

### Smart Card & Identity News

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## Our Comments

Dear Subscribers



*Patsy Everett*

Well its come and gone, once more Cartes has brought us all together to talk about smart cards and the Paris rail strike. Yes, it happened again but only on the last day this time but that was enough to cause a fair amount of stress. I hear people saying never again but I noticed quite a few were back again from last year.

I can't speak for the exhibitionists but from the point of view of the press everything was well organised and things seem to be moving like clock work. Plenty of places to get food and drink and even a reasonable environmental temperature, I may be showing my age here but how many of you remember the annual sauna at La Defense?

It was actually interesting to compare this year's show with the early conferences, do you know this was the 23rd show? In the early days of course the show was full of innovation, everything was new and it was just a marvel that the technology worked but now the productisation is really complete and the emphasis of the show is on manufacturing machines and processes and also testing the finished products.

So where was the innovation? Well the only big presence was that for NFC which this year occupied its whole village. But there was this year a big shift in attitude. In previous years the vendors would always try to convince you it was going to happen next year, but not any more, now there seems to be a sober realism that it's a few years away, that I can believe!

Making margins in the manufacture of smart cards remains a tricky business and ID Data Ltd has this month gone into administration following the appointment of Malcolm Shierson and John Whitfield of Grant Thornton as Joint Administrators. The company had reported a full year loss of £700K on 25% increased sales compared with an EBITDA loss of £3.3 million last year. The shares in the Group which were suspended from trading on AIM in September after the company failed to file end of year accounts to 31st March 2008 are not part of the Administration Order.

ID Data was one of the front runners for the production of the UK ID Cards however the project seems to be constantly scaled down. This month Jacqui Smith has said that the government will limit its ID Card Trial to just two airports, London City and Manchester. This is thought by many to be brought about by the mounting public resistance and that of the Unions. Just at the moment if the Government were trying to save money you might expect the project to get scaled down even more, it doesn't have much support from any sector of the population and would be an easy save on public spending. I wouldn't want to be dependent on what happens next!

Patsy Everett.





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## Events Diary

### December 2008

- 1-4 Prepaid Commerce Europe 2008 - Stockholm, Sweden
- 2-3 ISNR (International Security & National Resilience) - London, UK

### January 2008

- 27-29 Security Printing 2009 - Lithuania
- 27-28 Transport Ticketing 09 - London, UK

### February 2008

- 16-19 GSMA Mobile World Congress (formerly 3GSM) – Barcelona, Spain





.... Continued from page 1

ITSO has put out another press release in November explaining their decision to stop support for the Mifare Classic 1K and 4K cards due to a 'theoretical risk' posed by these cryptographic breaches. What on earth is a theoretical risk? The fact that the Mifare card can be broken is not in doubt and therefore there must be some additional risk to the system, no matter how small, otherwise the card would have no value in the security design and you might as well use any basic memory device such as a magnetic stripe card.

Other ITSO papers go on to explain that in a simple smart card scheme using only the Mifare Classic security that the risk of cloning and fraudulent activity is now high. How this relates to the previous theoretical risk is not clear. However the paper then goes on to explain that the Mifare cryptography is only used as a means of communicating with the card and that the ITSO products are independently protected by the ITSO seal which uses different and more secure cryptography.

So is that right, that the security of the Mifare card is irrelevant and poses no more than a 'theoretical risk'? Let the reader be the judge,

If it is possible to clone a Mifare classic card then it follows that it is perfectly viable to have a set of cards that all look the same.

It also follows that it is equally viable to read the memory contents of an authentic ITSO card and to copy the contents onto the cloned set of cards. It would be equally possible to replay messages that alter or reset the state of a product on a card.

From this we can deduce that it is possible to create a set of Mifare cards bearing ITSO products that all look the same. In other words an authentic ITSO terminal could not tell one card or the stored ITSO product from another. (It is not necessary to breach the ITSO cryptography which is effectively some cryptographic check sum applied to the product definition and reputed to be using a symmetric algorithm such as 3DES, which is called an ITSO Seal).

Now these are the simple facts so first of all what do we mean by high risk? Nearly all risk methodologies have the concept of attack paths, vulnerabilities and the likelihood of a (successful) breach of security, which leads to some measure of residual risk after taking account of the security controls. High risk would mean that taking account of all the security controls that a highly likely method of attack exists that can successfully exploit a vulnerability in the scheme.

Now we can look at two different scenarios that might involve an ITSO card,

1. A stored value card
2. A travel entitlement card

A stored value card might be used as a prepaid cash balance to pay for travel on demand or even to buy goods and services. Clearly this is an area that would be of interest to hackers and even organised crime. We have already shown that it would be possible to create a fraudulent card or even to reset the value on a card so what is the likelihood of detection? That would be down to the sophistication of the back-end transaction processing system and its timeliness. However you look at it this would not appear to be an acceptable risk for any business.

The travel entitlement card is at the opposite end of the risk scale. A concessionary card for bus travel for example is unlikely to attract the level of organised and motivated attackers that you might get for a stored value card. The card and the bearer of the card are also more likely to be subjected to visual checks. You might argue that this is a low risk system for which the Mifare Classic card is still 'fit for purpose'.





ITSO has actually been very transparent about their plans for the Mifare Classic cards,

1. ITSO licensed Members shall cease to issue any new media that uses the Mifare Classic security algorithm after 31st December 2009.
2. ITSO shall not support any ITSO shell issued on a Mifare Classic card after 31st December 2016.

This is referring to the CMD 1/3 (Customer Media Device) from the allowed ITSO platforms, which have been recently compared in an ITSO matrix,

**Mifare® Classic Customer Media Phase Out – Card Comparison Study**

Card Type	CMD 1/3 Mifare® 1K/4K	CMD2 Generic Micro-Processor	CMD8 Calypso	CMD7 Mifare® DESFire Card
Introduction	The most widely used card in the ITSO environment; a memory card. Simple. Comparatively low cost compared to competitors. Originally developed by Micron in Austria in early 1990s. Chips supplied by NXP semiconductors, formerly a division of Philips based in Eindhoven, Netherlands.	Many cards that operate with an ISO 7816 compliant command set and filing system can be certified to this CMD. This includes implementations on the popular JCOP 'Java Card Open Platform' family of micro-processor cards; an open platform smart card which can be used across a wide variety of application fields, developed by IBM Zurich, maintained by NXP semiconductors.	A platform of the ITSO Specification, that uses an ISO 7816 compliant command set and filing system. Predominantly used by a group of European based transit operators. Based in Belgium.	A microprocessor based product. Uses a command set compatible with but not compliant to ISO 7816. Contains more hardware security features than a standard Mifare® Classic product. Chips supplied by NXP semiconductors.
Examples of usage	The majority of TCAs within ENCTS. Oyster Card – Transport for London.	Bracknell Forest UA (SmartCitizen) Accord Card, Aberdeen	STIB – Brussels, Belgium Metropolitano de Lisboa – Lisbon, Portugal Paris Transportation Network – Paris, France	Nanjing Public Transport – Nanjing, China NASA access cards – Marshall Space Flight Centre, Alabama, USA.
Can it be used in the ITSO environment?	Yes (until 31/12/2016)	Yes	Yes	Yes
Currently used in ENCTS?	Yes	Yes	No	No
Benefits	Contactless technology. Wide circulation in ENCTS. Relatively inexpensive. Successfully implemented across a range of public transportation.	Contactless technology. ISO 14443A 1-4 compliant. ITSO compliant cards are already in circulation in ENCTS (Bracknell Forest UA).	Contactless technology. Fast, safe transaction (decentralised security) ISO 14443 1-4 compliant. Microprocessor based cards with good security at a reasonable cost.	Contactless technology. ISO 14443A 1-3 compliant. More secure than previous Mifare® products. (Does not use Mifare® Classic cryptography.)
Drawbacks	Concerns about exposed algorithm security. <b>Due to be phased out of ITSO environment by 31/12/2016.</b>	More expensive than Mifare® Classic. Some examples have issues with longer transaction times; as a result <b>ITSO phasing out cards with slower transaction times above 600ms.</b> For the avoidance of doubt, this drawback does not apply for the use of this CMD within ITSO on ITSO compliant readers. In order to use this ITSO CMD as an alternative to Mifare® Classic for non-ITSO applications outside of the ITSO environment; the readers used by the non-ITSO application may need replacing, unless they are already ITSO compliant.	For the avoidance of doubt, this drawback does not apply for the use of this CMD within ITSO on ITSO compliant readers. In order to use this ITSO CMD as an alternative to Mifare® Classic for non-ITSO applications outside of the ITSO environment; the readers used by the non-ITSO application may need replacing, unless they are already ITSO compliant.	For the avoidance of doubt, this drawback does not apply for the use of this CMD within ITSO on ITSO compliant readers. In order to use this ITSO CMD as an alternative to Mifare® Classic for non-ITSO applications outside of the ITSO environment; the readers used by the non-ITSO application may need replacing, unless they are already ITSO compliant.

