expected to have slow growth rates. Moreover payment applications is unlikely to develop as a major user segment in the near future.





# Alliance Supports Higher Security Levels for Electronic Passport



Smart Card Alliance Executive Director Randy Vanderhoof, speaking to a gathering of corporate travel executives, voiced the Smart Card industry's support of the US State Department's recent statements to begin strongly considering additional security measures including Basic Access Control (BAC) and shielding to protect personal data in passports equipped with contactless Smart Card technology. This approach will address concerns raised about the potential for skimming of personal data and remote eavesdropping on passport communications during usage.

"Officials from the State Department have indicated that they are now strongly considering the use of BAC in the US electronic passport, a security feature supported by contactless chip technology. We think that is the right approach," said Vanderhoof. "A number of organisations, in particular those representing the travel industry, have expressed concern that an electronic passport without access controls or encryption could potentially be used as a way to identify Americans traveling abroad. The use of BAC and encryption, coupled with protective shielding in the passport cover to prevent activation of an unopened passport by a high-power radio frequency reader, overcomes this concern while maintaining all of the added security features that the new passport is intended to have."



Randy Vanderhoof



With BAC, an optional security measure defined in the International Civil Aviation Organization (ICAO) specification, the communication of personal data by the contactless smart chip requires an extra step before that data is released. It requires keys derived from information on the printed data page to be processed within the secure contactless smart chip before the release of the passport data to any reader.

"The State Department has stayed true to its word that it would not make a final decision on the new passport technology until it was satisfied that no individuals would be placed at risk," added Vanderhoof. "This is an evolutionary process to test, evaluate and consider all options for the appropriate implementation of secure technology complying with ICAO specifications."

The move to electronic passports is a result of the realisation that today's paper-based passports can be too easily altered or falsified. Over 300,000 US passports have been reported lost or stolen as of April 2002. Executive Travel Associates, another travel industry organisation, cites a June 2004 report that there are more than 10 million missing passports, many of them from European countries.

By putting an electronic copy of passport information in a secure smart chip and including a biometric identifier, the information on the printed document can be verified quickly and provide higher assurance that the document is not a fake. The information on the chip is also digitally signed so it cannot be altered. When passport officials compare the printed passport, the information on the chip and the person in front of them, they can be sure of the authenticity of the document and its bearer.



Smart Card technology, both in contactless or contact forms, is widely recognised as having the strongest security features of any identity token technology and is the best choice for improving the security of travel documents. Contactless smart chip technology was chosen by ICAO for its reliability, convenience, security and its unique ability to be incorporated into existing travel documents manufactured worldwide. It is also a proven technology with more than 10 years of usage globally in a variety of demanding financial and identity applications.



# Future of Payments Lies in Your Hands

By Geoffrey Down, Managing Director, Savantor



*Geoffrey Down*

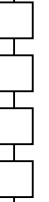
People world wide have been paying with plastic for decades, and the use of credit and debit cards has become the major payment device in the UK. The UK's payments association APACS says debit and credit card transactions hit a record high in December 2004, with an average of 220 transactions taking place per second.

However with the increasing option of carrying out day to day purchases and transactions online, research shows that 10% of all credit card payments are now made online - a five-fold increase since 1999 and a recent survey by broadband provider Pipex revealed that Britons are spending an average of £127 each a month making online purchases. As this growth continues, and increasingly transactions are carried out without the need for the actual presence of plastic, what will happen to the cards that have shaped the way we undertake our purchases?

**Mobile Payment:** The move towards contactless payments has already begun. Mobile phone manufacturer Nokia, for example, has released a shell for its series 3220 mobile phone that will enable consumers to use the handset for making contactless payments. The shell uses near field communications (NFC) technology and allows customers to make payments by pointing the phone at a point of sale terminal. Payment information, such as debit and credit card details, is stored in an integrated smart chip in the shell. This type of technology will inevitably take off with younger generations who are increasingly dependent on their mobiles, regarding them as essentials rather than luxuries. But what about the down sides of a near future with an increasing use of payment by mobile? We're all aware that mobile phone theft is rife in the UK. A 2002 Home office study revealed that more than 700,000 mobile phones were stolen in 2001, and as the number of people owning mobiles has grown so has this statistic. Therefore the theft or loss of a phone could also mean the loss of credit/debit card functions.

