incard is New Chip Card Manufacturer in Italy

Smart Cards are to be manufactured for the first time in Italy by a new company, **in**card SpA formed by the IPM Group, the leader in Italy in the field of public telephony (51%) and US³, the largest producer of chip cards in the United States (49%).

incard said this month that its 66,000 square metres plant - 12,500 square metres covered - in Marcianise (5 kms from Caserta in Southern Italy) will be producing some 60 million chip cards by 1997.

New Chip Plant in Italy

incard's target markets are in telecommunications (prepaid telephone cards, GSM phones) to electronicpayment (banking cards, electronic purse system) and from marketing services (loyalty cards) to identification uses (ID cards, medical cards).

Managing Director of the new industrial enterprise is Amedeo D'Angelo, who was born in Italy and joined **in**card from Gemplus in France.

Nigerian Electronic Purse Pilot

Allstates Trust Bank in Nigeria has launched an electronic purse pilot system called the Electronic Smart Card Account (ESCA). The first phase will involve all 16 Allstates branches, 10 merchants and up to 2,000 cardholders in Lagos, Nnewi and Port Harcourt. A full-scale scheme is expected to start later this year.

Initially the ESCA card is being issued to Allstates' "Most Important" customers who can use it to carry large amounts of value without the risks associated with carrying cash. They can download value to the card from their bank accounts (up to 16,000,000 Naira - more than £100,000) which can be used for purchases at retail and wholesale merchants or cashed at any Allstates branch.

Retailers include a supermarket and a television and hi-fi store while wholesalers include a freight-forwarding company which accepts the ESCA card in payment for goods which are then released from the company's dockside stores to the companies which ordered them.

The pilot uses the Electronic Money System (EMS) supplied and implemented by ICL Ireland, Gemplus PCOS Smart Cards (see front page) as customer cards used with PIN authorisation as transaction amounts of up to 750,000 Naira (£5,000) are not uncommon. Merchants are equipped with VeriFone CM450 Smart Card readers, OMNI 395 point of sale terminals and printers. Gemplus COS 3K bytes Smart Cards implementing the DES encryption algorithm are used for key maintenance, transaction collection and distribution of cancelled card lists.

Rick Blears, who acts for SPS in the UK, says:

Contact: Noel Crowley, ICL Ireland - Tel: +353 1 475 6761. Fax: +353 1 475 4443.

Mondex on the Buses

All 80 of Thamesdown Transport buses in Swindon, UK, have been equipped with Mondex compatible payment systems. To mark the occasion on 25 January, Mondex let card holders travel free for the day.

An electronic cash system, Mondex enables cardholders to travel without money in their pockets. They simply insert their cards into the payment terminal and the appropriate amount is deduced.

John Owen, Managing Director of Thamesdown Transport, says: "Passengers will see the benefits of paying by Mondex in the efficiency of the payment procedure while our drivers will benefit by ultimately no longer having to fiddle about with small change."

Introducing Mondex on the buses follows its application in retail outlets, a number of car parks and BT payphones.

The payment system used on Thamesdown buses was adapted to take Mondex by Wayfarer Transit Systems in conjunction with De la Rue Fortronic who supplied the Mondex terminals used by retailers in Swindon.

Contact: Gerry Hopkinson, Band & Brown Communications - Tel: +44 (0)171 704 2010. Fax: +44 (0)171 226 9742

German Electronic Purse Card

The new German Electronic Purse Card (shown on the front page) is being piloted in the town of Ravensburg by ZKA (Zentraler Kredit Ausschuss) and 36 local banks (*SCN January 1996*).

SmartTrack Axed in Takeover

The "SmartTrack" one-minute check-out system for Forte hotels has been axed following Granada's 3.7 billion takeover of the group.

Smart Payment Systems developed the system and completed a successful eight month trial. It was due for installation at the 670 room Heathrow Crest to be followed by other key London hotels.

"This is a disappointing turn of events for us after two

years' work and a big investment. We are taking legal advice about our position and actively seeking other hotel operators who are interested in introducing the system."

Contact: Rick Blears - Tel: +44 (0)161 929 5685. Fax: +44 (0)161 929 5687.

Secure Banking on the Internet

MasterCard and Visa, previously working on separate specifications for safeguarding payment card purchases made over open networks such as the Internet, have joined together to announce a technical standard called Secure Electronic Transactions (SET) to enable consumers and merchants to conduct bank card transactions in Cyberspace as securely and easily as they do in retail stores.

The associations expect to publish SET on their World Wide Web sites in mid-February and, following a comment period, the joint specification is scheduled for testing in the second quarter of this year. They expect that banks will be able to offer secure bank card services via the Internet to their cardholders in the fourth quarter 1996.

In addition to MasterCard and Visa, other participants in the creation of SET are GTE, IBM, Microsoft, Netscape Communications Corp., SAIC, Terisa Systems and Verisign. Encryption technology for SET has been specially developed by RSA Data Security.

Edmund Jensen, President and CEO of Visa, says: "This is the first step in making Cyberspace an attractive venture for banks and merchants. A single standard limits unnecessary costs and builds the business case for doing business on the Internet."