At one time the CMD 2 was the preferred option but there have been problems with the transaction response times. ITSO has recently phased out support for cards that have a transaction time greater than 600mS, which is still pretty slow compared with the Mifare Classic at less than 150mS. The problem here is the overhead when the CPU chip in the card is enabled, there is a certain amount of necessary housekeeping that all adds to the initialisation time before the transaction is even undertaken. If the card could be held in the magnetic field the second transaction could be less than 150mS. It would be possible to minimise this initialisation overhead in the operating system on the card but that might not be desirable for a general purpose contactless smart card.

Just for reference ITSO has now released figures on the Mifare Classic cards in their domain,

English National Concessionary Travel Scheme (ENCTS)	7.2 million
Scottish Entitlement Scheme	1.4 million
Welsh Concessionary Scheme	0.5 million

The question is whether there is an adequate reason in terms of risk profile as to why these cards need to be changed? A better ITSO strategy might have been to remove support from certain product types on the Mifare Classic cards?

David Everett, Technical Editor





## World News In Brief

### Wavecom Rejects Gemalto's Offer

The Board of Directors of Wavecom announced its recommendation to its security holders, after thorough review of the unsolicited tender offer by Gemalto. As a result of this review, the Board unanimously considers that the financial terms of the Gemalto Offer are clearly insufficient and has determined that this Offer is not in the best interest of Wavecom, its shareholders and employees.

Anthony Maher, independent director and Chairman of Wavecom's M&A sub-committee commented, "Our Board, after careful review, has unanimously concluded that Gemalto's offer provides insufficient value, disadvantages our shareholders, and is opportunistically timed given the unprecedented financial turmoil around the world, which has had a particularly negative impact on Wavecom and other companies of our size."

Given these factors, the Board recommends that shareholders not tender their shares into the Gemalto offer.

### Renesas And NXP Expand Licensing Agreement On MIFARE Technology

NXP and Renesas Technology Corp. announced that they have expanded the licensing agreement on NXP's MIFARE technology. This agreement is aiming to build momentum for the availability of advanced payment and Near Field Communication (NFC) offerings in contactless infrastructures.

As a historical MIFARE licensee, Renesas now has further access to NXP's entire MIFARE family.

The agreement is set to drive the emergence of new and advanced over-the-air mobile phone services based on NFC, such as electronic ticketing and payment, delivering convenient and user-friendly connected services to consumers while allowing mobile network operators to increase average revenue per user.

### SCM Microsystems Reports Revenues Down

SCM Microsystems, this month announced results for the third quarter ended September 30, 2008.

Revenues from continuing operations in the third

quarter of 2008 were \$6.4 million, down 16% from revenues of \$7.6 million in the third quarter of 2007. Revenues for the first nine months of 2008 were \$19.4 million, down 6% from revenues of \$20.7 million for the first nine months of 2007.

"The product investments we have been making for the last several quarters have resulted in innovative new devices for emerging security applications around the world," said Felix Marx, chief executive officer of SCM Microsystems. "Within the last several weeks we have introduced @MAXX prime, enabling secure mobile authentication for financial and enterprise applications, and certified terminals for the electronic health card program in Germany. Additional product introductions will soon follow. These new products are important tools in our strategy to expand and diversify our customer base and to bring the strength of our technology, reputation and relationships to emerging markets."

### Cryptography Research Licenses DPA Countermeasures Patents To NXP

Cryptography Research, Inc. has announced an agreement with NXP B.V. regarding the use of CRI's patents to enhance the security of NXP's tamper-resistant smart card chips against Differential Power Analysis (DPA) and related attacks.

Under the agreement, NXP receives the freedom to use CRI's patents as part of its strategy to develop and enhance its secure chips and related software for smart cards and other security-conscious applications. The license also covers software executing on NXP chips, allowing NXP's customers to develop their own security countermeasures without a separate license from CRI.

DPA is a form of attack that involves monitoring the fluctuating electrical power consumption of a target device and then using advanced statistical methods to derive cryptographic keys and other secrets. Strong countermeasures to DPA help protect keys contained in tamper-resistant devices, such as smart cards or electronic IDs, which may be used in banking, pay television, mass transit, secure ID, wireless telecommunications and other industries.





## Multos Consortium Elects New Chairman

The MULTOS Consortium announced the election of Mr. Dave Meadon, Head of Chip Solutions Deployment at MasterCard Worldwide, to the position of Chairman of the Consortium Council. Mr Meadon's nomination was unanimously sanctioned at the Consortium Council's recent meeting in Singapore. As Chairman, Mr Meadon will oversee the direction and development priorities for the MULTOS platform on behalf of the Consortium's membership.

This appointment is made in the year that MULTOS celebrates its 10th anniversary. With a focus on interoperability, security and performance, MULTOS has established itself as a robust multi-application platform offering for customers in both the private and public sectors. MULTOS recently reached the significant milestone of 100 million cards issued in over 32 countries.

## HID Global Acquires .NET-based Nectar Smart Card Technology

HID Global, announced that it has acquired Nectarsmart card .NET technology, based on Microsoft.NET, from StepNexus and Hive Minded.

The Nectar virtual machine is a Microsoft .NET-compatible implementation of the standardised ECMA335/ISO 23271 Common Language Infrastructure. Nectar enables smart cards to integrate seamlessly with .NET execution environments through its use of standard Microsoft tools and Windows communication protocols. Nectar integration is performed using Microsoft's Visual Studio tools to provide support for multiple programming languages (including Visual Basic, C#, J#, and C++), allowing developers and solution providers to capitalise on existing skills and code as well as reducing time-to-market and support costs.

The ability to provide a .NET environment and development tool chain will reduce time-to-market and support costs while meeting the market's requirement for flexible, extendable and programmable systems.

New HID Global software platforms associated with the issuance of secure identity are being implemented on the Microsoft .NET platform. These include naviGO, Asure ID6.0, and iDIRECTOR.

## Thales Form New Cryptography Team in Australia

Thales, has formed a new cryptography team in Australia. The team will deliver enhanced products, services and support to a wide range of financial services, government, defence and enterprise customers, as well as critical infrastructure operators.

The company's commercial cryptography capability was previously offered through Verizon Business. Several Verizon staff have migrated to Thales Australia in order to provide continuity of support for existing customers. They will join colleagues already supporting defence customers. The new team will benefit existing customers by bringing full support to a local level.