**Biometric payment systems:** So how else can payment be made without the use of cards? Japan's third largest bank, The Bank of Tokyo-Mitsubishi, will deploy a biometric security system based on vein-patterned recognition technology in branches nationwide in October 2005. The bank will start issuing Visa credit cards with embedded integrated circuits that contain customer vein pattern information and work with a system developed by Fujitsu. The cards function as cash cards, credit cards and as electronic money. Palm vein patterns are read whenever cardholders use ATMs or make transactions at bank counters. This vein pattern technology works by shining light in the near-infrared region (the infrared region closest to visible light) on customers' palms. The palms are held about 4cm above a scanner, which takes a snapshot of the palm, illuminating the vein patterns just below the skin. This unique pattern information becomes the basis for security applications. Biometric payment systems are most widely used by super markets, but they are also being pilot tested in several fast food restaurants and have applications at petrol stations and hotels as well. Customers register a fingerprint scan with a store or restaurant and enter their credit or debit card account numbers to set up their accounts. When it comes to making the purchases, customers place their fingers on the sensors for identity purposes and pay without ever having to show their cards.

In the UK last year Pay By Touch announced that the Oxford, Swindon and Gloucester Co-op will begin piloting its payment solution in three stores around Oxfordshire. Pay by Touch allows customers to pay for purchases using a simple, secure method of finger scanning at the point-of-sale, completely eliminating the need to carry cards, cash, loyalty cards or a chequebook. Finger imaging links the individual to an electronic wallet, which holds their financial and loyalty programme information. The initial enrolment process takes about a minute as customers put their finger on a reader, enter a code, and swipe the cards they want to use. The Pay By Touch finger scanning technology does not store actual fingerprints, instead it creates a set of geometric points that allow for a secure identity match at point of sale. The Malaysia government has bought the rights to the world's smallest microchip that can be embedded in everything from currencies to human bodies.





Measuring 0.5 of a square millimetre, and produced at less than 0.05 pence each, the chip, the size of a dot, uses the radio frequency identification (RFID) chip technology. The chip can also be inserted into the human body, animals, bullets, credit cards and other items for verification purposes, and can replace price bar codes used to tag products.

Biometrics are known to have problems inherent in their use, not least because most bodily readings vary significantly over time. Customer resistance is easy to understand, as no one likes having their bodies measured or having their personal data stored by commercial organisations. However, the need for better identification and authentication won't go away, and the wide range of possible biometric technologies is evidence of this. Finger print recognition is the most widely used and can be stored on a Smart Card or SIM card. Readers can even detect the presence of a pulse to counteract the possibility of amputation by criminals! Whilst we know fingerprints are unique and do not change throughout life, readings can be affected by dirt or cuts.

Iris scanning is an increasingly popular technology for applications where fingerprint recognition is not sufficiently secure. The iris is more complex and therefore more unique than a fingerprint. Some UK financial institutions have piloted the use of iris scanning at ATMs. The down side of this is that customers are often reluctant to have a laser light shining in their eyes. Voice authentication works by recognising characteristics of the human voice. It is promising as a low-to-medium-level identification technique that is particularly attractive for use with mobile phones, where the necessary hardware is already in place.

However, the quality of mobile phone microphones may not be good enough to support voice recognition, and the reliability of the technique in noisy environments is not proven. Hand geometry is an exciting technology. The main drawbacks are that the equipment is relatively large, and there are potential problems for people with arthritis, or who have lost a lot of weight since their data was recorded. There are other contenders such as Retina scanning and Facial recognition but no one technology has yet looked ready to dominate.

In most cases, you can improve the error rate on one of these criteria by adjusting the sensitivity of the measurements, and at the price of accepting a worse error rate on the other criteria. Then along came RFID chips. Whilst this technology started in retail as a stock tracking to replace bar codes they are increasingly being used in other areas. In the USA the CIO of Boston's CareGroup Healthcare System, has had himself chipped. The product is a VeriChip which carries a 16-digit ID number that can be matched to a medical database, allowing doctors to scan him and pull up his records. While he is apparently the first person to test an RFID chip for medical purposes, there are about 40 other people in the US with implanted VeriChips, who are testing them for ID and security-access purposes.