The single standard is described by H Eugene Lockhart, CEO of MasterCard as "a critical catalyst for electronic commerce because it bolsters consumer confidence in the security of the electronic marketplace."

The card associations will separately test SET with consumers, merchants and financial institutions. A joint interoperability test will be conducted after the individual tests to ensure SET, where necessary, operates as smoothly as the point of sale system used today. An updated version of the specification will then be published for software providers.

MasterCard's Web address is http://www.mastercard.com. Visa's Web address is http://www.visa.com

Contact: Colin Bapti, Visa International Press Office, UK - Tel: +44 (0)171 937 8111.

DANMØNT Expanding Rapidly

DANMØNT transactions in Denmark last year totalled 2.1 million - 122% higher than in 1994. In the fourth quarter of 1995 there were 700,000 transactions, an increase of 28% compared to the third quarter.

Henning N Jensen, Managing Director, says: "I believe that the development will continue at the same level in 1996 when Tele Denmark, the national payphone company, will begin to install 5,000 new chip card payphones all over the country. All these new public payphones will accept the DANMØNT card."

The prepaid card can also be used in mass transit ticket dispensers, cafeteria vending machines, housing laundrettes, parking meters, units for recharging of electric cars, public facsimiles, photocopiers and stamp postage machines.

Contact: Henning N Jensen, Managing Director, DANMØNT - Tel: +45 43 44 99 99. Fax: +45 43 44 90 30.

Trident INFOTEC Launched

Trident Microsystems which specialises in supplying displays to equipment manufacturers, has formed a new subsidiary company, Trident INFOTEC, which it says is the only supplier in the UK specifically addressing the industrial marketplace and offering the complementary technologies of Smart Card and PCMCIA products.

It has teamed up with US³, Inc., said to be the largest producer of Smart Cards in the United States; Centennial Technologies which specialises in PCMCIA cards; and Card Wize Data Solutions which specialises in the manufacture of interface hardware and software and will be INFOTEC's only UK manufacturing source.

It is planned to target the banking, data logging, gaming, medical, mobile data, retail, transport and vending sectors.

Contact: Nick Jarman, Card Technology, Trident INFOTEC, UK - Tel: +44 (0)1737 765900. Fax: +44

(0)1737 771908.

South Africa Order for VeriFone

A major order for up to 4,000 Smart Card PINpad systems from Pick 'n Pay, one of the largest national retail chains in South Africa, has been won by VeriFone, a leading worldwide supplier of transaction automation software and system solutions.

The VeriFone PINpad system is designed to accept both magnetic stripe cards and Smart Cards and is compliant with the current South African interbank standards. A second Smart Card port is designed to facilitate upgrades to new South African interbank standards and the emerging EMV standards.

The order follows the recent opening of VeriFone's first office in South Africa in Sandton, Johannesburg.

Contact: Russell Green, General Manager, VefiFone South Africa - Tel: +27 11 784 6258. Russell_GI@verifone.com

French Healthcare Contracts

Group Sligos has been awarded two contracts by GIP "CPS," the French government-sponsored consortium responsible for issuing, managing and promoting the use of a single card for all of the country's healthcare professionals.

The Sligos parent company is to provide the turnkey design and implementation of a management centre to issue and manage the CPS healthcare professionals' card. It will also operate the server once the system is on-line.

Electronic Purses: A Compartive Review - Part 7

The second contract, signed by Groupe Sligos Smart Card manufacturing subsidiary Solaic, is for the installation of a card personalisation unit. Solaic will manage the new facility and provide a number of related services such as envelope preparation and PIN management.

The CPS card is a key element in the French healthcare service and is designed to secure the confidentiality of patient/doctor relations and the integrity of medical and administrative data.

Gilles Taib, Director of the GIP "CPS," says: "The card is one of the essential components in the modernisation of the information system of France's welfare and healthcare sector."

Contacts: Murielle Berges, Secretary General, GIP "CIP," France: Tel: +33 1 44 53 36 53. Boris Eloy, Communication, Sligos, France - Tel: +33 1 49 00 96 33.

Contactless Cards in Valance

A contactless Smart Card ticketing system is being installed on 95 buses in Valance, France by French system integrator Monétel in co-operation with SISAV (Syndicat intercommunal des services de l'agglomération valentinoise), the service provider of Valence. The system comprises Monétel's PROXIBUS CMP 201 system based on MIFARE components, and 10,000 Smart Cards.

Contact: Gabriel Hanis, Commercial Director, Monétel SA - Tel: +33 75 81 41 41. Fax: +33 75 81 42 00.