Thales's information systems security offer in Australia includes the tamper-resistant payment Hardware Security Modules (Thales HSM 8000) that provide the powerful cryptographic facilities needed to secure financial transactions, plus a range of certified network encryption products for high-security environments to secure data for government, defence and financial institutions.

## New Oyster Contract Agreed

TfL announced the agreement of a new contract for the future management and development of the Oyster card system.

The deal will also see ownership of the Oyster brand pass to TfL, ensuring that Londoners and visitors to the city will continue to be able to use Oyster cards in years to come.

The new arrangement with Cubic Transportation Systems Limited and EDS replaces the existing PFI contract, to deliver better value for money as well as improvements to Oyster services for passengers across London. The move is part of Transport for London's £2.4bn efficiency savings outlined last week in its ten-year Business Plan.

Shashi Verma, TfL's Director of Fares and Ticketing said: 'This new deal will see Oyster in the pockets of Londoners for years to come and will save significant money that TfL will invest in improving transport in the capital.'

In August, TfL gave notice to terminate the current contract with the TranSys consortium, which will end in 2010 when the new arrangement with Cubic Transportation Systems Limited and EDS takes over.





## French Citizen Receives First Biometric Passport

The first biometric passport was delivered to a French citizen on October 31 at the city hall in Chantilly (near Paris) by Michele Alliot-Marie, French Minister of the Interior. Eric Woerth, French Minister of the Budget and mayor of Chantilly, was also present for the event.

A European law passed in 2006 stipulates that all passports issued starting in June 2009 must include the bearer's fingerprint and a photo, directly and securely entered in compliance with international standards.

SAFRAN subsidiary Sagem Securite developed the secure data collection and passport delivery station, which it is delivering to city halls in France, as well as foreign consulates. The Atos Origin group, project prime contractor, is in charge of implementing all passport delivery systems in France. In particular, Atos Origin is in charge of the change management and training of over 13,000 agents.

## VeriSign And G&D Announce Strategic Alliance

VeriSign, Inc. and Giesecke & Devrient GmbH (G&D) have announced a strategic alliance to provide end-to-end solutions for consumer authentication.

The alliance will give organisations a unified solution for protecting users' identities, personal information and assets through VeriSign Identity Protection (VIP) services.

VeriSign Identity Protection services provide an additional layer of authentication for online transactions and communication -- authentication that goes beyond entering a username and password. VIP's two-factor authentication works with the GDC4000 display card from G&D, an OATH-compliant credential.

## INSIDE Opens Micropass Platform

Heralding a new era of open-standard contactless application development, INSIDE Contactless, announced it is opening up its MicroPass platform to the developer community, and providing sample MicroPass cards, development tools and technical support to advance the creation of new contactless data applications. The new MicroPass 4001 and 5001 contactless microprocessors and INSIDE's

software development kit (SDK) tools is aimed to give developers all they need to create and deploy a variety of standards-based contactless applications from a single platform, reducing costs and accelerating time to market.

The MicroPass 4001 and 5001 SDK tools utilise a PC-based application to support directory file structure creation, data element population, personalization script creation and sample card creation.

## IBM Research Unveils "Security-on-a-Stick"



Resembling a memory stick with an integrated display, a prototype USB device developed at IBM's Zurich Research Lab brings a new level of security to online banking for consumers. Pilot devices are ready and available to banks for trials.

The Zone Trusted Information Channel (ZTIC) plugs into the USB port of any computer and creates a direct, secure channel to a bank's online transaction server, bypassing the PC which could be infected by malicious software (malware) or susceptible to hacker attacks.

The consumer can use the security stick to logon and validate all transactions via a display, while the USB device is securely connected to the server, safeguarding against today's ever more fiendish forms of attacks that can manipulate data in the background, hidden from the consumer and the bank. The USB device adds an extra level of security to the existing authentication solutions provided by smart card, PIN or one-time validation code, in order to counter the newest and most highly manipulative security threats.



# 2020 Travel: Public Transport Mobile Generation And The Ticketing Revolution

By Peter Tomlinson, Iosis Associates



*Peter Tomlinson*

The 2020 Vision conference in London on 14th October, organised by Landor, was an encounter with numerous dilemmas in the implementation of electronic ticketing for UK public transport. The labyrinthine venue of the New Connaught Rooms well matched the subject matter. Surface and sub-surface public transport in the UK is the underlying platform, for which the seminal vision was that of the 1998 Integrated Transport White Paper: seamless multi-modal through ticketing, with perhaps car parking as well (A new deal for transport: better for everyone<sup>1</sup>). Sometimes it seems that today the only outcome of that John Prescott vision is to allow all holders of English bus passes to travel free on Blackpool buses (or on buses in Scarborough, of blessed childhood memory, where the Council is having to pay for lots and lots of elderly visitors to take rides, as illustrated in a recent Channel 4 TV documentary). And academics have been looking at the lack of progress – see Chapter 1 of *Traffic Jam*, available for download at the publisher's web site<sup>2</sup>.

The main focus of the conference was electronic ticketing on the trains, be it with smart cards or via mobile phones. Print at home gets a look-in of course. The under-currents were associated with the current activities of DfT (including its new Ministers), ITSO, ATOC, and the parliamentary watchdogs. That last was represented by the keynote speech given by Louise Ellman MP, Chair of the House of Commons Transport Select Committee. Mrs Ellman is a worthy successor there to the late, great Mrs Gwyneth Dunwoody, under whose Chairmanship the Committee on 1<sup>st</sup> April published its report on *Ticketing and Concessionary Travel*, coinciding with the launch of ENCTS – and on June 16<sup>th</sup> they published DfT's response<sup>3</sup>. (Our bus passes are part of the English National Concessionary Travel Scheme, which is at one and the same time a single national scheme and several hundred local authority schemes).

For rail, there are 5 Train Operating Companies (TOCs) that have a mandate to at least start introducing smart card ticketing over the period 2009 to 2014. Soon they are to be joined by another new franchisee who will take over South Central. First on the line is South West Trains (a Stagecoach company) that has, as this is written, announced their first pilot deployment: season tickets for a few passengers on the stretch of line between Staines and Windsor, using stand-alone verifier units rather than equipping the station gates. What became clear at the conference is that DfT put very little by way of electronic ticketing scheme specification material in the franchise agreements, so (in the words of Alex Hynes of London Midland) the TOCs have to work it out for themselves. LM showed us their commitment: 20% of passenger journeys using smart media by the start of 2012, 50% by the start of 2014 – and added that only 45% of journeys on LM are made using season tickets, so they have to find a few more keen people... From ATOC we heard that the result of the franchise commitments is that 'interavailability and interoperability' are not necessarily there from the start. Not even designed in is the reality: gates at Waterloo, owned by Network Rail and leased to SWT, cannot have ITSO and Oyster readers fitted because the software is not defined. More generally, several TOCs are planning to simply do the minimum, which in the case of London Midland is to deliver its own season tickets on smart media for passengers who travel on its own trains. However, Cross Country is expected to accept SWT smart tickets where it runs through SWT territory – we have no news of that. Louise Ellman MP had asked for that inter-availability and interoperability, in addition to implementing DfT's 2007 rail White Paper statement that there is a programme to introduce smart ticketing on rail in the major cities by 2014 – but DfT, as we found out last autumn at the predecessor to this conference, deliberately did not define that term 'major cities'.

This is turning into a smoke and mirrors story. Delving into DfT, we find that there are two rather opaque studies going on. One is a commercial look into the future of ITSO Ltd; the other is a study into ticketing strategy. (Mrs Ellman had indeed asked in her address for public policymakers to plan ahead.) The strategy study has been slow starting and, as was found out at the conference by questioning Peter Laslett of DfT, it will be 'informally consulting stakeholders during the study and having a formal consultation at the end'.