In the UK Kevin Warwick, the cybernetics professor at Reading University, has had an RFID chip implanted in order for a door entry system to recognise him and allow entry to his office, turn on lights etc without any physical intervention. He has also gone one step further and had a chip implanted into his nervous system to communicate directly with a computer and has managed to manipulate prosthetic limbs using this link. He has done this over the internet and has also managed to communicate via the PC with his wife who also had an implant. A true cyborg! So given that financial transactions require higher-than-average security requirements they should be controlled by asking customers for two things, selected from:

- Something they know (for example, a secret or password)
- Something they have (for example, a Smart Card)
- Something they are (a biometric).

With a credit/debit chip in your phone (something you have) and an RFID chip injected into your finger (something you are) you're covered!

**Conclusion:** Why would you not want to use this since it'll be cheaper and easier than having to carry around (and possibly forget) a national ID card or a wallet full of credit, membership, and other cards. You may have to accept being trackable, and be scanned constantly, but if it makes everyday life easier and more affordable - why not?





# Machine-Readable Passport To Take Effect at US Borders

The Bureau of Public Affairs, US Department of State



As of June 26, 2005, all persons traveling under the auspices of the Visa Waiver Program (VWP) must present a machine-readable passport (MRP) to travel to the United States without a visa. President Bush signed legislation, which delays until October 26, 2005 the requirement for Visa Waiver Program (VWP) countries to include biometrics in their passports. The Department of Homeland Security now enrolls Visa Waiver Program travelers in the US Visitor and Immigrant Status Indicator Technology program at all airports and seaports.

The Immigration and Nationality Act originally set October 1, 2003 as the date by which Visa Waiver Program travelers were required to present a machine-readable passport for visa-free travel to the United States. Twenty-three of the 27 Visa Waiver Program countries requested and were granted a postponement to October 26, 2004 of this requirement. The countries not requesting this postponement were Andorra, Brunei, Liechtenstein, and Slovenia. Nationals of those four countries have been required to present a machine-readable passport for visa-free travel since October 1, 2003. Belgian nationals traveling under the auspices of the Visa Waiver Program have been required to present a machine-readable passport since May 15, 2003.

For a limited period that started on October 26, 2004, the Department of Homeland Security has provided immigration inspectors at US borders and ports of entry the authority to grant a one-time entry at no charge for Visa Waiver travelers arriving without a machine-readable passport. This limited period will end on June 26, 2005. Starting on that date, transportation carriers will be fined 3,300 dollars per violation for transporting any Visa Waiver traveler to the US without a machine-readable passport.

The Department of State has been working closely with Visa Waiver Program countries to communicate information about the machine-readable passport requirement to their citizens. Since October 26, 2004, Department of Homeland Security Customs and Border Protection officers have been notifying Visa Waiver travelers entering the United States with a letter explaining the machine-readable passport requirements.

Machine-readable passports include two optical-character, typeface lines at the bottom of the biographic page of the passport that, when read, deters fraud and helps confirm the passport holder's identity quickly. Visa Waiver travelers who are not in possession of machine-readable passport may also apply for a nonimmigrant visa at a US embassy or consulate abroad if seeking entry for business or tourist visits to the United States. The machine-readable passport requirements do not affect the separate deadline requiring Visa Waiver Program country passports issued on or after October 26, 2005, to contain biometrics in order to be used for visa-free travel to the United States.



**What is a Machine-Readable Passport?** A machine-readable passport has biographical data entered on the data page according to international specifications. The size of the passport and photograph, and arrangement of data fields, especially the two lines of printed OCR-B machine readable data, meet the standards of the International Civil Aviation Organisation, Doc 9303, Part 1 Machine Readable Passports. OCR-B means the type is Optical Character Reader, style B.



Industry Insight



If there are questions about your passport after carefully reviewing this information, and any information, which may be available to you from your country, contact the passport issuing agency or authority in your country of citizenship.

**What do I Need to Know about VWP & the Required Machine Readable Passport?** The Patriot Act legislated that all Visa Waiver Program travelers must have a machine-readable passport. As of October 26, 2004, if a visa waiver traveler does not have a machine-readable passport (MRP), then the traveler must present a US visa at the port of entry to enter the US This includes all categories of passports -- regular, diplomatic, and official, when the traveler is seeking to enter the US for business or tourist purposes, for a maximum of 90 days.

