

DECEMBER 1997

# SMART CARD NEWS

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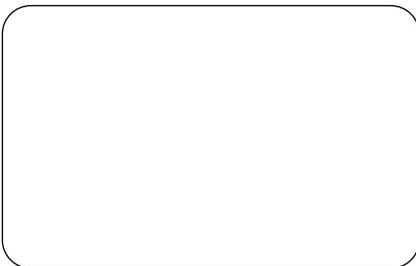
## British Govt Launches Smart Card Initiative

The new Labour British government has formally legalised electronic signatures using a Smart Card and is therefore the first government to accept electronic forms from the general public over the Internet.

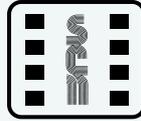
The pilot scheme, which was launched by David Clark, Minister for Public Services, will be rolled out to thousands of people over the coming months and is the start of the governments commitment that a quarter of its business will be conducted electronically by the year 2002.

The electronic form replaces a number of complex paper forms that were originally required to register as self employed. The form is on the Internet and is digitally signed using Smart Card technology provided by NatWest, the inventors of Mondex.

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## British Govt Smart Card Initiative

*Continued from page 221*

The pilot is being run by NatWest in several of their branches as of Wednesday 10th. December. Business advisors at these branches will use the technology to enable customers to register as self employed on-line for tax, national insurance and V.A.T (Added Value Tax).

The government anticipates that the arrival of digital television will enable many government services to be delivered directly into the home as well as online information booths sited at post offices, shopping centres and service stations.

Alan Stevens, chief executive of EDS UK, who worked closely with the Joint Working Group (Inland Revenue, Contributions Agency, Customs and Excise) on the application for the form, are hosting the service and providing the security functions said, "we support the drive towards more open, accessible government, by providing web hosting and other services for this ground breaking pilot".

Microsoft have developed the software for the intelligent form, which is very user friendly using dynamic HTML.

The Smart Card uses a prototype version of the Multos operating system developed by the NatWest development team for Mondex International, using a Hitachi H8 chip and Gemplus Reader/Writers. Security operates by producing a hash function of the form data which is then encrypted using asymmetric cryptography to generate the digital signature.

**Contact:** Jo Clift or Howard Rhoades. Press Office, Cabinet Office - Tel: +44(0)1712700634/1271/1131.  
**Website:** [www.self-employment.direct.gov.uk](http://www.self-employment.direct.gov.uk)

## Malaysian E-cash Project

Proton technology from Banksys in Belgium has been selected for the electronic cash part of Malaysia's Multipurpose Card tender.

The Malaysian Government is the first government in the world to implement a national strategy on Smart Cards. The Multipurpose Card project is part of its Multimedia Super Corridor (MSC) initiative intended to position Malaysia as the Asian leader in

information technology.

The contract for the electronic cash scheme was awarded to Triumphant Launch Sdn Bhd, a 50/50 joint venture company between ERG of Australia and Banksys of Belgium.

The contract award is a huge success for Banksys and clearly establishes Proton as a global leader in Smart Card electronic purse technology, bringing the number of countries where Proton technology will operate to 15. ERG will provide the resources and support to Triumphant Launch for the introduction of the system during 1998.

The Malaysian Multipurpose Card (MPC) is described as a flagship scheme and is one of the most innovative in the world, calling, initially, for eight applications to be developed and made available on two separate cards by the year 2000.

## Government MPC

The Government MPC will combine national ID, driving licence, medical, immigration application and optional E-cash. National ID is the "anchor" for this card because of its widespread use and common data set that will be shared with other government applications. ID will be implemented through the security of chip technology and biometric identification. The ID number will also serve as an access key to other government and private applications that do not require dedicated chip space.

The driving licence will have enhanced functionality to include a record of outstanding traffic violations to strengthen enforcement while the immigration function will act as a passport supplement to facilitate efficient entry and exit of Malaysia. The medical application will contain basic medical information to improve diagnosis and delivery of care in emergency and general care situations.

## Payment MPC

The Payment MPC will accommodate international credit, debit, ATM and E-cash functions and will be individually issued and branded by issuing banks.

## Disposable E-cash Card

E-cash applications and infrastructure developed for the MPC will be compatible with a disposable E-cash card which will be issued by the Payment Consortium of Malaysian banks.

## News

Electronic cash is the first of three schemes to be selected. The tender deadline for the Government and Payment MPCs is 13 December and contracts will be announced on 26 February next year.

Mohammed Abdullah, Chairman of Country Synergy, the payment consortium of Malaysian banks, said: "Potential bidders for the Payment and Government MPC will be required to adopt the Banksys electronic cash scheme in their proposals."

The significance of this announcement that Proton will underpin all of Malaysia's multipurpose Smart Card system is that costs will be reduced as Country Synergy and Banksys will be involved in integrating the electronic cash on both MPCs.

The E-cash scheme will be tested to prove the specifications and establish functional acceptability in a pilot involving up to 2,500 cards and 300 devices in a closed environment such as a university. This will be followed by a commercial pilot to assess consumer acceptance and develop appropriate marketing and promotion strategy. This pilot will involve up to 100,000 cards and 5,000 devices and will be in an open environment in a restricted geographical area.

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## Smart Cards for Fort Knox

Fort Knox, known throughout the world as the site for the United States' gold reserves, is also a US army facility and is planning to replace cash with Smart Cards for all military personnel.

The US Department of the Treasury has commissioned a one year cashless society pilot within Fort Knox, changing the way that soldiers are paid and taking a step towards its goal of conducting all government payments and collections electronically.

Some 11,000 Smart Cards will be issued to new soldiers over the course of the pilot as they arrive for their basic training course. Their pay will be loaded onto the card which they can then use to pay for purchases and services at troop stores, vending machines and concessionaires (barber, tee-shirt shop etc) available at the base.

Involved in the pilot are ICL, the IT systems and services company; Mellon Network Services, a division of Mellon Bank Corporation; Gemplus, VeriFone, Product Technologies and Debitex. ICL is providing the Central Management System, a core component of its SmartCity Electronic Money System (EMS).

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## Swedish Banks Issue Chip Cards

Visa Sweden announced last month that its member banks would start to issue multi-function payment cards using chip technology. The new cards will be compatible with the EMV (Europay / MasterCard / Visa) specifications for a national roll-out of credit and debit chip cards.

In a first step towards the introduction of a multi-function card, Sweden's electronic purse, called Cash, will be added to Visa cards from early 1998.

**Contact: Ian Gatherum, Visa International - Tel: +44 (0)171 937 8111. Fax: +44 (0)171 937 0877.**

## Philips Chip Approved by ZKA

Philips Semiconductors has joined other chip suppliers to Germany's Geld Karte electronic purse scheme with the approval by ZKA of its P83C868 Smart Card controller IC which provides 20K bytes of ROM, 8K bytes EEPROM and 384 bytes RAM.

ZKA (Zentraler Kredit Ausschuss) representing the savings, public, co-operative and commercial banks, is the operator of the Geld Karte electronic purse. It reports that since national roll-out started in October 1996, around 40 million cards have been issued, the vast majority with the Eurocheque brand.

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## GCS Service Mark Plan

The Global Chipcard Alliance (GCA) last month announced at its annual meeting in Kuala Lumpur its intention to institute a service mark plan which, when completed, will allow consumers to recognize "GCA approved" Smart Cards and terminals as products which fulfill a strict global interoperability requirement set out by the GCA to ensure service and protection levels worldwide. A certification process to review and validate products using the service mark and to then administer adherence to global interoperability specifications is under evaluation.

"It will not be owned by any one industry, company, or for profit organization," according to David Anastasi, President and a member of the board of the GCA as well as Vice President and General Manager at US WEST Public Services.