Country	International (Europay)	
Name of scheme	Express	
Capital investment	Confidential	
Operator	Europay International	
System developer	Various	
Status	Pilot early 1996	
Multiple currencies	Multiple	
Loadable amount	Issuer defined parameters	

Current applications	Low-value purchases of goods, services and information on the Internet such as retrieving an article or information, renting a video, ordering a pay-per-view programme	
Planned applications	Higher value purchases on the Internet when Europay credit and debit cards start being converted from magnetic stripe to chip cards in early 1997. Paying for fast food, public transport, tolls, car parks and making purchases from vending machines	
Method of settlement	Presentment of truncated totals by the acquirers	
Card fabricators	Various	
CPU (Yes/No)	Yes	

Purses

Country	**International (Europay)**	
ROM	Implementation specific	
EPROM/EEPROM	Implementation specific	
RAM	Implementation specific	
Co-processor (Yes/No)	Yes	
Chip manufacturer/ Type No.	Various	
Security algorithm(s)	RSA	
PIN	Yes, for loading	
Cards issued	Pilots in 1996	
Card target	-	
Card reader/terminal suppliers	Various	

Number installed	Pilots in 1996	
Portable balance reader	-	
Card recharging points	Any compatible on-line device	
Contact	Richard Tischler Europay International	
Telephone	+32 2 352 5304	
Fax	+32 2 352 5732	

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Country	Australia	Australia
Name of scheme	MasterCard Cash	Visa Cash
Capital investment	Not provided	Not available
Operator	MasterCard and partners	National Australia Bank, Westpac, ANZ, Commonwealth Bank and CUSCAL (representing Credit Unions Australia wide)
System developer	Partners: MasterCard International, Australia and New Zealand Banking Group (ANZ), Commonwealth Bank of Australia, Westpac Banking Corporation, Standard Chartered Bank (an international participant headquartered in London); Development partners - cards / operating system: ORGA Kartensysteme GmbH, Germany; Solaic Smart Cards, France. Terminals - Ingenico, Australia; Keycorp, Australia and VeriFone Inc.	

Status	Start nine-month pilot 1st Quarter 1996 in Canberra	In-house trials conducted by member financial institutions from August 1995 First public pilot scheme launched on Australia's Gold Coast in November 1995
Multiple currencies	Single for Phase I; to be expanded to 10 currency capability by late 1996	Single currency (multiple currency expected in 1997/1998)
Loadable amount	Up to Australian $500	$1,000
Current applications	Stored value applications added to credit and debit cards linked to cardholder's account for payments at gasoline stations, convenience stores, speciality retailers, fast foods, newsagents, chemists/ pharmacies, cinemas, video rental, etc. Also test of cross-border and multiple currency features via Standard Chartered Bank.	**(Same as for USA)**
Planned applications	Load value onto the card at an ATM, from public or home telephones. Store up to 10 foreign currencies at one time, convert previously loaded value from one currency to another	Reloadable Visa Cash cards - February 1996

Country	Australia	Australia
Method of settlement	Purchases are off-line and settled via batch download	Via VisaNet and members
Card fabricators	Solaic and ORGA	Gemplus Technologies - disposable $5, $20 and $50. Giesecke & Devrient - reloadable
CPU (Yes/No)	Yes	Yes
ROM		
EPROM/EEPROM	8K ? Bytes or bits?	
RAM		
Co-processor (Yes/No)	No	
Chip manufacturer/ Type No.	IBM and Motorola	
Security algorithm(s)		
PIN	No PIN at point of sale Yes for loading value from account	
Cards issued	10,000 (planned)	4,000

Card target	-	150,000 in 1996
Card reader/terminal suppliers	Ingenico, Keycorp and Verifone	Fortronic Technologies Intellect Ingenico Hypercom Keycorp Schlumberger
Number installed	300 (planned)	Over 1,000 (planned)
Portable balance reader	To be developed/decided?	Oki balance reader
Card recharging points	Bank branches, MasterCard Cash kiosks and select point of sale locations	200 EFTPOS locations
Contact	Nancy Elder	Bruce Mansfield, Head of Chip Cards Australia & New Zealand
Telephone	+1 914 249 5439	+612 256 2400
Fax	+1 914 249 4207	+612 241 5264

Electronic Purses

Country	**USA**	**USA**
Name of scheme	MasterCash SVC	**Visa Cash?**
Capital investment	Not available	
Operator	SmartCash	
System developer	SmartCash partners: MasterCard International and Electronic Payment Services, Inc. (A five-bank joint venture of: Bank One Corporation CoreStates Financial Corporation KeyCorp National City Corporation and PNC Bank Corporation) Chemical Banking Corporation First Union Corporation Gemplus SCA NationsBank Corporation VeriFone Inc. Wachovia Corporation Wilmington Trust Corporation	
Status	Start mid-1966 in Delaware	

Multiple currencies	Single	
Loadable amount	To be determined	
Current applications	Fast food, convenience stores, gas stations, supermarkets, etc.	
Planned applications	Transit, vending	
Method of settlement	To be determined	
Card fabricators	Gemplus	
CPU (Yes/No)	-	

Country	USA	USA
ROM		
EPROM/EEPROM		
RAM		
Co-processor (Yes/No)		
Chip manufacturer/ Type No.	SGS-Thomson Motorola	
Security algorithm(s)		
PIN	Load/unload only	
Cards issued		
Card target		
Card reader/terminal suppliers		
Number installed		
Portable balance reader	No, customers will read balance at some terminals and ATMs before and after transaction	
Card recharging points	ATMs and elsewhere	
Contact	Nancy Elder	

Telephone	+1 914 249 5439	
Fax	+1 914 249 4207	

Smart Recycling System

ASGARD of France has developed a Smart Card-based system to optimise garbage collections and recycling of materials.