**Does the Biometric Passport Extension Request Change the 10/26/04 MRP Requirement?** No, not at all. In improving the national security of our nation, there are two different passport requirements for foreign citizens traveling without a visa, on the Visa Waiver Program. The biometric passport extension, requested by the Department of Homeland Security and Department of State, related to the biometric identifier requirement for the passport. The other passport change required machine-readable passports for all VWP travelers starting October 26, 2004. By having a machine-readable passport, the US immigration inspector's job will be facilitated by the ability to quickly slide your readable passport through the reader, thereby immediately displaying important information. As stated earlier, starting October 26, 2004 all Visa Waiver Program travelers must present a machine-readable passport to travel without a visa, on the Visa Waiver Program.

**What Do I Need to Enter the United States under the VWP?** To enter the US under the VWP, travelers must: 1) Be a citizen of a Visa Waiver Program country; 2) have a valid passport issued by the participating country that is valid for six months beyond your intended visit; 3) have a machine-readable passport (MRP); 4) be seeking entry for 90 days or less, as a temporary visitor for business or pleasure. You will not be permitted to extend your visit or change to another visa category under the VWP; 5) if entering by air or sea, have a round-trip transportation ticket issued on a carrier that has signed an agreement with the US Government to participate in the VWP, and arrive in the United States aboard such a carrier; 6) hold a completed and signed Nonimmigrant Visa Waiver Arrival-Departure Record, Form I-94W, on which you have waived the right of review or appeal of an immigration officer's determination about admissibility, or deportation. These forms are available from participating carriers, travel agents, and at land-border ports-of-entry; 7) have no visa ineligibilities. This means if you have been refused a visa before, have a criminal record or are ineligible for a visa you cannot travel on the Visa Waiver Program. You must apply for a visa to the US.

## Events Diary

### June 2005

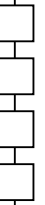
- 6 - 8 Gartner IT Security Summit - *Washington DC., USA*
- 7 - 9 Identech 2005 - *Marseille, France - [www.identech-online.com](http://www.identech-online.com)*
- 15 - 16 Convention RFID - *Versailles, France - [www.conventionrfid.com](http://www.conventionrfid.com)*
- 27 - 30 Smart Labels USA 2005 - *Baltimore, Maryland, USA -*

### July 2005

- 6 - 9 Sensors Expo & Conference - *Rosemont, Illinois, USA*
- 17 - 18 Cards Australia 2005 - *Sydney, Australia - [www.worldofcards.biz/2005/Cards%5Fau/](http://www.worldofcards.biz/2005/Cards%5Fau/)*
- 17 - 18 RFID World Australia 2005 - *Sydney, Australia - [www.terrapinn.com/2005/RFID\\_AU/](http://www.terrapinn.com/2005/RFID_AU/)*
- 31 - 2nd Sep Securing 2005 - *Australia - Sydney, Australia - <http://svc030.bne147n.server-web.com/events/>*

### September 2005

- 13 - 15 SmartCards Expo 2005 - *New Delhi, India - [www.electronicstoday.org/SMARTCARD05.htm](http://www.electronicstoday.org/SMARTCARD05.htm)*
- 21 - 23 e-Smart and World e-ID Conferenced 2005 - *French Riviera - [www.strategiestm.com/conferences/](http://www.strategiestm.com/conferences/)*
- 21 - 24 Labelexpo Europe 2005 - *Brussels, Belgium - [www.labelexpo-europe.com/](http://www.labelexpo-europe.com/)*
- 26 - 27 6th International Conference Smartcards in Transport - *Paris, France*
- 27 - 29 Loyalty World - *London, United Kingdom*





# RFID - Tag it if you can - (Review of Juniper Research's RFID Report)

By Dr David Everett, CEO, Smart Card Group



David Everett

Radio Frequency Identification (RFID) is that technology which uses radio signals to communicate between a reader and some electronic transponder often referred to as a tag or token. Contactless Smart Cards fall inside this definition and are ever more apparent in the transport sector and more recently the financial sector. A new market research report (RFID Opportunities: Markets and Technologies in Western Europe) published by Juniper Research covers this whole gambit of RFID tokens.