<sup>1</sup> <http://www.dft.gov.uk/about/strategy/whitepapers/previous/aneuadealfortransportbetterfo5695>

<sup>2</sup> [https://www.policypress.org.uk/catalog/product\\_info.php?cPath=&products\\_id=1515](https://www.policypress.org.uk/catalog/product_info.php?cPath=&products_id=1515) - sample chapters (incl Ch 1) in the Reading Room [https://www.policypress.org.uk/general/reading\\_room.php](https://www.policypress.org.uk/general/reading_room.php)

<sup>3</sup> <http://www.publications.parliament.uk/pa/cm/cmtran.htm> has current session reports and a link to earlier sessions

Transport Scotland started their recent integrated ticketing study by setting out a series of questions on their web site – albeit the questions were something of a dog’s breakfast, but at least they had the courage to do it. In fact there is a duty to consult all stakeholders before a decision is taken, which in truth does not mean make your mind up and then consult afterwards.

So what is the real problem with implementing the 1998 vision? It is that old divide between public policy and service delivery. The divide so easily becomes a chasm when delivery is in the hands of the private sector, the more so when the bridge is built of weak franchise agreements or mere exhortations. Even so, building a solid bridge across the chasm is not enough: it is a different country on the other side, a country in which a different tribe rules, and it needs to be understood and managed (not, please, micro-managed). If policy makers do not understand that other country and also devise a method that works over there, they will be at serious risk of devising a policy that not only doesn’t work but cannot work.

## Ticketing Systems as Infrastructure

Where, then, do we go next? Ticketing systems (in the widest sense of the word ‘systems’) for multi-modal surface and sub-surface public transport on at least the UK mainland should now be classed as national infrastructure and be subjected to regulation. Ten years after the visionary White Paper we are on the verge of being able to deliver seamless ticketing across multiple public transport modes, but the market alone will not deliver the necessary ticketing and journey management methods.

The UK work done on electronic ticketing strategy and methods in the last ten years started with three basic principles (in order of promulgation):

- The creation of a market for the supply of goods and services – this is to avoid a ticketing scheme being locked in to a single supplier.
- The provision of common methods for reporting journeys – this was originally to ensure that all PTEs can use a common basis for their reports of public transport performance, but has much wider applicability.
- The so-called ‘Martini Principle’ that all smart cards holding tickets for public transport can be used everywhere on surface and sub-surface public transport services.

And the organisers were charged with enabling seamless travel by allowing for through ticketing across multiple operators and multiple transport modes.

The first two principles were promoted by three of the PTEs (GMPTE, WYPTE, Merseytravel); the third was promoted by central government in Westminster<sup>1</sup>, and John Prescott’s vision was laid on top. Then something was left out of the work commissioned: an essential requirement for ticketing for seamless travel, namely common methods for handling electronic tickets in a user friendly, operator appropriate and secure manner. That lacuna is the primary reason for now promoting the national infrastructure concept – it is a bit like ensuring that all railway lines operate to the same gauge, albeit maybe with different rail profiles, different sleepers, and a variety of signalling systems.

The Crown Copyright ITSO Specification<sup>2</sup> plus associated support goods and services provide a toolbox, but the methodology required in terminals and back office systems is not within ITSO’s scope. A 2002 private White Paper<sup>3</sup> illustrated the fundamental duality of the process in the ticketing terminal and the data held in the smart media (e.g. smart card or mobile phone). Recent work for the (unfinished) Be-In Be-Out (BIBO) study for DfT has clearly illustrated the lack of national coordination across multiple operators and multiple public transport modes. A simultaneous paper from Trainline.com, delivered to ATOC/RSP, updated the process/data duality concept for the logically closed transport network of UK heavy rail or for a BIBO controlled tram or bus – so far there is nothing more than a discussion group operating for rail.

Over to you, Department for Transport.

<sup>1</sup> Eric Sampson, now Visiting Professor at University of Newcastle

<sup>2</sup> [www.itso.org.uk](http://www.itso.org.uk)

<sup>3</sup> Ticketing System Architecture (in the White Papers section of [www.iosis.org.uk](http://www.iosis.org.uk) – but ignore the now out of date second half of that paper)





# Cartes 2008: Security, Convergence, Sustainability And Contactless

By Tom Tainton, Smartcard & Identity News



*Tom Tainton*

Paris may be better known as the city of romance but every year thousands of the industry's movers and shakers descend upon the French capital for a different reason – The Cartes and Identification show. This year the international trade show, now in it's 23rd year, focuses upon Contactless payment, convergence, data and transaction security, sustainable development, and of course NFC. With Barack Obama's appointment to the White House the talk of the town, it seemed fitting that the United States were the 2008 guests of honour. The USA is particularly advanced in their deployment of applications such as electronic documents and payment cards. Having understood the potential of smartcards in the field of security and access control, the United States were the first in the world to have adopted contactless

payment using a chip capable of emulating the magnetic strip of their traditional bankcards. The Americans certainly put their mark on the 2008 show, with over fifty exhibitors including the likes of Smartcard Alliance, Sagem, Verifone, Hypercom, and ABnote making the trip across the pond.

In response to increased environmental awareness, a fresh impetus was placed upon sustainable technology as the Cartes show turned a considerable shade of green. As well as an international summit, hosted by the market leaders, the event made a special effort to reduce their ecological impact. This included access badges in recycled PVC, Visitor bags made with organic material, recycling points and eco stands in the heart of exhibition hall. The industry were also keen to get involved with ABnote introducing its biodegradable card, Inteligensa providing PET – recycled cards, and SafeNet launching a PIN issuance innovation that totally eliminates



*World Card Summit*

paper-based pin mailers. Equally encouraging, World leaders Oberthur Technologies signed the United Nations Global Compact while Gemalto revealed they had cut carbon emissions by 70%. The Parisian transport workers almost got in on the 'green' act too. Their proposed rail strikes (which didn't really materialise) might have forced some of the event-goers to travel by bike or foot to Villepinte!

It's a tough call for businesses, desperate to ensure profitability and do their bit for the environment, thus maintaining relations with the global community. Frankly, going green creates a sizeable headache for the industry. While it offers an opportunity to implement efficiencies that will bring economic and eco-friendly benefits to businesses in the long term, it will involve short term additional costs – something that the fickle consumer is unlikely to accept with open arms.

Also on the agenda was the return of the Identification trade show, dedicated to security-related technologies and biometrics, and the Smart Devices Exposition – a newcomer to the event. The exposition enabled spectators to discover a selection of visionary objects enabling contactless performance. These included watches, tokens, bracelets, USB sticks and key rings to name a few. And lest we not forget the NFC Zone, set up in partnership with the NFC forum. It feels like NFC has been around for ages and appears, dare I say it, a little bit stagnant. While the industry continues to plug the technology and heap praise upon its capabilities, NFC is still plagued by standardisation and usage issues. At Cartes, it was the case of the same old story. Barclaycard UK's Richard Mould said, "as far as we're concerned NFC and contactless technology is here to