"Our vision is quite simple, within the next five years smart/chipcard consumers will be able to access their personalised applications anytime, anywhere and for many functions," added Anastasi. "The Global Chipcard Alliance's mission is to provide to consumers worldwide an easy way to identify the devices where their cards are accepted, serviced and protected. The GCA wants to ensure that a customer's needs are met whether he/she is just around the block or in another part of the world," he continued.

Established in 1996, the Global Chipcard Alliance's members include: PTT Telecom Netherlands, U S WEST Communications, GTE Telephone Operations, Bell Canada, Telekom Malaysia, Deutsche Telekom, American Express, Microsoft, IBM, Telstra, Northern Telecom, Landis & Gyr, Oracle, Gemplus, SPT Telecom, and Elcotel.

**Contact:** Lynn Carlson of Regional Help Desk, America (US WEST Public Services) - **Tel: +1 206 345 2380. Fax: +1 206 345 7145.** • **Global Chipcard Alliance Web site: [www.chipcard.org](http://www.chipcard.org)**

## Mobile Payment Terminal

Intellect has launched its Universal Payment Terminal - a hand-held mobile Smart Card terminal which can handle up to four different Smart Card schemes in addition to standard credit and debit cards - with an Aus \$15 million order.

The order was placed by Perth-based EFTPOS solutions provider EFTNET Australia, which is to market the terminal.

BankWest has been named as the acquiring bank for all transactions made with the Intellect Universal Payment Terminal under the Intellect and EFTNET agreement. The mobile terminals will communicate with the bank over the Telstra MobileData Network. This is similar in concept to the cellular telephone network which allows communication on the move.

Geoff Gander, General Manager for Intellect's Asia-Pacific operations, said the ability of the terminal to accept up to four different stored value card schemes was particularly crucial with the planned roll-out of four schemes in Australia within the next 12 months.

He said Chipper, Mondex, Visa Cash and Proton schemes would all be in use throughout Australia and mobile merchants would need a terminal to accept all four types of Smart Cards.

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## Australian Banks in SET Trial

National Australia Bank has joined the ANZ Bank, Westpac Bank, Commonwealth Bank and National Australia Bank in a partnership with Visa International to trial the SET Secure Electronic Transaction 1.0 protocol next year.

**Contact: Jeff Perlman, Visa International Asia-Pacific - Tel: +65 437 5513. Fax: +65 437 5567.**

## Mondex Roll-out in Hong Kong

Mondex electronic cash went live across Hong Kong last month as HongkongBank and Hang Seng Bank began issuing cards which can be used at over 5,000 merchants. The launch follows pilot schemes in which over 40,000 cards were issued.

**Contact: Robin O'Kelly, Mondex International - Tel: +44 (0)171 557 5036.**

## US Postal Service Joins NY Pilot

The US Postal Service is testing the use of Smart Cards by joining in the Visa, MasterCard, Chase Manhattan Bank and Citibank trial on the Upper West Side of New York City (SCN October 1997).

"Customers can purchase items in the time it takes to insert a card in a machine, without fumbling for cash or wasting time writing a cheque," said Terry Carter, Postal Service Assistant Treasurer, Payment Technologies.

"We see this as an opportunity to make it easier for customers to do business with us," he said. "Also, our participation in the pilot puts us at the forefront of leading edge technology. If this leads to Smart Cards becoming widely embraced by the public, we will be ready to offer our customers the latest in payment technology."

Three post offices on the Upper West Side are participating in the pilot test by accepting the stored value cards at 28 retail windows. A fourth site will be added soon.

NationsBank and First Data will provide processing, settlement and training support during the test. NationsBank is the national credit/debit card acceptance contractor for the Postal Service, and its subcontractor, First Data Merchant Services, processes the Postal Service's credit and debit card transactions.

The Smart Cards can be used for all retail postal transactions except for CODs and passport fees, said Carter, whose group is co-ordinating the Postal Service's participation in the trial. Beyond providing the ability to purchase items without cash at the post office, the cards can also be used for small purchases at news stands, fast food restaurants, dry cleaners, delicatessens, cinemas and other establishments.

More than 700 merchants ranging from small cash-only stores to large national chains, have signed up to accept the Smart Cards issued in the New York programme: Citibank/Visa Cash cards and Chase Manhattan Bank/Mondex cards.

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## OpenCard Framework Expands

A number of Smart Card industry companies have joined the OpenCard Framework Work Group set up in March 1997 to develop an open standard for the interoperability of Smart Card applications across many platforms, including network computers, personal computers, ATMs, GSM/PCS and point of sale terminals.

Founders of the OpenCard consortium are IBM, Netscape Communications Corporation, Oracle's NCI and Sun Microsystems. They have now been joined by 3GI, ActivCard Inc., Brokat GmbH, Bull PTS, Gemplus, Litronic, Motorola, Philips, SGS-Thomson, UbiQ Inc., and Utimaco.

Dr Toni Merschen, Worldwide Manager of Technology and Alliances, IBM Smart Card Solutions, said the industry was now delivering a true cross-platform interoperability. "Now developers can build network-based applications that utilise a variety of Smart Cards and terminals from different vendors, regardless of the platform they are running on," he explained.

Sun Microsystems plans to incorporate OpenCard into its network management and network computer strategies as a complement to Sun's Java Card platform for Smart Cards based on Java.

Information about the OpenCard framework and the OpenCard workgroup is available on web site: <http://www.opencard.org>

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## Products for Airline Industry

Systems integrator, Computer Sciences Corporation (CSC), based in El Segundo, California, has announced an agreement with the identification group of Philips Semiconductors, formerly known as Mikron, to focus on serving the needs of the airport/airline industry for Smart Card products, for example, baggage tagging, passenger management, electronic ticketing and boarding.

**Contact:** *Pam Schreier/Nikki Spinks, Bertram Gough PR (for CSC) - Tel: +44 (0)121 622 2666. Fax: +44 (0)121 622 2777.*

## China Agrees EMV Standard

The People's Bank of China, China's Central Bank, and Visa International have signed a memorandum of understanding whereby the Chinese government will accept the EMV (Europay, MasterCard, Visa) standard for Smart Card transactions. The agreement could result in the production of as many as 200 million Smart Cards in just a few years.

Like many early Smart Card adopters, China's initial efforts have been built around proprietary techniques, for example, the five-year-old Golden Card project in Shanghai, China - a joint venture between the Pu Dong Development Bank and France's Groupe Bull - uses proprietary Pu Dong interbank settlement software whose algorithm cannot work with the EMV protocol. The system has about 350,000 CP8 transaction cards in circulation, for point-of-sale payments and ATM or branch reloading.

"We had been negotiating with several banks in China in order to introduce an EMV system there," said Bob Hepple at Visa International. "Our and MasterCard's plan is that this system be internationally universal, not proprietary."

A Visa spokesman said he could not say exactly when EMV Smart Cards would start to be available in China, but predicted it would be "within a year or two."

## Go Ahead for Melbourne AFC

The State Government in Melbourne last month gave the go ahead for the first phase of an automatic ticketing (AFC) system for the city's public transport system utilising magnetic stripe cards and contactless Smart Cards.

Following extensive field-testing on rail, tram and bus routes, and what are described as "significant improvements in the performance of ticketing equipment," the State Government announced it was now satisfied that the OneLink multi-modal ticketing system was ready for implementation across the entire suburban transport network.

Roll-out of equipment has now started and will take around seven to eight months to progressively test and implement.

The OneLink consortium, including ERG Australia, Fujitsu Australia and Mayne Nickless, will now receive payments for the first stage, but will only be paid on a performance-based criteria.

The Premier, Mr Kennett, said: "OneLink is still required to achieve the original performance standards set out in contract and has agreed to pay penalties for late commissioning of both the pilot stage and the remainder of the system. Full payment will only be made when all equipment is in service and fully functioning."