The authors (Susan Griffin and Colin Williams) provide the greatest in depth analysis of this emerging market that I have seen. Although the report is based on initiatives in Western Europe it does none the less bring in some of the activities taking place in the USA. It all started during the last war when the Allied forces used RFID to differentiate their own aircraft from that of the opposite side.



Today people are now talking about the possibility of tagging every item on earth, from knitting needles to citizens. These wider aspects of the capabilities of the technology have led to suspicion and hostility from many consumer groups. Kevin Warwick, professor of cybernetics at Reading University made the news in 2000 when he had an RFID chip surgically implanted in his arm. This might be a little extreme but people tracking in applications such as hospital patients, babies, children and criminals with external tags is already commonplace. RFID tags for the ski lifts are an even better known use of the technology.

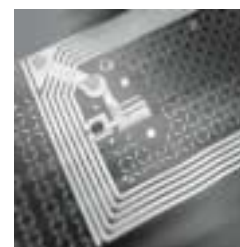


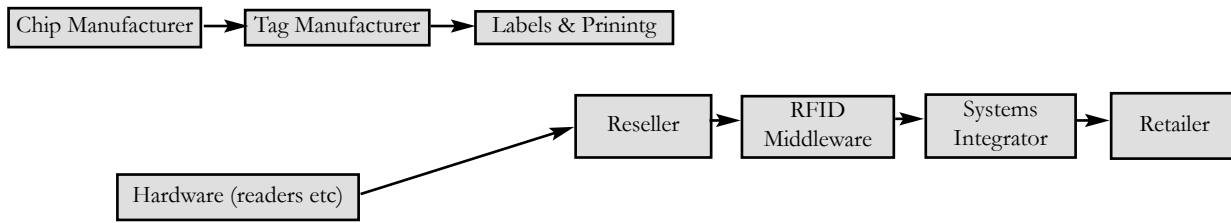
The applications of RFID covered in the report include, location tracking, telemetry, supply chain management, and fraud management. The technology covers active and passive tags at the different frequencies (LF, HF, UHF), from one-bit Electronic Article Surveillance (EAS) to multi-bit RFID tags. One of the Appendices gives a good layman's introduction to these various technologies. Although the focus is on tags the use of contactless Smart Cards for identification applications is within the scope of the report.

RFID can be viewed as a competitor to the bar code but as the authors point out in many cases the barcode remains the better solution particularly in the short to medium timeframe. The problem with RFID tags, well illustrated by the report, is the range of different tags available and the standards being developed by a number of organizations such as, ISO, ETSI, and EPCglobal for RFID tags in the supply chain.

EPCglobal is a joint venture of EAN International (Electronic Article Numbering) and the Uniform Code Council (UCC). In the UHF bandwidth for example there are problems between the USA and Europe over the use of frequencies around 900 MHz.

It is clearly pointed out that RFID is an emerging technology where participants are still evolving. The Appendices provide a comprehensive list of players in the field but as time evolves we might expect to see mergers, with the bigger companies leading the way. At this time it is not clear who will lead the way. The value chain drawn from the report is shown below,





**Figure 1: RFID Value Chain** (Source Juniper Research)

In this model the authors point out that the most powerful players lie at the customer end, largely retailers and other customer organisations that have considerable power chain power because of their ability to order large quantities of tags. In the longer term the authors expect some of the larger system integrators such as IBM to take a more significant role.

In terms of RFID revenue opportunities the report assumes a global capacity of 600 million tags in 2003 and a share of the market at around 35% of the world totals. Based on these figures they provide the following projections,

	2004	2005	2006	2007	2008	2009
<b>Tags</b>	209.0	282.1	338.6	457.0	594.2	742.7
<b>Readers</b>	92.9	125.4	211.6	285.7	371.3	464.2
<b>Software</b>	46.4	62.7	84.6	114.3	148.5	185.7
<b>Services</b>	116.1	156.7	211.6	285.7	371.3	464.2
<b>Total</b>	464.4	626.9	846.4	1,142.6	1,485.4	1,856.7