The system enables identification, emptying and weighing of the containers, and the processing of the data collected. Called ECO-GARD, the system comprises two main parts - an embarkment system and a central system.

The embarkment system (on the truck) consists of an external system of antenna and scale, and an internal system of a central unit (behind the driver's seat) which includes a reader unit, a weighing system and a connection to information, for example, kilometres, consumption, time.

Contact: PierreLine LeCrosnier, ASGARD, France - Tel: +33 1 47 88 15 97. Fax: +33 1 47 88 00 36.

Spanish Social Security ID Card

Spain's Ministry of Labour and Social Security has awarded a $12.8 million systems integration contract to Unisys to provide hardware, software and services in support of the national social security identification card project TASS.

A regional network of public kiosks and the use of automated fingerprint identification technology will provide citizens with secure access to personal information stored on Smart Cards as well as on government healthcare databases.

In use, cardholders will insert their Smart Cards at a kiosk and then be prompted to place a finger on a fingerprint reader so that the fingerprint information stored on the card can be compared with the fingerprint data just scanned. If this verification process is positive, the user will be granted access to the data on the Smart Card and to the appropriate government healthcare services.

New Systems from Mühlbauer

Two new automated systems for the Smart Card industry have been developed by Mühlbauer High Tech International of Roding, Germany.

Both machines are based on a magazine to magazine card handling system, using standard Mühlbauer magazines which can carry either 300 or 500 cards each.

The Prepersonalisation System, PPM 5100, is a machine for initialisation of microprocessor cards. The system provides two independent 40-fold coding units, each of which can code up to 40 microprocessor cards in one step.

Quality control during initialisation ensures that only correctly programmed cards leave the machine. Rejected cards are sorted out. Output is up to 3,000 cards per hour if the coding process is limited to 40 seconds per card. The company offers coding software but says if the customer has special software requirements there is the possibility to adapt the software.

The machine is protected against unauthorised access through operator identification, closed machine cabinet and electronically locked doors.

Unisys says that approximately 633 kiosks and an equal number of supporting workstations will be installed in the Andalucia region. The workstations will be used primarily for enrolment purposes, including capturing fingerprint data and personalising the Smart Cards.

Around seven million residents in Andalucia will receive the national social security identification card by the end of 1996 and it is anticipated that all Spanish citizens will have their own cards by the end of this century.

Contact: Chris Alder, Unisys, UK - Tel: +44 (0)181 453 5250.

In addition, the flexible design makes it adaptable for future applications.

The Mühlbauer Telephone Card Production Line, TELE-PRO, is an in-line concept for implanting, coding, printing and packing of Smart Cards. Fully automated, it is based on the company's Smart Card assembling systems such as the Implanter systems, the Printing units and the Packing systems.

The TELE-PRO system (shown below) can handle all common bonding methods like modules on epoxy tapes as well as modules on metal lead frames, either with or without glue tape lamination. It also support the hot as well as the cold implanting process. On request, the machine can be equipped with a hot liquid glue process.

Due to the flexible coding concept, customers can adapt their own software and hardware interfaces to suit their requirements. Various printing units are available for the numbering and printing of the cards, e.g. inkjet, laser.

Contact: Ludwig Huber, Mühlbauer - Tel: +49 9461 952-193. Fax: +49 9461 952-301.

Purse Push in Eastern Europe

Europay International and Innovatron Data Systems have formed an alliance to develop jointly Europay's electronic purse product in Eastern Europe. Pilot programmes are scheduled to go live by the end of 1996.

The aim is to create a turnkey package typically including EMV compliant chip cards/terminals, software programmes, rules and processes, as well as training.

Francis van den Bosch, Europay's Director of Commercial Affairs, says with Europay's dominant payment card and acceptance base and Innovatron's technical expertise, particularly in Russia, they are confident that the banks will have a clear cut choice of how best to build and expand their domestic purse schemes.

Europay's purse product is designed to address local needs and migrate to an international product. It is based on a public key security architecture which allows both end-to-end transaction integrity and functions in an open system enabling many issuers, acquirers and processors. It is reloadable and designed to hold up to 10 foreign currencies. Europay says this capability can be given initially to a standalone card, and will be possible on debit and credit cards with Europay brands in 1997.

Contacts: Richard Tischler, Europay International - Tel: +32 2 352 5304. Geneviève Bœuf, Innovatron Data Systems - Tel: +33 1 40 13 39 42.

UK Bank Card Design Project

Schlumberger has announced that it has been selected as one of the suppliers to design the Smart bank card for the UK Association for Payment Clearing Services (APACS).

The work is being carried out in co-operation with Visa and will be compatible with the Europay, MasterCard Visa specifications.

"This project puts the UK at the very forefront of banking technology, and its progress will be tracked by countries all around the world," notes Daniel Burns, General Manager of Cowells Schlumberger, the company's UK sales and manufacturing operation.

APACS expects to complete Smart Card trials by the end of Q3, 1997, making the design available to member banks for implementation during Q4.