**Contact: Steve Murphy - Tel: +61 3 9651 5799.**

## Aladdin Announces New ASE II

Aladdin Knowledge Systems has announced the availability of the new generation ASE II - Aladdin Smartcard Environment - which is compliant with the PC/SC standard providing a uniform model for interfacing Smart Card readers and cards with Personal Computers.

Microsoft's Edmund Muth, Group Product Manager for Windows NT Server and Infrastructure Products' Marketing, said: "Windows Smart Card developers will benefit from the comprehensive and easy development environment provided by this toolkit."

ASECards include memory, protected memory, CPU and crypto cards, all of which can be accessed via a single base Application Programming Interface (API). This facilitates the easy integration of various card types into user applications.

**Contact: Tom Crowley, Aladdin Knowledge Systems - Tel: +1 847 808 0300. Fax: +1 847 808 0313. E-mail tom.crowley@us.aks.com**

## Saho Orders GemCore

Taiwan systems integrator Saho Corporation has ordered 10,000 units of Gemplus' GemCore, a component kit for manufacturers to integrate a Smart Card interface into electronic equipment and plans to incorporate it into its access control devices for universities, banks, army camps and factories.

**Contact: Flavie Gill, Gemplus - Tel: +33 (0)4 42 36 56 83. E-mail: flavieg@cmail.edt.fr**

## Options Smart Credit Card for HK

The Jardine Matheson Group and Standard Chartered Bank have unveiled the Options Smart Credit Card which combines chip technology provided by Gemplus with all the features of a normal credit card, and offers instant redemption of bonus points and special offers at over 400 Jardines' retail outlets.

Nine leading retailers from the Jardine Matheson Group will offer benefits at their outlets all over Hong Kong. They are Wellcome, Mannings, IKEA, Maxim's, Olivier's Delicatessen, The Optical Shop, JOSMART, Ruby Tuesday restaurants and Shades sunglass speciality stores.

Customers can obtain instant redemption of bonus points for cash discounts at any one of the outlets with no minimum levels for spending or for redeemed points. Bonus points can also be redeemed through catalogue offers. While regular bonus points will be gained every time purchases are made, double bonus points will be earned through spending at the nine participating Jardines retail outlets. All purchases made with an Options Smart Credit Card are insured by purchase protection and extended warranty.

The card was launched on 4 November at the Hong Kong Exhibition and Convention Centre.

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## Transport Card Launched in UK

A contactless Smart Card-based transport card was launched in the County of Hertfordshire in England last month in a partnership between Hertfordshire County Council, bus company "The Shires" and Transmo Citycard, a technology company specialising in urban card systems (*see SCN September 1997*).

Phase one only involves bus travel and is seen as the framework for a travel, parking and other local services card as the scheme goes county-wide by the year 2000.

Children at schools in the main towns in the County are being issued with the new Citycard for use as free bus passes. Saver cards (frequent use discount

cards for students) are also being replaced with Citycards. The issue of cards to the elderly and disabled is under discussion.

About 220 buses have been equipped to read the cards and it is planned to extend the scheme during next year with the issue of around 30,000 cards.

**Contacts:** *John Batten, Managing Director, Transmo Citycard - Tel: +44 (0)1763 249933. Spencer Robeson, Head of Passenger Transport Unit, Herts County Council - Tel: +44 (0)1992 588656. Nigel Eggleton, The Shires (bus company) - Tel: +44 (0)1923 682262.*

## Iris Recognition for E-Commerce

IrisScan, Inc - exclusive owner and developer of iris recognition technology for automated biometric identification - and GTE plan to bring the technology into the world of cyberspace.

GTE's proprietary digital biometric certificates will be combined and both sender and receiver will be verified by their IrisCodes before the transaction is completed. Called Iris Certificate Security (ICS), a prototype will be available in Q1 of 1998.

## Eye-catching cash machines

Remembering your PIN number could soon be a thing of the past. Nationwide Building Society has announced that it plans to join with NCR Financial Solutions Group to test customer reactions to iris recognition technology. Instead of keying in a PIN, the cardholder will look into a camera.

The Society plans to install cameras capable of recognising a customer's unique "eye print" at a cash machine and at a counter of the branch in its head office in Swindon, UK, in the first quarter of next year.

The system has been developed by Sensar Inc., an IrisScan technology licensee (see above).

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## Belgium Personalisation Centre

Gemplus has opened a new FF 7 million card personalisation centre in Zaventem in Belgium. The opening of the centre comes as Belgium, in a joint project between the government and Mutualités Belges, prepares to launch a Social ID Card (SCN August 1997).

Starting in February next year, 10 million Belgian citizens will be issued with a card enabling data transmission, checking of social coverage and generating electronic medical prescriptions.

Gemplus is contracted to substitute a chip-based social identification Smart Card for the current magnetic stripe card. It is also responsible for card production, and graphic and electrical personalisation of the cards based on electronic files which will be transmitted by the health insurance organisations.

Personalisation will be conducted from the Zaventem centre while the mass mailing involved will be handled by Joos-Rotamail, Gemplus' partner for this project.

Gemplus currently supplies SIM cards to a Belgian mobile telephone operator, and Smart Cards to Valor, Proton and the Mutualités organisations.

The Zaventem centre's annual personalisation capacity will reach 15 million card units next year.

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## EPMS for Euro 6000 in Spain

CECA, the association of savings banks in Spain, which operates the electronic purse Euro 6000, has taken delivery of an Electronic Purse Management System (EPMS) from SIBS.

The system was developed by SIBS (Sociedade Interbancaria de Servicos), which manages the Portuguese automated teller machine (ATM) and point of sale (POS) network, and Hewlett-Packard Company.

"We chose this technology because we are firmly convinced that it is the best," said Braulio Medel,

President of CECA. According to Medel, the technology used in Euro 6000 makes it available to a far wider range of applications than any other EPMS currently on the market. Euro 6000, a multicurrency card, can be supplied in whatever currency the client desires. It also is the only system that meets European standard CEN WG10.

The system implemented at CECA was developed by SIBS and is based on the technology that supports the Portuguese electronic purse system, PMB (Multibanco EP). HP built a fault-tolerant data-centre based on its high-performance HP 9000 UNIX system platform to support the software. HP also was responsible for training CECA's technical personnel, for supporting the startup phase of the project and for advising on system configuration.

Euro 6000 was launched in January. CECA said it expects to issue 1 million cards by the end of 1997, generating an expected transaction volume of 15,000 million Spanish pesetas, and 10 million cards within the next decade, with transaction volume expected to reach 1 trillion Spanish pesetas by 2007.

In October, SIBS and HP began working on a similar project in Costa Rica. This system is expected to go live by the end of the year.

**Contacts:** Rui Ferro Meneses, SIBS - Tel: +351 1 847 3642. Fax: +351 1 793 5101.

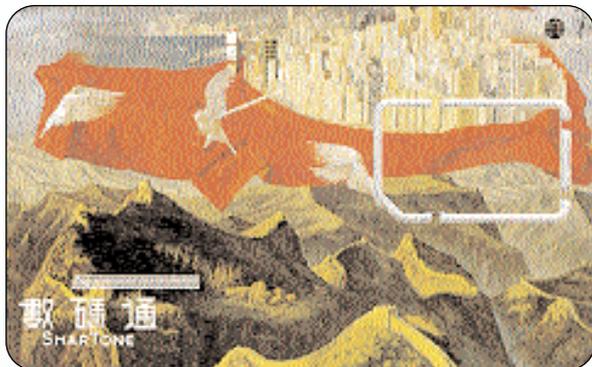
## Major Card Issuers Join SET

Four of the world's major card issuers are joining together to help lead the implementation of the recently published Secure Electronic Transaction (SET) 1.0 protocol, which provides a higher level of security for payment card transactions made over the Internet. Under the name SETCo, American Express and JCB Company are joining MasterCard and Visa to manage the SET specifications, handle software compliance testing and related functions, and address the issues related to the adoption of the global payment standard.