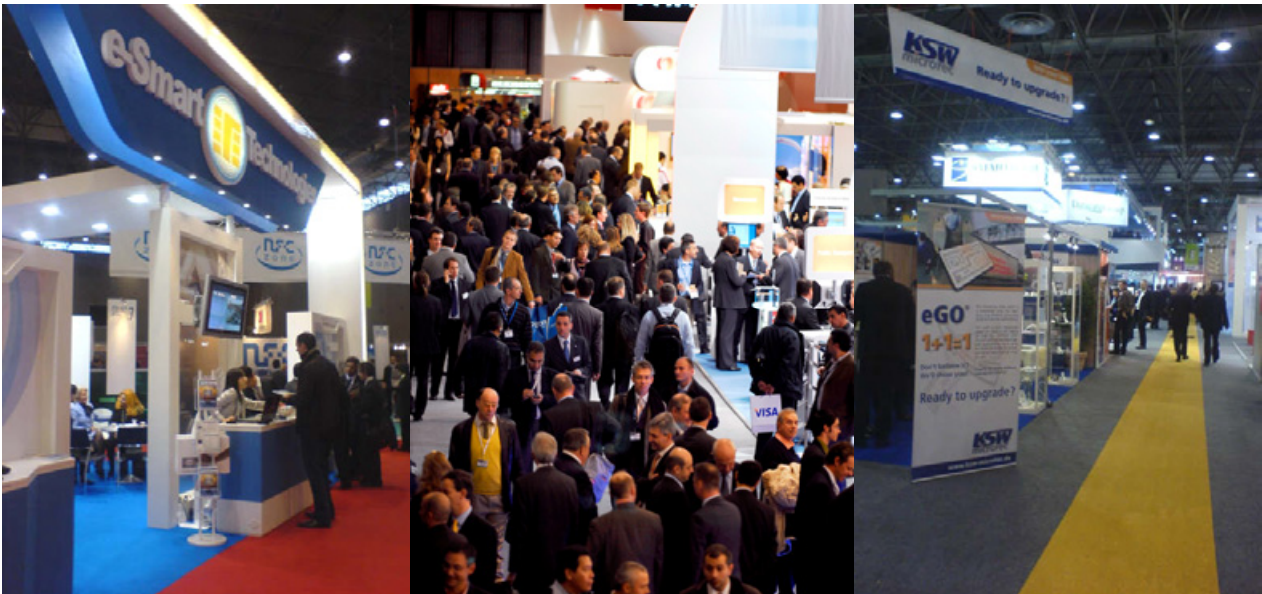




stay. It's not a trial it's an inevitability." Patrick Sure from ASK emphasised the "market need in the UK" for NFC. But is there really a market need? Tier 1 merchants seem reluctant to adopt the technology and outside of the South-East (where contactless trials were conducted) NFC-enabled readers are practically non-existent.

Mould described it as a catch-22 situation. "Merchants don't want to adapt technology until a substantial amount of customers have NFC capabilities on their mobiles or contactless capabilities on their cards. But customers won't require NFC-enabled mobile devices until they actually have somewhere to use it."

If NFC is to reach the mainstream, it's vital that players in the industry combine to expand the contactless infrastructure and also to drive usage. On a financial level it makes perfect sense – the unit cost of regular card transactions are higher compared with NFC or contactless transactions. Of course, the real question is whether retailers and businesses can afford to meddle with unfamiliar technologies in the current economic climate. Ask the majority of merchants hit by the credit crunch, and regaining a short-term profit takes precedence over any long term plans, regardless of how beneficial NFC may prove to be.



*Cartes Exhibition Floor*

On a more positive note, there were a multitude of new and exciting products on display, changing the face of traditional applications such as payment, ticketing and access control with wireless and contactless innovations. Weneo launched 'Neowave' a mass storage, highly-secure USB key with e-banking, loyalty and ticketing functionalities. Oberthur Technologies introduced 'CardBlade' a data-encrypted USB interface providing a physical access control for transport or banking. Gemalto revealed its e-travel operating system – a large capacity microprocessor boasting 100% interoperability with passport technology. Barclaycard introduced 'Onepulse' a combined credit and oyster card for London's commuters. Samsung launched 'SWP mobile payment' an S3FS91J IC specific offering consumers increased personal data security and user authentication reliability. Sagem displayed their A-GPS SIM, the world's first assisted GPS SIM card forming a network –assisted receiver.

ABnote promoted their 'smart transaction watch' a contactless multi-application device. Frederich Tupy of ABnote said, "Watches are won – not carried, so they are literally on hand and as a result are easily accessible. The watch face represents ten times the exposure to the cardholder compared with their card and can be used for banking, transit and prepaid transactions." Another US based company; security specialists HID revealed their contactless inlay for ID cards. HID's Apryl Erickson told me, "The product uses the thinnest most secure prelaminate technology, as well as the most secure crack prevention technology. Best of all, the inlay is totally compliant with all relevant industry standards."

Dutch giants NXP Semiconductors introduced their contactless, Java based 'SmartMX'. Dominique Brule said, "SmartMX meets the needs of high-volume, multi-application markets such as banking cards, SIM cards,





and public transportation.” Closer to home, Scottish based Ecebs launched the ‘ACIS ticketing solutions unit’, a touch sensitive display screen for rail, or bus information. The device has proved so successful that Cambridgeshire Council is currently piloting the technology across the county. Ecebs Research and Development engineer Stephen Mcspadden said, “The solution offers the integration of real time information systems and smart ticketing. It has benefits for transport authorities and the travelling public.”

In the last three years, the Cartes show has experienced a 33% growth, the event continues to drive innovations and enable attendees to discover new technologies. Contactless and security markets are currently experiencing strong development with e-commerce and pre-payments gaining momentum. This has encouraged major players to work together across a number of sectors, increasing convergence and the adaptation of businesses. The industry landscape is rapidly changing, and Cartes has proved that the card market has plenty to fear - and look forward too.



## The Sesame Awards 2008: Peer Recognition

By Tom Tainton, Smartcard & Identity News



*Tom Tainton*

Set among prestigious surroundings at the Pavilion Gabriel, the 13th Sesame Awards provided the perfect start to the Cartes Show. Acclaimed by industry players, the prestigious ceremony celebrates the cream of the industry’s technology and new innovations. The judges look for products that offer a true breakthrough to the card sector, as well as major benefits to the end user. The awards were a climax to a busy year which has seen markets such as contactless rapidly develop. This year, a record 233 organisations entered products with everyone involved eager to scoop one of the industry’s highest accolades. The Sesames aren’t just an opportunity for businesses to pat themselves on the back either. The awards provide an outstanding opportunity for products to gain international recognition, thus enhancing global reputation and credibility. It’s easy to understand why; over two hundred journalists and professionals attend the event on the lookout for new market products.

The Sesames are judged by a panel of experts from the media and industry alike. This year’s jury included members of the NFC forum, Smartcard Alliance, National association of Banking, and a number of publications such as Card Technology Magazine, Cards Now! Asia and Regarding:ID. The awards are divided into three main categories, hardware, software and applications. The hardware category rewards the best smartcard, microprocessor, or manufacturing equipment. The software category aims to promote multi-application programs, algorithms and operating systems.

The Sesame applications award is divided into eight major activity sectors.

- Identification – Biometrics, RFID and identity management.
- IT Security – Electronic signature and logical access control.
- Transportation – Public and private transportation.
- Banking and finance – EMV functions, and transaction logs.
- Health – Online healthcare services and medical records.
- Mobile – Machine to Machine, GSM, GPRS, and m-commerce.
- E-transactions – E-government and secure electronic transactions.
- Customer loyalty – Spending, bonus rates, and flexibility.



The winners were:

**Hardware Sesame** – Infineon Technologies won with SLE 78 Family with Integrity Guard. The product provides new levels of security, and can adapt itself to future viral threats, thus maximising flexibility and customer value. Runners-up were Inside Contactless with MicroRead and Infineon Technologies, this time with SLM 76 Security controller for M-to-M applications.

**Software Sesame** – Gemalto won with Smart Card Web Mash-ups, a Java card 3.0 embedded application that draws upon content retrieved from external data sources to create entirely new and innovative services. Runners-up were Hypercom with Hypersafe 32 and Oberthur Technologies with SafeSTIC.

**Identification Application Sesame** – Motorola won with Motorola bio-enrol, a flexible solution that allows ergonomic enrolment processes for all applicants and is easily integrated into workflows. Runners-up were Identita Technologies International with ID-touch, Motorola with Motorola Mobile AFIS and Smart Packaging Solutions with Anti skimming solution for e-passport.