Contact: Isabelle Ferdane-Couderc, Schlumberger Electronic Transactions, France - Tel: +33 1 47 46 70 20. Fax: +33 1 47 46 68 66.

Hitachi Financial Systems

Hitachi has announced in Japan that it will establish a new division for the promotion and development of new financial systems for the 21st century, with particular emphasis on Mondex, the electronic cash Smart Card.

The announcement points to the increasing use of personal computers and the Internet and other networks which has focused attention on electronic commerce and on electronic money as a means for settling the transactions involved. Electronic money utilising IC cards, it says, is being viewed as the next generation currency.

Mondex, it says, is starting to come into widespread use with a trial in the UK (Hitachi supplied the Mondex card semiconductor devices and a portable balance reader) and others planned in North America and South East Asia putting Mondex on its way to becoming a global system. In addition to Hitachi, several other Japanese companies have been

involved in the development of Mondex devices including Matsushita and Oki.

Tim Jones, Chief Executive of Mondex, comments: "This is a significant step forward from the current phase where Mondex is being introduced on a pilot basis in several countries to the next stage where major companies are preparing for the full-scale implementation of Mondex around the world."

GPT Opens New Card Facility

GPT's new high security card production headquarters in Coventry was officially opened by BT Chairman Sir Iain Vallance last month. It is designed to meet increasing high volume card requirements from BT as well as providing the base for increasing the company's card technology applications worldwide.

Since its first card production in 1987, GPT has developed a multi-million pound card business. With the acquisition of GEC Card Technology in July, 1995, GPT became the only company in the UK to produce all three card technologies - magnetic, Smart and contactless Smart Cards. Last year it achieved record export figures of 93% of output and is the UK's largest Smart Card manufacturer.

An independent business division of GPT Payphone Systems, the company specialises in the supply of prepaid payphone cards with customers in over 50 countries worldwide and says it is shipping around 40 tonnes of cards every month.

A contactless Smart Card access control system, developed in conjunction with Chubb Alarms, is used to secure the 24,000 square feet manufacturing facility. The site can be expanded to 64,000 square feet in line with increases in production volumes.

Contact: GPT Press Office - Tel: +44 (0)115 943 3687. E-mail press_office @ncp.gpt.co.uk

Gemplus Targets Middle East

Gemplus of France has teamed up with Associated Construction and Trading Group (ACTG) of Abu Dhabi to market and manufacture Smart Cards in the Middle East.

A joint venture agreement has been signed giving ACTG a 51% stake in the project and the rest will be owned by Gemplus which will provide technology, equipment, management expertise and capital to the venture.

He says that they are currently in discussion with several major institutions in Japan, adding: "We are especially enthusiastic about the prospects for Mondex in Japan."

Contact: Masahiro Takhashi, Hitachi, Japan - Tel: +81 3 3258 2055.

Dr Marc Lassus says Abu Dhabi has been selected for its secure environment which is paramount when dealing with future "electronic money," as well as being in a strategic marketing and geographic location.

Gemplus is already supplying large quantities of Smart Cards in the region to ETISALAT for both public telephony and GSM. In addition, major projects are under development in the banking sector, healthcare and for new forms of identification and security

Contacts: Dr Marc Lassus, Gemplus, France - Tel: +33 42 32 50 01. Fax: +33 42 32 50 04. Thierry Siminger, Lulu Tower, Abu Dhabi, UAE - Tel: +971 2 236 333.

De La Rue Expands Card Plant

De La Rue Card Technology last month opened a 29,000 square feet extension to its high security card manufacturing and personalisation facility at Tewkesbury in the UK.

According to the company, the personalisation bureau will benefit particularly as it becomes increasingly involved in IC Card programmes through DelPhic Card Systems, the joint venture with Philips Smart Cards & Systems. The enhanced on-site capacity is also planned to provide for an IC Card embedding facility which will be available to meet the demands of the UK banks when they start issuing IC based bank card products during 1997.

Contacts: Ian Robson, Managing Director De La Rue Card Technology - Tel: +44 (0)1684 290290. Fax: +44(0)1684 290111. Darrell Barnes, General Manager, DelPhic Card Systems - Tel: +44 (0)1684 850950. Fax: +44 (0)1684 290111.

Smart Readers from Roxburgh

Roxburgh Electronics in the UK has launched the AMC 151 range of Smart Card readers with RS232

output that reads/writes ISO 7816 chip cards and meets the requirements of Visa, MasterCard and Europay. A development kit is available, including software and cards.

APE Card at Lubbock Airport

A contactless Smart Card from Racom is being used for paying parking fees at Lubbock International Airport, Texas, USA. Called the APE (Airport Parking Express) Card, it is aimed at frequent flyers who regularly use the parking facilities.

Instead of having to deal with tickets, money and receipts, users simply wave their new card in front of a reader to enter or exit the parking lot. Parking charges are automatically deducted from the card by the reader as the motorist leaves. Another benefit for the traveller is that they have their own parking gates and exits, saving their time.

The card is based on Racom's LF product series and has been issued to local bankers, insurance executives, college professors and city officials, including the Mayor of Lubbock.