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## GSM Cards for Hong Kong

Right:  
Smartone Prepaid SIM Card



Far Right:  
The e-Christmas website  
[Text 100]

Below Right:  
Actress Lesley Joseph helps  
launch e-Christmas  
[Text 100]

Prepaid SIM cards that allow non-subscribers to use the GSM network are being introduced by several mobile service providers in Hong Kong.

First launched by Hong Kong Telecom in 1996 Hutchinson Telecom and Smartone now also offer cards. The prepaid cards give between 45 minutes and 4 hours of communication for HK \$200-900 (US \$21-96).

Gemplus has delivered 150,000 disposable GemX3 cards to local operators. A number of souvenir cards have been issued to commemorate the recent hand over to China.

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## Smart Web-surfing from Shell

UK holders of Shell's Smart Card, who also have Internet access, will now be able to collect points in cyberspace. SMART points will be scattered on seven different sites belonging to partners of the multi-company loyalty programme.

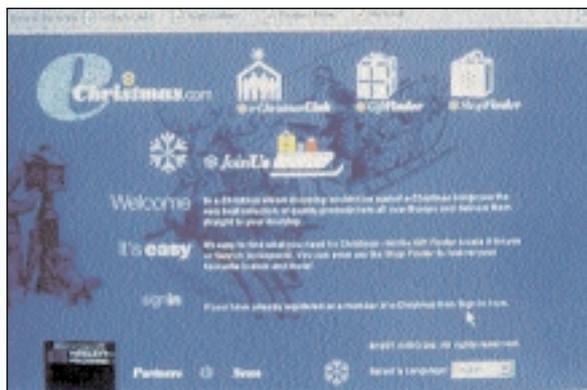
Points can be collected from Commercial Union, John Menzies, RAC, Shell UK, UCI cinemas, Victoria Wine and Vision Express.

Card holders can collect a maximum of seven points a week by clicking on the special smart credits scattered around the sites. These can then be exchanged for gifts at Shell service stations and John Menzies stores nationwide.

**Contact: Sarah James / Judy Everett, Shell UK Media Relations. Tel: +44 (0)171 257 3100 / 3894.**

## Internet Christmas Shopping

Forget the crowds of Christmas shoppers in town this year. The launch of e-Christmas will allow you to buy gifts from around the world without leaving the house. Just go on-line to [www.e-christmas.com](http://www.e-christmas.com)



The project centres around a multi-lingual, multi-currency retail Web site with two objectives; to educate and excite consumers and retailers by showing the opportunities of electronic commerce.

The e-Christmas site has been designed to give consumers a convenient way of finding, choosing and buying their Christmas gifts whilst negating many of the perceived difficulties of shopping on the Internet (eg. language, payment, shipping and delivery). The e-Christmas site expects between 20,000 - 50,000 hits a day.

The site is available in English, Dutch, French, German, Italian and Spanish. Payment systems will differ according to country but will cover major credit cards including Visa and Eurocard-MasterCard.



**Contact: Mario Tilney Bassett, Text 100. Tel: +44 (0)181 242 4201. E-mail: mariot@text100.co.uk**

## Festive Phonecards

GPT have manufactured 6,000 Smart phonecards for Manx Telecom. The cards feature the 19th century crofting village Cregneash situated in the South of the Isle of Man (see front). The restored thatched cottages are an example of traditional island skills such as spinning, weaving and farming.

**Contact: Christine Carter, Manx Telecom. Tel: +44 (0) 1624 636024. Fax: +44 (0) 1624 636011.**

## Smart Parking for Shoppers

The Melbourne Shopping Centre in Australia has a Smart Card parking system designed to reward big spenders. On entry to the car park the motorist receives a Smart Card from an automatic dispensing machine. The time of arrival and gate identification number are stored on the card. Each shop in the centre is equipped with a card reader. As the customer shops the amount spent is recorded onto the card by the retailer.

When the motorist leaves the car park the card is inserted into a reader at the exit. The details on the card are fed into the fee computer. All the entry and exit booths are linked to the Central Control Computer where information is collected each day and stored. Data collected includes parking statistics, purchase information and location reports. The information allows the shopping centre to work out the average length of stay in the car park, amount spent per vehicle and peak shopping times.

Shoppers benefit from substantially reduced parking rates and the shopping centre benefits from increased trading.

**Contact: Roger W. Sayers, Australian Retail Services. Tel: +61 3 9326 5022. Fax: +61 3 9804 7055.**

## Phone Home at Christmas

BT Payphones is giving 1,000 BT Smart phonecards to the Big Issue magazine in Scotland for their Open Hogmanay Shelter for homeless people.

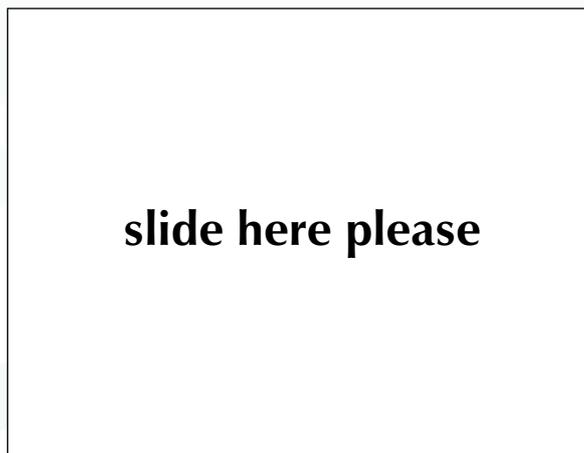
In London BT is providing 2,000 £1 phonecards and installing up to five payphones for guests and

helpers at the charity Crisis' Open Christmas Shelter. The shelters provide a warm place to sleep, three meals a day, entertainment and a range of services including hairdressing, housing advice, clothing, opticians, chiropody, medical and dental care.

Leslie King of BT said the phonecards "are given to guests so they can contact friends and family during the Christmas and New Year periods." This is the sixth year BT has supported the Crisis Christmas shelters and the second year it has supported the Big Issue's Open Hogmanay.

**Contact: Leslie King, BT Payphones. Tel: +44 (0) 181 666 7083. Fax: +44 (0) 181 666 4602.**

## Smart Partnership



Left:  
Skidata's system on  
the skislopes  
[Gemplus]

slide here please

Gemplus and Skidata are aiming for new markets together. Gemplus acquired Skidata in March 1997, a move interpreted as strengthening Gemplus's position in the contactless card payments market.

Skidata has invested more than £11 million in research in the last three years. It's main area of expertise is access control; specifically for ski lifts and car parks (see SCN March 1997). Gemplus has now announced the intention to aim for new markets such as loyalty cards for the tourist trade in cities and theme parks. Skidata also developed an electronic purse for tourist use in the City of Salzburg. Visitors had the choice of a Smart Card or Swatch Access watch (see SCN June 1996). Gemplus said that this experience will lead to new Access Watch applications in areas such as health, the e-purse and identification.

**Contact: Lisa Colley, Gemplus. Tel: +44 (0) 1705 486444. Fax: +44 (0) 1705 472081.**

## MasterCard Targets SA Townships

South Africa's crime-ridden townships will soon be able to use debit cards at ATMs and later carry cash electronically on Mondex cards following an agreement between MasterCard and two major banks, ABSA and Standard Bank. The deal is expected to double the number of South Africans with access to payment by plastic.

The two banks will allow their ATMs to be used for Maestro cards - debit as opposed to credit cards enabling customers to pay for goods and services using funds in their deposit accounts.