**IT Security Sesame** – GO-Trust won with GO-Trust SD solutions, an embedded smart card chip that enables applications to run over a billion cell phones at one time. Runners-up were Gemalto with BioPIN – enabled Gemalto.NET smart cards, Giesecke and Devrient with StarSign Mobility Token, and Privaris with PlusID 75.

**Healthcare Application Sesame** – Oberthur Technologies won with WebSTIC.Health, a secure USB portable stick that extends the use of the online health vault in offline mode. Runners-up were Gematik – Gesellschaft für Telematikanwendungen der Gesundheitskarte with Mobiler Konnektor, Hypercom with medCompact and NXP Semiconductors with KeepIn Touch-NFC solutions.

**Transportation Application Sesame** – Giesecke and Devrient won with Touch & Travel, an NFC mobile ticketing solution that combines classic SIM functionality with NFC technology. Runners-up were Oberthur Technologies with WebSTIC Fly, and Smartsoft Information Technologies with SmartCity.

**Mobile Application Sesame** – Oberthur Technologies won with Gigantic Wuaow, a multimedia SIM with exceptional potential in terms of interactivity. Runners-up were Neowave with Weneo-NFC and Oberthur Technologies with WebSim Local Advertising.

**Banking and Finance Application Sesame** – Xiring won with Xi Sign Wallet, a pocket, slimcard - size solution that manages contactless EMV functions, electronic authorisation and transaction logs. Runners-up were Thales with Thales SafeSign Pilot Package for mobile authentication and Xiring with BioPass.

**E-Transactions Application Sesame** – Atos Worldline won with Fast booking on ATM, an application that enables reserving of tickets through an ATM machine, generating increased income for banks. Runners-up were SafeNet with ViewPIN+, EtherTrust and Sagem Orga with TLS-Tandem, and the Immigration Department of Hong Kong with e-passport self-service Kiosk.

**Loyalty Application Sesame** – Garanti Payment Systems won with Flexi Card, the World's first credit card to allow holders to determine specifications compatible with spending habits. Runners-up were Contactless Data with MobiFetch, Experian with Come&Tap, and ViVOtech with ViVOnfc 3.0.

Remy de Tonnac of Inside Contactless said, "The Sesame Awards really bring out innovation and talent and have become a must for the smartcard industry. To be rewarded for our efforts is a great honour to us and our partners."





## World News In Brief

### NFC Forum Announces New Chairman And Vice Chairman

The NFC Forum, a non-profit industry association that advances the use of Near Field Communication (NFC) technology, announced the newly elected Chairman and Vice Chairman of its Board of Directors. The association also announced the publication of its new white paper titled "Essentials for Successful NFC Mobile Ecosystems."

Heading up the organisation is new Chairman Koichi Tagawa, General Manager of the Global Standards and Industry Relations Department of the FeliCa business at Sony Corporation. Mr. Tagawa has been involved in promoting the adoption and standardisation of NFC technology since 2002. Mr. Tagawa replaces outgoing Chairman Christophe Duverne of NXP Semiconductors.

The newly elected Vice Chairman of the NFC Forum is Simon Pugh. Mr. Pugh is Group Head, Center of Excellence for Mobile for MasterCard Worldwide's Advanced Payments group. In this role, Mr. Pugh is responsible for developing and executing MasterCard's strategy for mobile commerce. Mr. Pugh also works as a liaison with strategic business partners to promote the development of programs to support MasterCard's advanced payments initiatives.

Elected by a vote of the NFC Forum Board of Directors at its September meeting in Orlando, Florida, Mr. Tagawa and Mr. Pugh join Vice Chairman Gerhard Romen of Nokia and Secretary and Treasurer Martin Buhrlen of NXP as Board officers.

### GSMA Calls For Mobiles To Have NFC Features As Standard By 2009

The GSMA, the global trade group for the mobile industry, has called for full NFC functionality - including the standardised 'Single Wire Protocol' interface - to be built into commercially available mobile handsets from mid-2009, in order to ensure that consumers can reap the benefits of mobile payment services as soon as possible.

The GSMA's Board - meeting this week in Macau, China - fully supports the need for the 'Single Wire Protocol' standard to provide the interface between the Universal Integrated Circuit Card (UICC, or SIM card) and the embedded NFC chipset within

the handset. The NFC chip can communicate with existing contactless readers to deliver a wide range of secure, interoperable and transparent services, such as credit and debit payments. A series of operator trials - under the GSMA's 'Pay-Buy-Mobile' initiative - have demonstrated that consumers can use UICC-based NFC handsets to quickly, easily and securely pay for goods and services in shops, restaurants and train stations.

Rob Conway, CEO of the GSMA, said, "There is no doubt that there is a huge latent demand for a large variety of mobile transaction services, of which there is universal interest in proximity payments, as trials across the world have already shown. We are committed to ensuring that mobile payment services are delivered as efficiently and cost effectively as possible. But this will require device manufacturers to make sure that the vast majority of commercially available handsets incorporate the Single Wire Protocol and Near Field Communications features as standard."

"Doing so would enable the industry to leverage significant economies of scale, and ensure greater accessibility of NFC services for mobile users, added Conway."

### Mobile Money Transfer & NFC To Account For 50% Of The M-Payments Market By 2013

Mobile money transfer and contactless NFC (Near Field Communications) will together account for 50% of the overall mobile payment market globally by 2013, (based on the gross transaction values) according to Juniper Research's new Mobile Payments Study.

The Juniper report found that the mobile payments market, which is today dominated by purchases of digital goods such as ringtones, music, and games, will in future be driven by subscribers transferring money and using NFC features on their handsets to make purchases. This will drive the overall mobile payments market to grow by a factor of ten between now and 2013.

Report author Howard Wilcox explained: "We see significant opportunities for new services making it easier for the 'under banked' population and migrant workers to make remittances, using their mobile phones as mobile wallets: the services already in operation are seeing rapid growth." Wilcox added that mobile wallets will incorporate NFC, which will





enable people to use their mobile phones to pay for small value items such as refreshments and magazines.

## **Equifax Develops Online Identity Card**

US consumer credit report agency Equifax has developed an online identity card that it said will enable businesses to reduce fraud risk and strengthen customer relationships.

The company said the Equifax Information Card, I-Card, is the online equivalent of a driver's license, passport, or similar ID, and allows consumers to click-in to access sites that accept the card and conduct online transactions with greater security and control without having to fill in forms or remember passwords. The company is partnering with Parity to offer the card. Equifax I-Card customers will also be offered Parity's Azigo I-card management software to enable one-click sign-in and identity verification.

In June, Equifax, Deutsche Telekom, Microsoft, Google, Oracle, Novell, Intel, PayPal, Parity, and others formed the Information Card Foundation, ICF, an industry consortium to raise awareness among online businesses and their customers and to ensure open standards.

## **Australian Transport Ministers Agree On Smartcard Interoperability Protocol**

Australian driver's licences are now set to move into the digital age, with all the nation's transport ministers agreeing on how information will be stored on "smartcard" licences.

The signing of the Smartcard Licence Interoperability Protocol (SLIP) will ensure that when states and territories introduce smartcard technology the information contained on the card's chips will be accessible by the traffic and law enforcement authorities of other jurisdictions - while safeguarding the privacy of Australians.

Smartcard technology will make it harder to use stolen or fake cards, an important protection in these times of growing identity theft.

These licences also have the potential to make it easier for motorists to change their personal details and store a range of other important information such as donor and health information.

The Protocol is an example of how a national approach can be achieved with the cooperation of all jurisdictions. It was developed by Queensland Transport in consultation with state transport and licensing authorities as well as business groups.