Cards can be credited in $20 increments at Pay Stations located in the baggage claim and parking areas.

A marketing study by APE management concluded that up to 10% of their customers would pay a premium for the added convenience of a contactless Smart Card. This would increase float, reduce cash handling costs and contribute to the airport's public image.

Racom's Dutch system's integrator, IE Parking, sold the system to the airport through its American representative, American Parking, Inc.

In Japan, Racom has been awarded several new contracts. Racom Japan is to introduce contactless Smart Cards for membership access at Yokohama Bay Side Yacht Club, and for access control at Hakuhodo and Nippon Data Card. Shinden has also awarded a contract to Racom to supply an ID card for its customers.

Contact: Racom Systems, Inc., USA - Tel: +1 303 771 2077. Fax: +1 303 771 4708.

CARDIS Call for Papers

CARDIS 1996, organised jointly by the Centre for Mathematics and Computer Science at Amsterdam

Contact: Barrie Griffiths, Roxburgh - Tel: +44 (0)1724 281770. Fax: +44 (0)1724 281650.

and the Department of Computer Systems of the University of Amsterdam, has called for papers for the second Smart Card research and advanced application conference to be held in Amsterdam on 18-20 September. The submission deadline is 1 March.

Subjects and details from Stefan Brands http://www.cwi.nl/~brands/cardis.html/

IATA Smart Card Workshop

IATA will hold a Smart Card workshop on 15 April in Charlotte, North Carolina, USA on the day before the Joint ATA/IATA Smart Card Sub-committee meeting scheduled for 16-18 April.

The workshop will provide an opportunity for IATA member airlines, industry associates, registered suppliers and travel partners to learn about Smart Cards, how they work, how they are used and their potential applications in the airline and transportation industry. Two airlines will give presentations on their recent experience with experimental use of Smart Cards - problems, benefits and customer acceptance. Contact : Ken Sanford at IATA, Switzerland - Tel: +41 22 799 2728. Fax: +41 22 799 2683 or IATA 100634,1204@compuserve.com

GM for Cowells Schlumberger

Daniel Burns has been appointed General Manager to lead the recently created joint venture Cowells Schlumberger.

The new company was formed in November 1995 when the Cowells card division of Serif plc and Schlumberger Electronics Transactions formed a joint venture to offer comprehensive marketing and manufacturing services for all plain, magnetic stripe and Smart Card markets in the UK as well as developing substantial international business.

Currently UK sales and marketing manager of Siemens plc for consumer, telecom and Smart Cards, Burns previously worked for Phillips NV based in Zurich. He has a BSC in Electronics and Electrical Engineering and a MSC in Systems Engineering. He takes up his appointment at the Ipswich-based

company this month.

Smart Card Diary

CeBIT '96, Hannover, Germany, 14-20 March.

One of the biggest computer and communications trade shows, it is expected to attract some 700,000 visitors. Deutsche Mess AG - Tel: +49 511 89-0. Hannover Fairs USA - Tel: +1 609 987 1202.

EUROSEC'96, 7th European Forum on IT Security and Quality, Centre International d'Affaires et de Congrès, Paris, 26/27 March

Conference covering the major IT security issues including Internet security which is also a half-day topic at preliminary day on 25 March. XP Conseil - +33 1 42 89 65 65. Fax: +33 1 42 89 65 66.

Car Parks Asia, Crown Princess Hotel, Kuala Lumpur, Malaysia, 26/27 March.

Conference focusing on parking policy, design, operations and technological developments. IBC Technical Services, Singapore - Tel: +65 732 1970. Fax: +65 733 5087.

Intelligent Transport Systems, Crown Princess Hotel, Kuala Lumpur, Malaysia, 28/29 March.

Applying intelligent technology, including Smart Cards, to managing transportation systems. IBC Technical Services, Singapore - Tel: +65 7321970. Fax: +65 733 5087.

Corporate Purchasing Cards: The Pilot Stage and Beyond, Merchant Centre, London, 29 March.

One day conference including six user case studies. Interactive pre-conference seminar on 28 March. AIC Conferences: Tel: +44 (0)171 242 2324. Fax: +44 (0)171 242 2320.

Plastic Card Fraud Prevention, The Churchill Inter-Continental, London, 1-2 April.

Aimed at improving fraud prevention strategies, this conference includes chips cards, verification techniques, neural networks and biometrics. IIR Limited - Tel: +44 (0)171 915 5055.

Successful Business & Marketing Strategies for Electronic Cash, The Forum Hotel, London, 16/17 April.

Special Report: Intellectual Property Rights and Smart Card

Presentations from Mondex, Banksys, MasterCard, DigiCash etc. Workshop follows on 18 April. International Quality & Productivity Centre - Tel: +44 (0)181 332 1112.

Maximising the Potential of Calling Cards in the Telecoms Industry, The Merchant Centre, London, 16/17 April. Workshop 18 April.

IIR Limited - Tel: +44 (0)171 915 5055.

Latin American Card Conference, Intercontinental Hotel, Miami, Florida, USA, 17/18 April

World Research Group, USA - Tel: +1 212 421 9410. Fax: +1 212 421 7325.