MasterCard says it has also signed a franchise with the two banks to allow them to introduce Mondex electronic cash Smart Cards in South Africa, Lesotho, Swaziland and Namibia.

Many of South Africa's townships do not even have a grocery store, let alone a bank, and only about five per cent of the 38 million population use credit cards. Many more have ATM cards, which only grant access to money in the bank and offer no credit or payment facilities.

"We see South Africa as one of the first markets to seize the overall strategy of migrating to chip-based products," said MasterCard's Henry Mundt. He added that the Mondex card would be available from late next year.

Both ABSA and Standard Bank intend to use the multi-application operating system MULTOS to bring Maestro and Mondex functions together on a single card.

**Contacts: Robin O'Kelly, Mondex International - Tel: +44 (0)171 557 5036. Doug Rozman, MasterCard International - Tel: +1 914 249 5861.**

## Card Recharging - Big Business

Smart Card users worldwide will be recharging their cards more than 27 billion times in 2005, predicts a new study from Killen & Associates which points to new business opportunities in this market area.

The study says that consumers will elect to charge their Smart Cards at public telephones, gas stations, merchants (like Blockbuster Video, McDonald's, and 7-11) and at home, using personal ATM services.

It adds that this behavioural change launches a huge market for financial institutions, telephone companies, and entrepreneurs that can provide card charging infrastructure and capabilities for multiple use and clearing.

Michael Killen, Company President, said: "Continuation of established Smart Card use in Europe, plus rapid Smart Card acceptance elsewhere, will create a terrific demand for recharging these cards."

He added that early adapters had already begun this process. Consumers in Belgium now used the Belgium PTT - Belgacom - to recharge Smart Cards issued by banks, Swiss PTT was recharging cards and, in New York, Citibank was testing a personal ATM to recharge cards.

## Fierce competition

The Killen & Associates study, *Transferring Value to Phone and Bank Cards: Opportunities for Telephone Companies and Financial Services Providers*, to be released this month, predicts that the market for recharging consumers' Smart Cards will generate fierce competition between financial services firms and telephone companies striving to protect and expand their card-based business.

**Contact: Bob Goodwin, Killen & Associates - Tel: +1 650 617 6137. Fax: +1 650 617 6140. E-mail: bgood@killen.com Website: <http://www.killen.com>**

## L&G Joint Venture in China

Landis & Gyr Communications and Tianjin Telephone Equipment Factory have formed a joint venture to manufacture chip card payphones for the Chinese market.

Called Tianjin Landis & Gyr Communications Co. Ltd., the new company, based in Tianjin City, is scheduled to be operational by March 1998.

The new company plans to manufacture and sell more than 100,000 payphones within four years. Currently, L&G delivers sub-assembled parts to TTEF for assembly and testing. Later the new company will produce most payphones locally.

**Contact: Adolf Deyhle, L&G Communications - Tel: +41 22 749 3510. Fax: +41 33 749 3208.**

## Chipper and Proton for the Internet

Holland and Belgium are both to introduce secure Smart Card payments and the reloading of electronic purses over the Internet.

In Belgium, the Proton electronic purse is being launched after testing by six partners - Banksys (developer of the Proton technology), Belgium Ad Valvas, EUnet, NetVision, Microsoft and PING.

Banksys says the purchase value of payments with a Proton card can be between 1BEF and 5,000 BEF and card users can use any PC provided it is fitted with a C-ZAM/PC Smart Card reader.

Internet access provider PING will start distributing 1,000 card readers to its subscribers this month and from 1 January at least 1,000 PING users will be able to make use of the payment services of merchants. However, the pilot project is open to everyone and Internet users wishing to take part can order a Smart Card reader from Ad Valvas on its Web site (<http://www.advalvas.be>) at a cost of 999 BEF including VAT during the pilot phase.

More than two million Proton cards are currently in use in Belgium today. As the Proton function is provided on Belgium's Bancontact/Mister Cash cards, some 7.5 million cards will be in use by the end of 1998. Cardholders will be able to charge Proton cards at a Banksys Internet site.

Ten traders were involved in the tests - Roularta Media Group, het Comuterwinkeltje, Ad Valvas, PING, Leplae Industries, The Webfactory, Index, Winkelregio, Proxis and Snackweb.

### Cyber Chipper

In The Netherlands, the Chipper multi-application Smart Card developed by ING/Postbank and KPN/PTT Telecom, has been issued to over two million people since national roll-out started in April this year and the number of cards in the market is expected to reach eight million in 1998.

Currently, Chipper offers secure identification, electronic purse payments and reloading, but as of 19 December cardholders will be able to shop on the Internet and pay for low-value goods and services and reload their electronic purses over the Internet using low-cost devices such as the TeleChipper (US \$25) and the LineChipper (US \$35).

The first merchants to accept Chipper payments over the Internet will be Postbank, PTT Telecom, PTT Post and KPN MultiMedia.

"With the Chipper Internet payment solution, a quantum leap advancement in e-commerce is made," says Cees Keetman, President of Chipper International. "The Chipper Smart Card concept offers a real solution for secure payments and identification for low-priced goods and services all over the world."

### Chipper for Australia

Chipper Nederland has finalised an agreement with Australian telecom operator Telstra to license the Chipper technology and the basic infrastructure for a national roll-out of Chipper in Australia. Chipper Nederland is also in discussions with other interested parties around the world.

**Contacts: Ronald Jimmink, Chipper International**  
**- Tel: +31 70 343 0859. Fax: +31 70 343 5059. E-mail: [ronald@magic.nl.com](mailto:ronald@magic.nl.com) Web site: <http://www.chipper.com> • Yuri Tomatchov, Banksys - Tel: +32 2 727 6666. E-mail: [tomatchov.y@banksys.be](mailto:tomatchov.y@banksys.be)**

## Digital Identification Plan

VeriSign and Litronic last month agreed to resell and distribute VeriSign Class 1 Digital IDs with Litronic's NetSign as a solution that integrates Smart Cards with Netscape Communicator.

"Digital certificates provide users with a powerful, flexible means for authenticating identity over an intranet, extranet or the Internet," said Taher Elgamal, chief scientist at Netscape.

Based on Litronic's Smart Card API, called CryptOS, NetSign allows users to download VeriSign Digital IDs onto Smart Cards. NetSign, designed to secure Internet and enterprise communications comes in a "ready to use" package including a Litronic Smart Card reader, a Cryptoflex Smart Card, and Litronic's Smart Card-enabling Netscape drop-in software, device driver and VeriSign Digital ID.

**Contacts: Kelly Ryan, VeriSign - Tel: +1 415 429 3424. • Valerie Coppi, Litronic - Tel: +1 714 851 1085.**

## Denmark Leads in Purse Usage

Denmark, according to a new report from management consultants Datamonitor, has the highest number of electronic purse transactions per card in Europe and will make the most profit from digital cash while other schemes struggle.

Usage, not the scale of card issue, is the key variable in making money from the electronic purse, says the report, *Smart Cards in European Financial Services: 1997-2002*, which reveals that just 33% of electronic purses issued in Europe remain actively in use after the initial trial period.

The shock news is that the major IT markets of Germany, the UK and France are trailing behind Denmark.

According to Datamonitor: "In the coming year Danish operators will record the third largest number of transactions per scheme, despite having just a 1%-2% share of the European electronic purse installed base. Only in Denmark will scheme operators collect in excess of \$1 clear profit in transaction revenue per card."

It adds, that given the high levels of usage, Danish operators will benefit most from any future expansion in card issue volumes.