## **Visa payWave In Germany**

Visa Europe, Landesbank Berlin AG and Gemalto announced the introduction of contactless payments in Germany. Contactless payments with the Visa payWave card allow transactions in less than a second. The credit card is featured with a contactless chip. For purchases of up to €20 consumers will just need to wave their Visa payWave card in front of the reader and the payment is completed in less than a second with no need to enter their PIN. The Visa payWave cards are issued in collaboration with the technology and security service provider Gemalto.

## **Bundesdruckerei Continue To Produce German Driving License**

Bundesdruckerei has won the pan-European call for bids for the production of the next generation of German EU driving licence cards. This means that the Berlin-based company will continue to produce German driving licences for another ten years. The new contract will commence in 2011.

In face of international competition, Bundesdruckerei succeeded in winning the contract. As of 2011, new security features will be integrated to enhance the driving licence further. Today, German driving licences already feature a host of such visible and invisible characteristics. The information on the document, for instance, is engraved at various depths into the polycarbonate card. This makes life particularly hard for forgers. The German driving licence card is one of the most secure worldwide. This contract warrants that citizens will continue to receive their driving licences quickly and in a secure manner. This is guaranteed by tried and tested logistics between Bundesdruckerei and the around 650 German driving licence authorities.

Bundesdruckerei has been producing the new driving licence in credit-card format since 1999 according to the EU's standard. Since then, around 35 million of these documents have been issued to German motorists. The company is planning to produce up to three million driving licences annually. In addition to driving licences for Germany, Bundesdruckerei also produces driving licence cards for other European countries, such as Iceland or Lithuania.





# Biometrics 2008, London, October 21-23

By Peter Hawkes, Smartcard & Identity News Associate



*Peter Hawkes*

At last Biometrics suppliers have plenty of satisfied customers. This was the main message I took away from this Conference and Exhibition.

The Biometrics Industry has been a long time in the making. It is easy to forget that this was the 11th event in the series. Managed as usual by Mark Lockie it was organised by Elsevier. Details are on 'www.biometrics2000.com'.

The Conference attracted over 220 delegates. There were 55 presentations. Many of these were case studies on successful applications. Frequently the Presenter was from a Public or Private Sector organisation now using biometrics. Some 2000 people visited the Exhibition and there were some 50 stands.

The Plenary Conference Session on the morning of Day 1 was followed by two parallel sessions. This structure continued throughout the following days, and Mark had given these various themes. However it strikes me that underlying these there is currently a schism facing the Management of Biometrics suppliers. They must choose between two possibilities for Business Development. They can seek business from either the Private sector or Public Sector.

On the one hand there is now a plethora of opportunities for small and medium scale biometric systems for use in Industry and Commerce. On the other hand there are major Government Systems based on Biometric identification and authentication. Examples of such systems are mostly found in International Travel and Law Enforcement. Global travel is facilitated by the ICAO mandates for e-passports etc. International crime is combated by Interpol and, within Europe, by EURODAC.

The need for inter-operability of documents and images between countries places heavy demands on interface Standards such as are now becoming available from ISO. National Government Systems are large with millions of users rising to tens of millions over the next few years. This is big business but the biometric content is relatively small, so most of the contract value goes to the System Integrator leaving only modest rewards for the biometric supplier. In contrast most early deployments for biometrics in the Private Sector are still small in scale. Design and development takes months rather than years and as a result they can often be tackled by the biometrics companies acting alone.

The advantages and disadvantages of Government biometrics business became apparent as the Plenary session progressed. The business opportunities may be big but procurement and development can take years. Some of the systems are open and involve multiple Government Departments and Agencies in a given country. Most require inter-country collaboration. At every stage progress may be hindered by political considerations. Despite the recent appearance of numerous International Standards, more are yet needed to ensure full interoperability.

In contrast systems for use by companies in the private sector are usually closed. They are quickly authorised if the Business Case is sound. 1 to 1 collaboration between the User and the Supplier Company is easily arranged. Invention and innovation flourish. There is no need to wait for the appearance of new Standards. Where base standards are essential to the needs of Industry and Commerce the recently published ISO standards provide adequate support. Last but not least the Supplier is paid promptly.

The keynote speech was by Meg Hillier, Parliamentary Secretary of State for Identity in the UK Home Office. As last year "our" Minister gave an eloquent account of progress with the UK National Identity Scheme (NIS). From November 25th this year, fingerprint and face image data is being collected from foreign people from outside the EC who wish to reside in UK for an extended period. Mostly they are here for study or work purposes. They will receive ID cards albeit these are not the true National ID cards. One important difference will be that the latter will act as a travel card accepted as an alternative to a passport for use at border crossings within Europe.





She described outline plans for issue of ID cards to UK Nationals 2009-2012. More detailed plans were issued by the Home Secretary on November 6.

See:

- [www.ips.gov.uk/identity/press-2008-11-06.asp](http://www.ips.gov.uk/identity/press-2008-11-06.asp)
- [www.ips.gov.uk/identity/scheme-cwic.asp](http://www.ips.gov.uk/identity/scheme-cwic.asp)
- [www.ips.gov.uk/identity/downloads/ConsultReportv2.pdf](http://www.ips.gov.uk/identity/downloads/ConsultReportv2.pdf)

Later in the Plenary Session talks on other aspects of the NIS were given by Andrew Dent and Duncan Hine of the Identity and Passport Service (IPS). Andrew Dent covered plans for the “CWIC” programme; this will begin with the registration and issuance of ID cards to “airside” workers at UK airports. These cards will be the first ID cards issued to UK Nationals.

Several misunderstandings about this plan were clarified by this presentation. Duncan Hine outlined the measures being put in place by the IPS for ensuring the integrity and security of the NIS.

The Plenary Session was followed by two parallel streams for most of the rest of the Conference. This made it impossible for me and other delegates to attend both of two presentations running in the same time slot. Partly to compensate for this Elsevier is making available a complete video and audio record of the entire proceedings.

The European Commission is doing a lot of work on biometrics based systems. This is for the criminal justice systems and to reduce the porosity of Europe’s borders to illegal immigrants from Countries outside the EC and the other “Schengen” countries. A special session on October 22 covered “Biometrics in Europe- Programmes and Policy”.

Frank Paul of the EC summarised this activity in an excellent introductory talk “The EC’s next steps in border management-: What impact on the biometrics industry?”. He was followed by Jean-Luc Aminot of the French Government’s Secure Documents Agency. As its title suggests the agency is approaching French Government needs for secure ID cards etc by a rather different route than UK’s IPS.

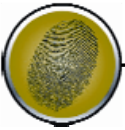
Reverting to the last part of the Plenary Session two presentations covered R&D on aspects of revocable biometrics. These presentations, on what may become a commercially important technology, were by Nicolas Delvaux of Sagem Securite and by Russ Ryan of the National Biometric Institute (USA). Nicolas gave a fluent description of the EC funded project “TURBINE”. TURBINE aims to produce a solution based on fingerprints. See: ‘[www.turbine-project.eu](http://www.turbine-project.eu)’.

Revocable biometrics has numerous alternative names. One of these, used by Russ Ryan, is “anonymous biometric authentication”. This title well describes one of the potential functional advantages, enabling the Protection of Personal Identification (PII). See: ‘[www.nationalbiometric.org](http://www.nationalbiometric.org)’ for an overview of Anonymous Recognition. Russ indicated a preference for iris recognition as the basis for the new technology being devised by the Institute and partners.

A third form of revocable biometrics noted at Biometrics 2008 was developed by Genkey Corporation. This company had a stand in the Exhibition. The technology and two initial applications are described on: ‘[www.genkey.com](http://www.genkey.com)’. Although much in the news this year revocable biometrics has in fact a long history. I first came across it in 1976! The inventor was David Law, then MD of Transaction Security Ltd.