Smart Cards in Transport: Practical Progress and the Way Ahead, Landmark Hotel, London, 17/18 April.

Reviews of advanced card applications in the transport market, developing technology and operational procedures required to implement new systems. International Conference Group - Tel: +44 (0)181 743 8787. Fax: +44 (0)181 740 1717.

Electronic Card Payments in Eastern Europe: A Tutorial, The Budapest Marriott Hotel, Hungary, 18/19 April.

The future of electronic card payments in Eastern Europe with business case studies. IBC Technical Services - Tel: +44 (0)171 637 4383. Fax: +44 (0)171 636 1976.

Electronic Payment Systems '96, The Mayfair Conference Centre, London, 22/23 April.

Presentations from Europay, MasterCard and Visa and sessions on electronic commerce, legal and regulatory issues, electronic purses, transport and security. IBC Technical Services - Tel: +44 (0)171 637 4383. Fax: +44 (0)171 636 1976.

CardTech/SecureTech '96, Atlanta, Georgia, USA, 13-16 May.

The largest conference and exhibition covering advanced card and security technology. CTST - Tel: +1 301 881 3383. Fax: +1 301 881 2430.

Patents: The Past - The Present - The Future

The life of an inventor is a curious one. You start out thinking only that you want to solve a problem in a unique way. And, indeed, patents celebrate uniqueness. But most of your life you spend trying to persuade others that this solution has commercial merit.

Success has many proud parents. Lack of success, and especially a flop is treated like an orphan. The young life of the amazingly successful Smart Card provides ample evidence.

The Smart Card had no shortage of parents. It is becoming increasingly difficult, in fact, to sort out not only how many claim, or want, responsibility for this *Wunderkind* - but whose family tree nurture its destiny. What rewards its achievements will bring to those who can prove they are related!

David Everett asked me to write about Intellectual Property - that curious expression that covers such a range of human endeavour; and to summarize the history and future of Smart Card patents. This is a somewhat dangerous assignment.

With such famous progeny, imagine how easy it would be to leave out a parent or two. Or even worse, be so unkind as to deny parentage to some who claimed it. I would also have to put aside my own modesty and acknowledge my own pride in the Smart Card child.

My apologies in advance, therefore, for choosing to write about a particular group of Smart Card patents. I am sure I will offend some - I am sorry about that. I am sure some will feel I have not appreciated their value - whether real or, perhaps, simply in their own mind. I regret I cannot be an impartial historian.

I am going to take some risks and ask for a good credit rating in advance. I hope I can repay your interest handsomely!

Smart Card Parents fall into three categories:

1. The **inventors** - with their patents

The Past and the Present

1968   (priority filing year in Austria)
German patent No. 1945 777 C3

Inventors:

2. The **entrepreneurs**

3. The **engineers**
and, hardly:
 - The banks

Except for one notable exception in the UK!

I want to focus on patents and inventors. And because inventions without entrepreneurs are like aircraft without engines, I will include some of the significant - in my mind - entrepreneurial developments.

I understand there are presently approximately a thousand chip card-related patents, and who knows how many pending applications. Which ones should I highlight?

I believe that success is in acceptable criterion and success is generally measured in financial terms. So I have decided to concentrate on patents that have been licensed to third parties, and on third parties who have exploited the patents and actually pay royalties.

It is not a large number, because I have not included patents whose only purpose is to protect products of the patent holder.

I also exclude, for the purpose of this review, any patent covering Smart Card CHIPS, MODULES, and PRODUCTION TECHNOLOGY.

A further refining of the list comes by distinguishing between principal and second generation patents, where the latter is merely an improvement of the first.

The patents are presented with:

- year of first (i.e. priority) application

  name(s) of Inventors(s)

- The important claims.

  ▸ Juergen DETHLOFF
  ▸ Helmut GRÖTTRUP

Subjects:

- ...'identificand' (identity card, key or

the like -
in German: Ausweis, Schlüssel oder dergleichen)
comprising a checking circuit in the form of **an integrated circuit**...(Claim 1)

- ■ the **integrated circuit in the form of a monolithic semiconductor block**
  (Claim 4)

- ■ coupling methods between 'identificand' and 'identifier':

  - • **galvanic**
  - • **capacitive**
  - • **inductive**
  - • **high frequency**
  - • **light**
  (Claim 12-15)

1970 Japanese Patent No. 94 05 48

Inventor:
‣ Kunitake ARIMURA

Subject:

Identification Card, including an active element in the form of **an IC**, which generates signals in response to signals from outside (one only claim).

1970 Technical and Manufacturing Development

Entrepreneur:
‣ Siegried OTTO

Managing director and majority shareholder of Giesecke & Devrient in Munich

1975 (Priority filing year in France)

1976 German patent No. 27 60 486 C2
Inventor:

‣ Juergen DETHLOFF

Subject:

...'identificand' **with microprocessor**...(Claim 1)

US patent No. 4.092,524

Inventor:
‣ Roland Moreno

Subject:

...identification **comparator**, **enabling data** contained in the store - **both within** a **portable** independent electronic **Object**.....(Claim 1)

I cannot stress too much the importance of his "PIN in the Card" patent. It is the systems foundation for almost any security feature.