In comparison, while German electronic purse scheme operators have high card issue volumes, usage levels are very low. The report claims that the Geld Karte and P-Card schemes failed to gain widespread support from merchants and consumers; levels of yearly spend per electronic purse are the third lowest in western Europe after Sweden and Italy, terminal installation is struggling to keep pace with electronic purse issue and consumers have little opportunity to use the new devices.

Germany is therefore faced with the greatest costs in issuing cards, converting terminals and encouraging merchant participation, says Datamonitor which believes that between 1997-1998, German scheme operators will struggle to generate \$0.30 profit per card.

SCN notes that the Danish electronic purse, DANMØNT, was the world's first. It started with a trial in 1992 and had the backing of the financial and telecommunications industries, the benefits of an open system and one system operator, and was

introduced in carefully planned stages with success viewed in the long term.

In contrast, Germany has several competing schemes - Geld Karte, backed by the banks; PayCard operated by Deutsche Telekom, and P-CARD by a commercial partnership.

Geld Karte, for example, moved at great speed. It started with a six-month pilot in 1996 leading to national roll-out and 25 million cards issued by the end of that year but only some 700 card outlets. However, as we approach the end of 1997, there are now around 40 million cards in the market - most of them Eurocheque cards - with the Geld Karte purse, and an installed base of some 50,000 terminals and 15,000 loading devices.

**Contact: Datamonitor - Tel: +44 (0)171 625 8548. Fax: +44 (0)171 625 5080.**

## L&G to Sell Payphone Business

Landis & Gyr Communications' payphone activities have been excluded from the takeover of the Swiss Electrowatt Group by the Germany-based Siemens Group.

The European Commission last month approved the acquisition of the industrial arm of the Electrowatt Group on the condition that it sold the payphone activities of L&G Communications to prevent a near monopoly situation in certain markets, particularly in Germany, where both companies compete.

L&G has installed over 1.7 million public and private payphones in over 60 countries and is also a leading supplier of electronic payment solutions.

The EC ruling creates an interesting situation because L&G purchased German Smart Card manufacturer ODS R. Oldenbourg Datensysteme in 1996 to provide the range of cards it requires for its payment systems and enable it to market integrated and turnkey solutions.

However if Electrowatt can only sell the payphone business of L&G, Siemens could acquire ODS and follow other semiconductor manufacturers Philips and Motorola into the Smart Card market.

**Contact: Adolf Deyhle, L&G Communications - Tel: +41 22 749 3510. Fax: +41 22 749 3208.**

## Smart Card Diary

**Preventing Plastic Card and On-line Fraud**, Regents Park Marriott, London, 26/27 January.

IIR - Tel: +44 (0)171 915 5149. Fax: +44 (0)171 915 5628.

**Smart Card '98**, Olympia 2, London, UK, 17-19 February, 1998.

Turret RAI - Mrs Debby Cummins (Exhibition) - Tel: +44 (0)1895 454534. Fax: +44 (0)1895 454588. Mrs Julie Barrett (Conference) - Tel: +44 (0)1895 454533. Fax: +44 (0)1895 454578. E-mail: 100730.1313@compuserve.com

**NZ Retail Solutions '98**, Auckland, New Zealand, 23-25 March, 1998.

AIC Exhibitions - Peter Darley - Tel: +612 9210 5781. Fax: +612 9223 8216. E-mail: pdarley@aicconf.com.au

## SELECT Multi-application Card

Standard Chartered Bank, the National University of Singapore (NUS) and Visa International have introduced a payment card technology combining loyalty and electronic commerce applications in a multi-function chip card.

Called the SELECT (Smart Electronic Loyalty E-Commerce Transaction) application, it claims to be the first Smart credit card with "digital certificate" and secret key complying with SET 1.0 stored in the chip rather than the hard disk of the cardholder's PC, giving the advantage of portability for use on any PC with an appropriate card reader.

The same card, which complies with the EMV specifications, can also be used as a normal credit card at retail outlets.

A number of companies are involved in SELECT including Gemplus, which provided the Smart Cards, readers and card payment technology; Axiomatique International, Goldtron Interactive and Privylink.

**Contact: Flavie Gill, Gemplus - Tel: +33 (0)4 42 36 56 83. E-mail: flavieg@ccmail.edt.fr**

## Visa Cash Pilot for Ireland

Ireland's two largest banks, AIB Bank and Bank of Ireland, plan to pilot Visa Cash in a partnership with Telecom Eireann. The card will use public key cryptography which is also being used in the UK Visa Cash pilot in Leeds (SCN November 1997).

A 12-month pilot will start in Ennis, Ireland's "Information Age Town," next Autumn when the banks will issue about 15,000 Visa Cash cards for use in up to 300 retailers, ranging from grocery and hardware stores to car parks and vending machines.

**Contact: Colin Bapti, Visa International - Tel: +44 (0)171 937 8111. Fax: +44 (0)171 937 0877**

## Le Gal is New Gemplus CEO

Daniel Le Gal, one of the co-founders of Gemplus, has taken over as Chairman and CEO from Marc Lassus who, supported by Hubert Giraud, former General Manager, will concentrate on strategic business outside Europe.

Operating from London and Paris, Lassus and Giraud will focus on expansion through strategic alliances, mergers and take-overs and the development of new businesses. Le Gal will be based at Gemplus headquarters in Gemenos, in the South of France.

In addition, three independent operations have been set up covering key regions - Asia-Pacific will be handled from Singapore by Remy de Tonnac; the Americas by Dominique Trempont based in Redwood City, California; and Europe, the Middle East and Africa by Frederic Spagnou who will operate from Gemenos.

## Software Centre Opens in India

DataCard Corporation has opened a software development centre in Bangalore, India, in a joint venture with SaveSmart, a California-based Internet services company.

**Contacts: Mark Iverson, DataCard - Tel: +1 612 988 1763. E-mail: mark\_iverson@datacard.com**  
**Raji Krishnamurthy, SaveSmart - Tel: +1 415 562 0847. E-mail: raji@sipr.com**

## Integrated Circuit Card Standards and Specification Part 15

### Electronic Payment Systems - SET (part 2)

Last month we looked at the Initiate Request and Initiate Response messages between the Cardholder and the Merchant. Having received the Initiate Response message the Cardholder needs to check its authenticity, in order to check the response data signature the cardholder will also need to check the Merchant Signature Key Certificate. The necessary stages are shown in *figure 1*. It should be noted that the Cardholder has to trace through the Certificate hierarchy where he will need to have a copy of the Brand Public Key signed by the root Certificate Authority (CA). The Merchant Public Key and the Payment Gateway Public Key will be saved for further use. It is assumed that all entities will have a copy of the root key stored in their system.

Now life becomes a little more difficult when we consider the purchase request (shown inadvertently last month in *figure 4* as payment request). This message involves two distinct parts, the Order Instruction (OI) and the Payment Instruction (PI). The Order Instruction contains data that allows the merchant to identify the particular order. The actual description of the goods is assumed to have been previously exchanged between the Cardholder and the Merchant prior to the SET message protocol. A transaction identifier received from the Merchant in the Initiate Response Message is incorporated in both the Order Instruction and Payment Instruction messages. These two messages are both sent together to the Merchant but the security arrangements must ensure that:

- The merchant cannot see the Payment Instruction
- The Payment Gateway (acquirer) cannot see the Order Instruction
- The two messages are linked so that they can only be used together.

The Payment Instruction Message includes data relating to the card data, the actual purchase value and the order and transaction identifiers.