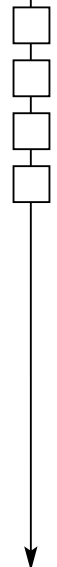
**Figure 2: RFID Revenue Forecasts (\$m) 2004 - 2009** (Source Juniper Research)

In terms of the major RFID sectors the following forecast are provided in the report,

	2004	2005	2006	2007	2008	2009
<b>Retail</b>	92.9	125.4	169.3	217.1	267.4	315.6
<b>Pharmacy</b>	32.5	62.7	127.0	194.2	282.2	408.5
<b>Mass Transit</b>	83.6	112.9	169.3	228.5	297.1	371.3
<b>Supply chain</b>	185.8	250.8	296.2	388.5	490.2	575.6
<b>Others</b>	69.7	75.2	84.6	114.3	148.5	185.7
<b>Total</b>	464.4	626.9	846.4	1,142.6	1,485.4	1,856.7

**Figure 3: RFID Revenue Forecasts by Sector (\$m) 2004 - 2009** (Source Juniper Research)

Although the technology is not new, the applications are still at an exploratory stage. Interest exists across many sectors and trials are underway across Europe and as the authors point out 'It is an enormous step to move from the present market to one where RFID is ubiquitous, but there are clear signs the market is moving'.





# NFC - A Bridge to the Contactless World

By Jason Smith, Production Editor, Smart Card News Limited



Jason Smith

In the 1980s Sony and Philips introduced compact disc (CD) technology that took the world by storm, now they plan to duplicate this success with the introduction of Near Field Communications (NFC). They found that consumers were now seeking easier ways to interact with their immediate environment and to enable easy communication between their electronic devices.

So the concept of NFC was born with the aim of hopefully leading to a world of secure universal commerce and connectivity, in which consumers can access and pay for physical and digital services anywhere, at any time, using any device.



Evolving from a combination of contactless identification (RFID) and interconnection technologies, NFC meets this need for the simple transfer of information. Where RFID is one-directional communication between a reader and a card, NFC is bi-directional between two reader devices, so NFC is both a supplier of information and a reader. NFC has a 80C51 microcontroller core with 32 KB ROM and 1 KB RAM with integrated RF level detector and card mode detector. NFC operates in the 13.56 MHz frequency range, over a distance of typically a few centimeters. NFC technology is standardised according to globally accepted standardisation bodies, such as ISO (18092), ECMA (340) and ETSI.

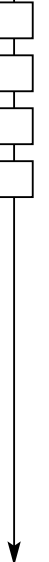


NFC is fully compliant with the existing contactless Smart Card infrastructure on ISO 14443 A. This means NFC is fully compatible with both Philips' MIFARE and Sony's Felica contactless Smart Card platforms. These proven systems provide a solid foundation for the introduction of NFC-enabled devices. This enables NFC devices, like your mobile phone or PDA, to act as an electronic key to access your home, office, or car, or to pay for - as well as to act as - your transport ticket. Consumers can use their NFC enabled phones for loyalty card points or to make mobile payments.

The cards are now in your phone! The reason for this is that NFC devices can operate in an active or passive mode, enabling communication with a wide variety of passive devices, like contactless Smart Cards or RF transponders. "Enabling easy transfer of information between consumer devices, from phone numbers to electronic transactions, NFC bridges today's connectivity gap and allows 'connected consumers' to interact with their environment. NFC will soon open up a range of new opportunities for the consumer," said Scott McGregor, President and Chief Executive Officer, Philips Semiconductors. Imagine it! You wish to see your favourite band or team play so you go to an e-ticket kiosk to purchase your ticket. You step up to the machine and hold your phone close to it to initiate a transaction. You type in what ticket you want and the machine completes the purchase by confirming the transaction on your mobile phone and your ticket is automatically transferred to your phone. Then on the day, you arrive at the concert hall or stadium, hold your phone up to the reader fitted to the entrance turnstile and after validating your ticket the barrier allows you to enter. "Sony positions NFC as a new form of user interface technology for consumer electronics products, and will strongly promote integration of NFC into numerous products across a wide variety of industries," said Teruaki Aoki, Senior Executive Vice President, Sony Corporation. The use of NFC technology in consumer electronics devices will increase opportunities for users to transfer data, implement secure transactions and download rich content.