And something else. Even though Roland Moreno never opened a chipcard manufacturing facility, never produced any phone of bank cards, I think we should recognise him as an outstanding **entrepreneur**.

He fought in the arena. His face was stained with blood, sweat and tears. He strived valiantly - erred and came short - felt the thrill of public acceptance. And finally, lived to enjoy the rewards that are heaped on those of high achievement.

France was the first country to pioneer Smart Card technology and it is to Roland Moreno's lasting credit that he engineered the greatest breakthrough for the chipcard.

1976 German Patent No. 27 60 485C2
Inventor:

‣ Jeurgen DETHLOFF

Subject:

...the **'charge pump'** to generate from one outside supply voltage various voltages **within** the (card) chip...
(Claim 1)

1976 German Patent No. 27 60 487 C2
Inventor:

‣ Juergen DETHLOFF

Subject:

...**transport** (protecting) **code** (Claim 1)

So far we have been looking at first generation patents. Nearly all of them have been expired.

It is really important that we get a message to lawmakers about patent rights. Why are patents treated in such a harsh manner?

There is absolutely no difference between the concept of material property and intellectual, or non-material property. If you own a house, or a fridge, or a car, or anything else physical, your property rights do not expire - at least in democratic societies.

But if you own a patent, your rights expire after 20 years. This makes me think we should stop calling them Intellectual Property Rights and call them Intellectual Property *Faith*.

Now we will see some second generation patents.

1978   (priority filing year in France)

US Patent No. 4.382,279

Inventor:
▸   Michel UGON

Subject:

...**self-programmable** microprocessor...(Claim 1)

The Future

The following inventions will - in my opinion - principally influence USE and APPLICATIONS of future Smart Card Systems.

Smart Card Forecast

A forecast that there could be 3.8 billion Smart Cards in use by the year 2000 is made by Datamonitor in its report *IT in Electronic Payments* which examines the global market. It also estimates that the total market for Smart Cards, including phone cards, is currently worth $640 million - more than double its 1992 level of $300 million.

Market shares by leading suppliers will change slightly with Gemplus defending its leading position, followed by Solaic, ORGA, Giesecke & Devrient and Schlumberger. In semiconductor products Siemens, Motorola and SGS-Thomson will continue to lead.

1987   US Patent No. 4.837,422

Inventors:

▸   Juergen DETHLOFF
▸   Christan HINNEBERG

Subject:
... **hierarchical** personal identification code **programming**...(Claim 1)

1989   (Priority filing year in Germany)
US Parent No. 5.206, 495

Inventor:
▸   H.D. KREFT

Subject:
..."**CombiCard**" for contact **and** contactless **coupling** comprising only   one microprocessor...(Claim 1)

I might have missed some invention - both disclosed and not yet published - and some may become even more important than those I've discussed today. But I will stop here with you permission.

You see, if I start discussing the kinds of improvements that are likely to happen, or begin to predict where the Smart Card will take us, then I would have to find a way to charge you a fee. Yes, I am an inventor, but I am also an entrepreneur and participating in the future of Smart Card is my business. And my future.

Juergen Dethloff

The market for Smart Card ICs at present is biased toward Europe with 70%. By the year 2000, Datamonitor believes that the US and Asian Pacific regions will each account for over 25% of the global market
.

Application	1994 Cards (m)	2000 Cards (m)
Phonecard	310	1400
Health	82	400
Bank & Loyalty	20	500

Pay-TV	10	100
GSM	9	56
Access control / vending	4	200
Other	3	544
Identity	1	400
Transport	1	200
Total	440	3800

Source: Gemplus, Datamonitor

Financial and banking applications are expected to reach almost 500 million Smart Cards in 2000, largely based on the assumption that the new 600 million Europay / MasterCard / Visa combined SVC and credit / debit cards will happen rapidly.

IT in Electronic Payments: Digital Cash is available at a price of £695 from Datamonitor - Tel: +44 (0)171 625 8548. Fax: +44 (0)171 625 5080. Contact: Sophie Smith.

Smart Bike of the Future

A concept motorcycle, ASPIRE, powered by batteries and using a Smart Card instead of keys to switch the ignition on, has been created by the Sanyang Motor Company of Taiwan.

It provides a ride into the future with features including a remote control CD player and a rear view mirror which is actually a tiny camera which feeds images back to a screen built into the handlebars. A second screen displays a map of the local road network.

The ASPIRE also has an electronic distance sensor - a device which makes it a safer ride. It works by calculating the distance of the vehicle in front and keeping the bike at a safe braking distance, controlling the brakes and throttle via a speed governor.

Sanyang Motor Company says the ASPIRE has a speed of 60 kmph, is environmentally friendly and will not rust. But before you rush out to call them you cannot order one yet as further work has to be done in creating suitable batteries to power the machine.

The company claims the largest motorcycle factory in South East Asia with sales exceeding five million vehicles per year.

Contact: Peter Chen, Sanyang Motor Company - Tel: +8862 791 2161. Fax: +8862 791 2160.