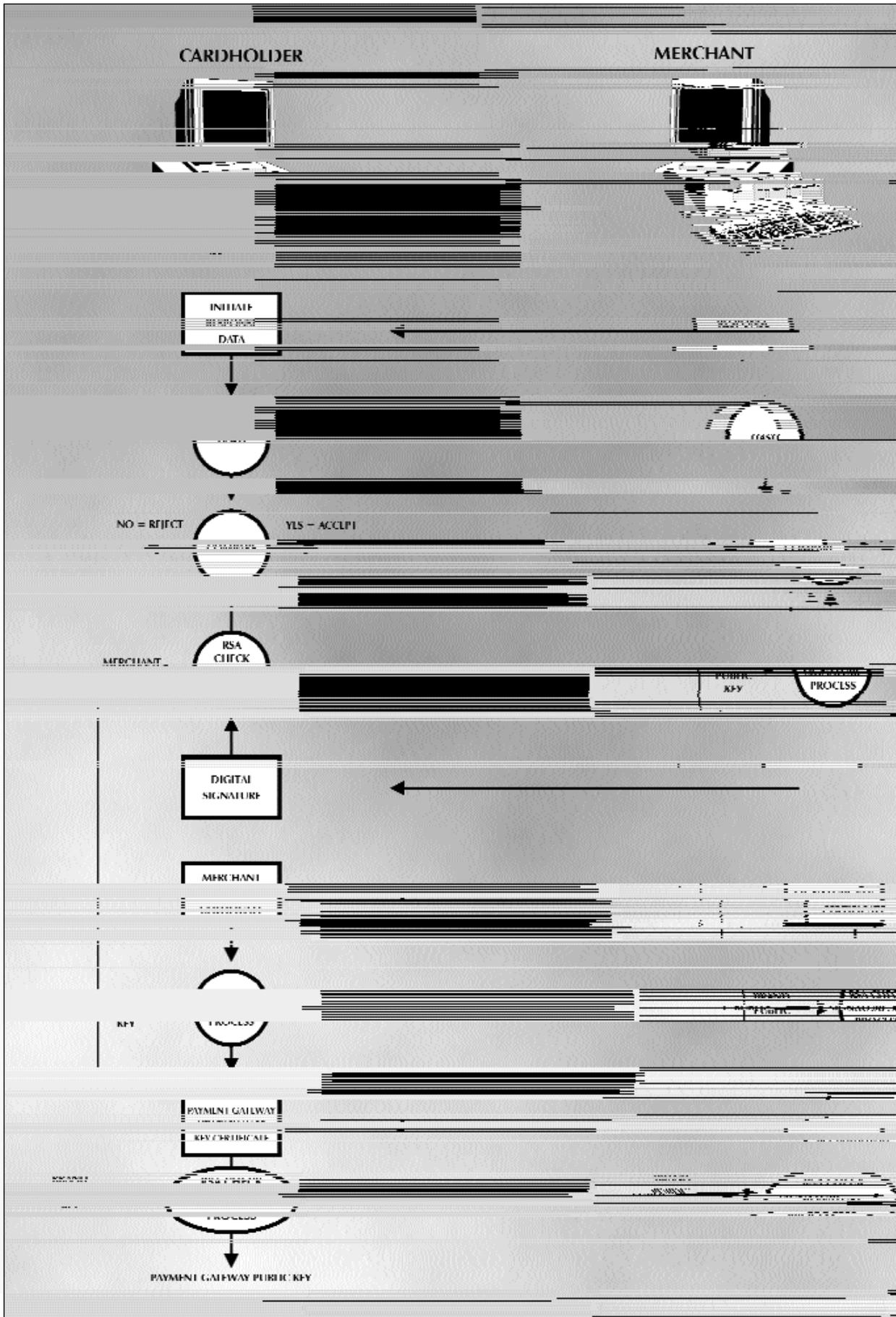
It is this transaction identifier that is sent in both the OI and PI messages that allows the payment gateway to link them both together when the merchant requests the payment authorisation. The payment instruction is enciphered by a symmetric process for which the randomly chosen key is enciphered by the public key of the payment gateway. This ensures that the merchant cannot decode the payment instruction. The steps in the creation of this combined OI and PI are shown in *figure 2*. Readers should observe the “dual signature” concept where the two message hashes are concatenated and signed. Now lets look at the processing steps followed by the merchant when he receives the purchase request message:

- 1 Check the Cardholder Public Key Certificate by tracing through to the root
- 2 Check the Dual Certificate:
  - Apply hash function to IO message
  - Concatenate with PI digest
  - Apply check signature to dual signature using cardholder public key
  - Compare recovered digest with computed digest
- 3 The merchant requests authorisation from the payment gateway (acquirer):
  - Forward the enciphered payment message
  - forward the digital envelope
  - send the enciphered authorisation request
  - send the digital envelope (the enciphered key K2)
  - forward the Cardholder Key Certificate
  - send the Merchant Signature Public Key Certificate
  - send the Merchant Key-Exchange Key certificate

Next month we will look at the various response messages - and as we shall see there is still a fair amount of processing to come and yes we have not forgotten the Smart Card, its potential role is still to come.