Currently American Express, MasterCard and Visa are rolling out contactless payment programs for consumers who use Smart Cards or key fobs with embedded RFID tags, because of this a number of merchants are upgrading their payment terminals so that they can handle RFID-based transactions. This is also fuelling NFC because mobile phones with an embedded RFID tag that complies with the ISO/IEC 18092 near field communication standard will also work with these merchant terminals because 18092 and 14443 are compatible standards. This shows the infrastructure is already in place for NFC.





In November 2004 Nokia unveiled the first mobile to incorporate the NFC (Near Field Communication). In 2003, Nokia, AT&T Wireless, JP Morgan Chase, and MasterCard ran a pilot in Dallas, Texas, in which the PayPass RF chip was embedded in the back panel of a Nokia phone. Pilot market research found that both merchants and consumers liked the use of Nokia/ PayPass phones for payment.



Commuters on the East Japan Railway Company currently use a Suica contactless Smart Card with a built-in Sony FeliCa chip to pass through ticket barriers. However with the growing influence of NFC the East Japan Railway Company NTT has teamed up with DoCoMo to test a mobile phone version of the Suica payment system, again using Sony's FeliCa chip.

NTT DoCoMo is also collaborating with Sumitomo Mitsui Financial Group Inc., Sumitomo Mitsui Card Co. Ltd. and Sumitomo Mitsui Banking Corp., to establish a platform for a credit-payment service using DoCoMo's phones equipped with the Felica wireless IC chip for cashless payments.

The new system will enable Japanese mobile users to pay for goods and services at retail outlets by using their phones with a specially adapted RF reader. In South Korea, SK Telecom has launched the Moneta card program with a circulation of 100,000 Visa-enabled mobile handsets. Trials of mobile phones doubling as payment tools will be taking place in Taiwan shortly, marking a big step for the nation's contactless technology development. Taiwanese cardholders can make payments at contracted petrol stations, coffee shops, video rental stores, train stations etc by simply waving their NFC-enabled device in front of sensor devices. In South Africa NFC will soon be launched to complement the mobile-based solutions available on the market within their country.

A market research report covering RFID from 2005 to 2015, researched by IDTechEx, revealed that the market for RFID interrogators such as Near Field Communication interrogators will reach \$1.14 billion in 2008. Predictions from ABI Research state that within five years, 50% of all mobile phones will include chips that use NFC.



As video killed the radio star, will NFC kill Bluetooth and Wi-Fi? The answer is no but it will complement them. Bluetooth and Wi-Fi have a range anywhere between 33 feet and 300 feet, NFC deals in inches -- eight inches, to be precise. NFC has been designed for shorter distances and lighter content. Not only this but NFC is restricted by worldwide regulations which means that NFC can only have a maximum distance of communication of up to 12cm. NFC's biggest strength is that no set-up procedure is required, as the devices have to be within range of one another. The network communication is automatically initiated without the user having to configure the set-up where the primary device, a PDA or mobile phone, acts as a smart key to gain access to the chosen services. Another of NFC's strengths is that it uses a chip, rather than a battery like Bluetooth and Wi-Fi!

The pioneers of NFC technology, Royal Philips Electronics, Sony and Nokia have come together to promote NFC by forming the Near Field Communication (NFC) Forum. This is to help advance the use of NFC in consumer electronics, mobile devices and PCs. The NFC Forum aims to promote implementation and standardisation of NFC technology to ensure interoperability between devices and services. The vision of the NFC Forum is to enable users to access content and services in an intuitive way. To bring this vision to life, Nokia, Philips and Sony have invited other companies from mobile communications, consumer electronics, chip manufacturing, computing, media and entertainment, telecom and payment services to join their NFC Forum.



With the infrastructure for contactless Smart Card interaction now being globally implemented and with the backing and promotion of leading industry players, NFC Technology is a fast growing technology that will continue at a rapid pace. NFC is no flash in the pan, this new technology is here to stay and will start playing a greater role in our daily lives.

NFC is establishing the next generation of Smart Card technology. Just when you thought your phone or PDA could not get any better, it becomes your travel ticket, wallet, credit card, house key, loyalty card, gym membership and video retail card. What next can we expect? Time Travel? Teleportation? Lasers beams? The mind boggles!