A notable talk on UK Government applications of Biometrics was by Geoff Whitaker of the NPIA. He spoke on “delivering mobile identification in the UK police service”. The first such biometrics technology to be deployed by the UK police was the use of “Lantern” mobile fingerprint capture terminals by the Essex and other Police Forces. This began in 2006. The terminals have been successful in identifying suspects giving false names and addresses to police on highway patrol. A thumbprint of the suspect is scanned in and transmitted by radio links etc to the UK Criminal fingerprint database. Results of any ‘hit’ from a search are sent back in minutes. This saves hours of police time hitherto wasted in taking suspects back to police stations for identity checks. Follow-on technology for personal identification is now the subject of procurement plans. Termed MIDAS, this will further increase the productivity of field operations by the UK Police.





Examples of UK Biometrics companies selling complete systems to Industry and Commerce were provided by case histories from Aurora Computer Systems Ltd of Northampton and Omniperception Ltd of Guildford. Aurora was formed in 1999. Since then it has grown successfully by devising face recognition based systems for Time & Attendance recording. Greatest success has been in the Construction Industry. Careful study of the application shows that Face recording and recognition meets the needs of both workforce and management on building sites. Recently the company has devised its own Face Recognition software.

Although the workers on building sites come from many different countries no particular difficulty has been experienced in training new workers to enrol in the system and use it daily. This may be because of good signage and use of instructions produced in all relevant languages. Typical time for an enrolment scan is 6 seconds. The time taken to verify against a “clocking on” card is less than 2 seconds.

Having achieved good sales in UK the company has now entered the Middle East market for building projects. This export policy contrasts with that adopted by many UK technology companies seeking to expand. They do well in the Home Market, see a large potential market in the USA and focus entirely on expansion in the USA. For a variety of reasons very few succeed there.

In the discussion after his talk Hugh Carr-Archer, Founder and CEO of Aurora was asked what Market Research method he used to focus on the Construction Industry as an ideal target. His answer was that no formal method was used. A mutual friend introduced him to the right man, the Security Director of a major Construction company. Together they framed a possible solution for more accurate Time and Attendance Recording by site workers. They tried it and then made appropriate modifications until it worked. Payback period can be less than a year. For details of Aurora go to: ‘[www.auroracs.co.uk](http://www.auroracs.co.uk)’.

Omniperception Ltd is a spin-out from Professor Josef Kittler’s computer vision group at the University of Surrey. The Company specialises in the automatic recognition of faces and objects. The presentation was by David McIntosh, CEO of Omniperception since February 2003. His talk was introduced by John Hellious. He is Director of Physical and Logical Security, HSBC Bank. Mr Hellious summarised his operational strategy as “Deter, Deny, Detect”.

The two companies have worked together to devise a face recognition system for control of access to the Bank’s remote telecommunication sites. These sites may be unattended, so when a service engineer has to visit one of them access is supervised by remote CCTV link to a human guard at headquarters. As with Aurora face biometrics used to check the engineer’s claim for access. Enrolment and verification times are similar to those reported by Aurora.

Ambient lighting conditions vary widely between sites and according to time of day. This greatly affects what appears in the face image “seen” by the computer. To compensate for this the company uses a combination of near-infra-red flash and steady visible light. The Face recognition Technology is resistant to impersonation and to spoofing by artifacts such as photographs of someone already enrolled in the system. The company’s Web site is: ‘[www.omniperception.com](http://www.omniperception.com)’.

Deployments of iris recognition are mostly associated with government schemes such as Registered Traveller programmes. So it was good to hear a case history of iris recognition starting to be used on a very large scale in India for Time and Attendance Recording. The presentation of this case history was given by Tarvinder Sembhi. Formerly with Iridian he is now President of 4G Identity Solutions of India ([www.4gid.com](http://www.4gid.com)).

The company has this year supplied an iris recognition based Employee ID system to Reliance Industries Ltd. Reliance is a major oil product refining company based in India. It operates on 5 campuses across the country. Manual labour is employed on a much larger scale than in Refineries in Europe or North America. The labourers are hired on a contract basis. 250,000 labourers working for the company have been enrolled in a company wide iris database. Despite reports to the contrary from elsewhere Mr Sembhi said that “Failures to Enrol” were not encountered.

The aim was “One person, one record”. Due to the very low FMR and FNMR of iris this has been achieved. So various abuses by employees and others have been stopped. For example persons can no longer arrange to be employed under two identities, each with a wage packet. Similarly blacklisted persons attempting to re-enrol with a new identity are detected by a “one-to-many” search of the company’s iris database.



Mr Sembhi believes the Reliance system is the largest Private Sector iris biometric system so far deployed. It is far from the first. Aditech Ltd of Amersham UK has been supplying access control systems based on iris recognition since 1995. Aditech had a stand at the Exhibition. The Web site is at: 'www.aditech.co.uk'. The site includes several case histories. Notable customers include British Telecommunications and the City of London Police.

Talks, which I could not attend, included one on the use of voice biometrics as part of the means of safeguarding telephone based financial transactions against fraud. This was by Adam Shearn of Nuance Inc. See: 'www.nuance.com'. It is good to read that real progress is being made. I worked on Speaker recognition technology in the late 1980's. The results then were disappointing.

Despite the gloom engendered by the worldwide banking crisis most biometric players at the Conference seemed confident of the prospects for their chosen biometric technology. I particularly welcome the enthusiasm of user organisations. In my view their involvement is essential at this stage in the growth of the Biometrics industry.

Some Biometricians think that 2008 is going to be remembered, as the year in which the biometric industry finally took off. I disagree. There is still much to be done. This is in areas such as Scalability, Robustness, Accuracy, Personal Data Protection, Security, Ease of use/Exception Handling, Spoof-detection and Multi-modal fusion techniques. These problems are being solved but it takes time. The nearest analogy I can think of is the rise of the Smart Card. Invented in 1967 it is still evolving in both technology and applications.

## World News In Brief

### **Precise Biometrics Delivers Match-on-Card For New National ID Card Program**

Precise Biometrics has received an order of Precise Match-on-Card licenses for the first phase of yet another National ID card program. The project is related to an ID card program in an un-name non-european country. The total value for Precise Biometrics has the potential to reach approximately USD 3 Million (SEK 24 Million) over a four-year period, based on the current deployment plan.

The project aims to equip all ID cards in the country with Precise Match-on-Card for secure verification of the cardholder. This is the fifth country to choose Precise Match-on-Card. Countries that already use the technology are Thailand, Qatar, Bahrain and Portugal.

Precise Match-on-Card is a technology that enables the process of storing and matching fingerprint information on a smart card to establish the presence of an individual. As the fingerprint information does not leave the card, there is no need for a database and the cardholder's integrity is preserved.

Thomas Marschall, Precise Biometrics' CEO is most pleased that Precise Biometrics' technology soon is

available in one more National ID card.

Precise Biometrics has approximately 20 million deployed card licenses and over 80 million contracted licenses for its Match-on-Card technology today.

### **Private Firms Fingerprint Millions For UK ID Card**

UK Home Secretary, Jacqui Smith, announced this month that the Government wants to start a "dialogue" with companies that could help gather and store biometric data for the cards. The Home Office will ask businesses, such as banks, post offices and high street shops to consider bidding to run "enrolment booths" where people will give their fingerprints.

Ken Munro, Director of Secure Test, the leading UK penetration testing and IT security advisors comments: "The security implications of this plan have clearly not been fully considered. Time and time again the government has failed to safely store the public's vulnerable data, and now it wants to get local businesses to shoulder the burden for them. I really feel the government has not given enough thought to the critical consequences of this data being, inevitably, stolen or misplaced."