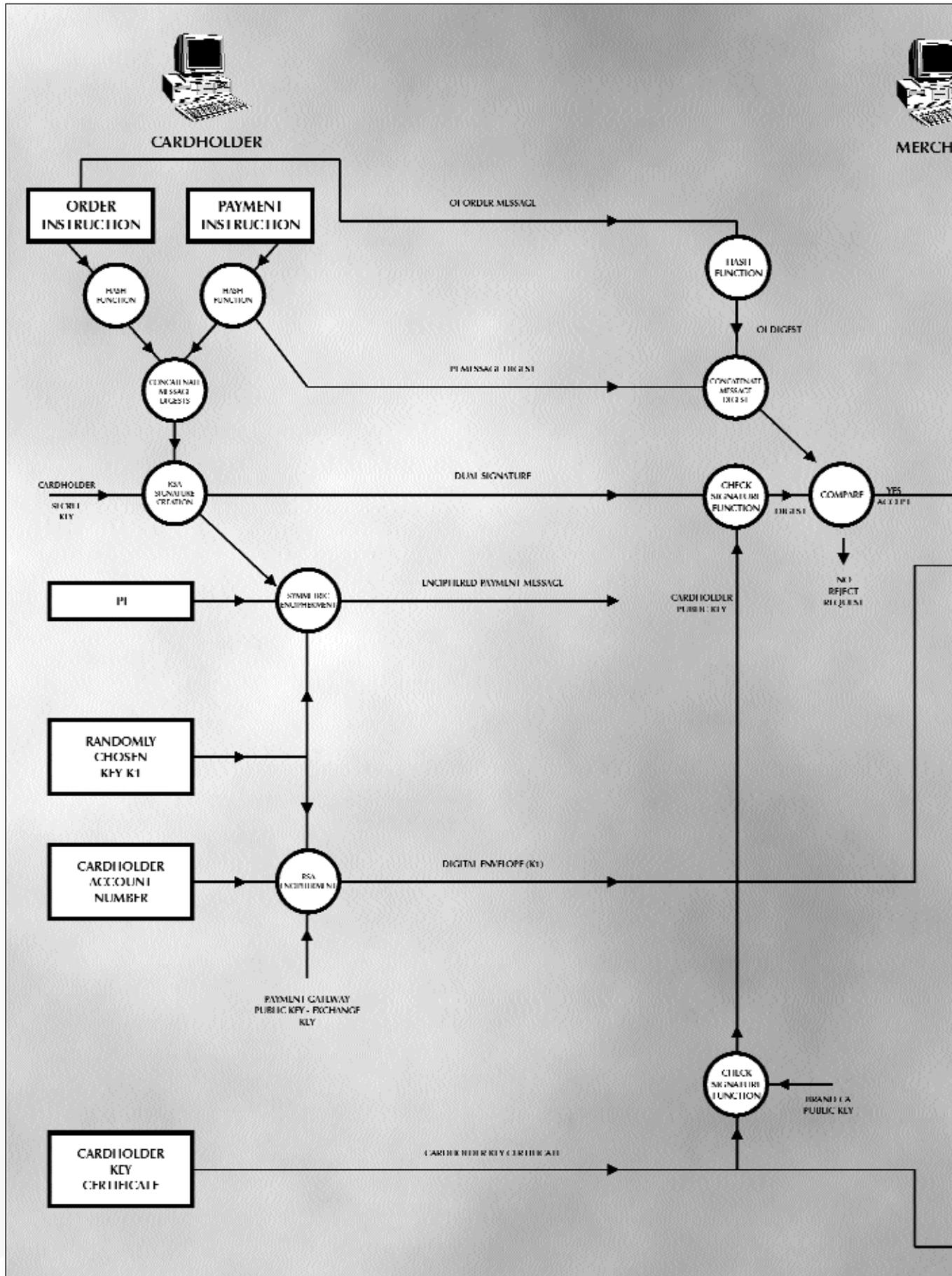
**David Everett**

Left:  
Figure 1  
Checking the Initiate  
Response Message

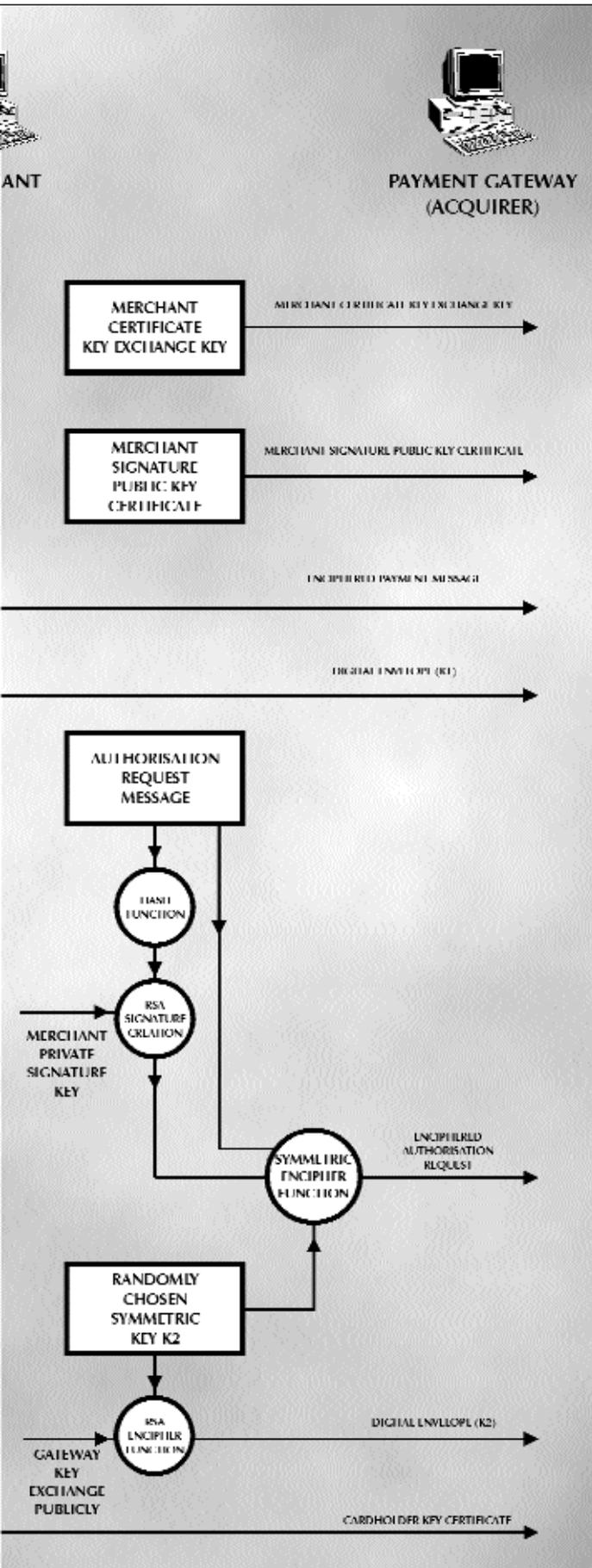


# Smart Card Tutorial

Right:  
Figure 2  
The Purchase  
Request Message



## Subscription Form



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## Diploma Awarded

**Right:**  
David Main, Visa International, with the Royal Holloway Diploma in Information Security



**Below Right:**  
Albert Andoh pictured with regular dancing partner Ann Carrington. Inset: Third Place DWAS Medal

Royal Holloway (University of London) and Zergo has awarded their Postgraduate Diploma in Information Security to graduate mature student David Main, Technology Development Manager for Visa International Service Association.

Mr Main has been studying for three years on a part-time basis; first gaining a grounding in the broad aspects of information security before focusing on topics specifically related to his work at Visa.

The course is designed to suit busy people who need to keep up with security developments while applying new skills at work. Students can choose from around thirty modules covering all aspects of security management, system security, cryptography, Internet and network security.

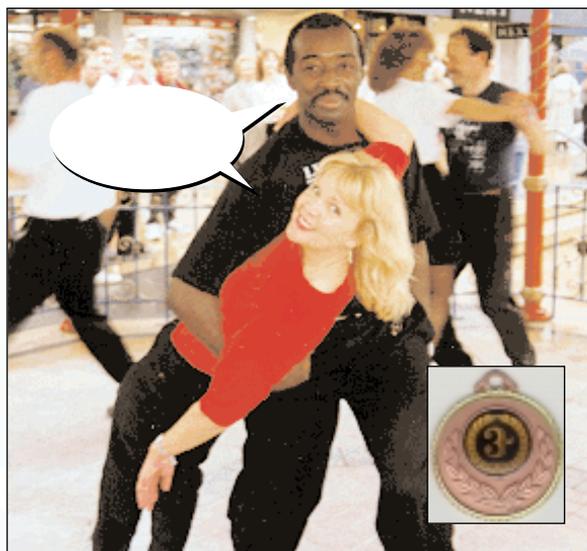
Mr Main chose cryptography as his area of specialisation, with particular reference to cryptographic techniques of data authentication to keep pace with the increasing use of Smart Cards for GSM SIM cards, credit cards, electronic purses and the potential use of biometric information to replace PIN numbers.

Mr Main said the course struck “the right balance between academic thoroughness and the up-to-the minute practical experience provided by the Zergo team”. The results of his project work have been summarised in a dissertation on “Cryptography and Chipcards” written with Visa senior management as a target readership.

**Contact: Jeannette Schael-Fleming, SCHAEL Limited. - Tel: +44 (0) 1635 299116. Fax: +44 (0) 1635 299115.**

## SCN Staff Wins Dance Award

Albert Andoh, SCN’s Marketing Manager and dance partner were awarded third place in the ‘Dance with a Stranger’ section of the UK National Jive Championships. Over 500 couples competed during the one day event.



To mark Christmas this year Smart Card News is holding a caption competition. To get you started here are a few suggestions from the SCN team:

“Okay, okay I’ll have a 5 year subscription, a Guide and an electronic purse report”, “Get that Smart Card out of my back”, “This should earn us some extra loyalty points”.

If you can do better send your Smart Card related ideas to us by fax: +44 (0) 1273 624433 or e-mail: [scn@pavilion.co.uk](mailto:scn@pavilion.co.uk) The winner will receive a mystery prize.

## Dragon Smart Phone Card

The BT phonecard pictured on the front page is from a series called ‘The Fifth Age’ and was designed by Dungeons and Dragons artist Jeff Easley. The illustration represents a period in the Dragonlance saga written by fantasy authors Margaret Weis and Tracey Hickman. The cards have been popular with collectors and sold out almost immediately.

**Contact: Sunita Ramgoolam, Wizards of the Coast. Tel: +44(0)1628780801. Fax: +44(0)1628780602.**