

# SmartCards TRENDS

SMART-SECURITY, TRUST & PRIVACY

## CRITICAL TOPIC

# M-PAYMENTS & BANKS -TOO BIG TO GIVE UP

**T**oo big to innovate,<sup>1</sup> yet too big to fail... Banks have very little wiggle room any more. Payment represents between 30 and 50% of their revenues, and is under threat. Bruised by the recent inroads by alternative e-payment systems, and now confronted with the m-payment behemoth, they continue to seek the best path to attain a summit that may soon be claimed by others. Should they follow the royal road already blazing with the acquisitions and developments in all directions (technologically and geographically) currently engineered by the vast Visa and MasterCard networks, or rather a new path they could trace themselves via an interbanking alliance or association with their closest 'coopetitors' mobile carriers, Internet titans, innovative start-ups or major retail? The banking industry can still draw on its long suit: interoperability built on solid standards of security and flow management, as well as a vast account base. But these two fronts have become the primary battleground on which all players intend to give it their utmost. The Mobile Wallet battle, in fact, is being confused with that for control of the end-user relationship. *Who owns my Wallet? Who controls the SEs that host the payment application? Banks will have to reinvent their KYC (Know Your Customer) models with services other than just payment, and with actors other than themselves.*



Source: Oberthur Technologies

Payment represents between 30 and 50% of banks' revenues.

<sup>1</sup>This is the second part of a critical topic begun in the last issue.

► Story on page 14

## NEWS FROM THE INDUSTRY

# Advent – Oberthur: a Leading Pure Smart Security Player

**W**e expected 60% of Card Systems only, but in the end it's 90% of both Card Systems and the ID Divisions that Oberthur Technology is preparing to sell to a private equity firm, Advent International, for €1.15 billion. The Savare family retains a 10% share in the new company and returns to its first love – the fiduciary business. But why? We can't answer this yet. However, the executives at Advent, a private equity firm with holdings in the banking industry and a strong international presence have prom-

ised to maintain the group's growth and don't rule out acquisitions to this end. As a result of this transaction, which should be concluded rapidly, the new Advent-Oberthur has become a pure player in the smart security industry, aligning itself with the position of a Gemalto, the sector's leader. Perhaps an option for a future IPO. Meanwhile, the company will have to invest in order to accelerate its migration towards NFC and M2M-related services activities, and to reinforce its presence in developing countries. ► Story on page 5

## LEAD-IN

### PRIVATE EQUITY TIME IS HONEY

Private equity firms tend to be on the discreet side, preferring action behind the scenes to center stage. And yet suddenly, and all in a single, momentous day – August 5 – they've found their way into the limelight:

**Advent International announced its controlling interest in Oberthur Technologies Card Systems and ID divisions, while the Gores Group in the U.S. and KleinPartners in the U.K. acquired Hypercom's POS businesses in their respective countries. All this for a total of some €1.2 billion, or close to 20% of the total value of the smartcard and POS industries combined. This idea of taking visible and full control over the reins of industrial firms is new. In any case, for the core of the smart security industry. Is it a sign of the sector's maturity? Certainly – as the industry**

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## NOMINATIONS

**Barbara McNamara and William Schneider Jr.**

were appointed to the proxy board of the new company MorphoTrust formed after the completion of L-1 Identity Solutions's acquisition by Safran Group. McNamara is a former deputy director of the code-cracking National Security Agency (NSA). Schneider is a former undersecretary of state under President Ronald Reagan and a former member of the Rumsfeld Commission that assessed ballistic threats. Their appointments have yet to be approved by the U.S. government. The presence of McNamara, formerly the top civilian in one of the most secretive areas of U.S. government, responsible for eavesdropping foreign communications, and Schneider will ensure L-1 can keep open its lifeline of U.S. contracts while having the French government as its largest single shareholder. (The French state owns 30.2% of Safran Group).

## SIM's future in hands of MNOS

**Driven in volume and towards commoditization at a breakneck pace by developing countries, the SIM card market is seeking a second, or even third, wind with the eUICC, M2M, IoT and iSIM, hoping to become the services platform NFC and LTE will soon require. But the huge gap between the basic pauper's SIM and the SuperSIM is not easily managed, and competition from other SE technologies and smartphones is already fierce. The ball is now in the MNOS' court..**

According to SIMalliance, 4.2 billion SIM cards shipped last year throughout the world, in other words, 23.5% growth compared to 2009. And much better than in 2009, when growth was only 9.6%. In 2010, more than half of these cards (2.2 billion) shipped in Asia, where we see the strongest growth: 43.5% in Japan and Korea, albeit for a market that is still quite modest in volume (33 million), 40% in India, where the market will soon rival that of China, and more than 38% in Asia Pacific and the Indonesian archipelago, which has become the second largest region in the world for the SIM card market. China posted modest growth (10%), but continues to be the leading SIM market in the world, with 823 million pieces shipped last year, or 21% of the worldwide market. These developments that until now were highly visible in Asia are reflecting a trend now expanding beyond that region, to all developing countries. After fairly weak growth (5.2%) in 2008-2009, the African continent and Mideast region saw strong growth for 2010 (37.5%). This can be explained both by the importance in this region of dual-SIM handsets (and in some cases, even triple- and quad-SIM units), as well as by the boom in Mobile Money (P2P) which is blossoming in the hotbed of "unbanked" populations privileged by the economic development programs that have been launched with this expanded use of mobile phones. Latin America is not idle either: after slightly negative growth in 2009 in the number of SIM cards shipped (-0.76%), it saw growth of 24% in 2010, and above all, has held the record since 2009 for average size of embedded memory in a SIM

card, with 112KB, when the world average barely exceeds 68KB. A strong indication that this market is becoming commoditized at an incredible pace may in certain markets or market segments go against the grain by using the SIM as a platform for value-added services. The Oi SIM card launched just under three years ago in Brazil (and as far as we know nowhere else) is an example. This SIM emerged from Gemalto's developments conducted with Microsoft and local carrier Oi, known for its innovations in value-added services built around SIM cards. But Latin America (and Brazil in particular, where multi-SIM handsets are booming) still remains the exception, the reasons for which can be found in the competition among MNOS in that region, Telefonica in front, but also due culturally to a widely-shared appetite among a predominantly young population for innovations in technologies related to the mobile phone.

### Embedded memory size flattering

That the SIM market today should be driven in volume by developing countries is confirmed, inversely, but the weak growth experienced (the weakest of all regions) in Western Europe (6.5% in 2010) and, incidentally, a decline over 2009 (7.4%). North America, meanwhile, grew slightly below the general average (+21.5%) and remains under the Africa & Middle East region for average memory size. But things should change with the arrival of NFC and LTE. "We obviously saw that growth in embed-

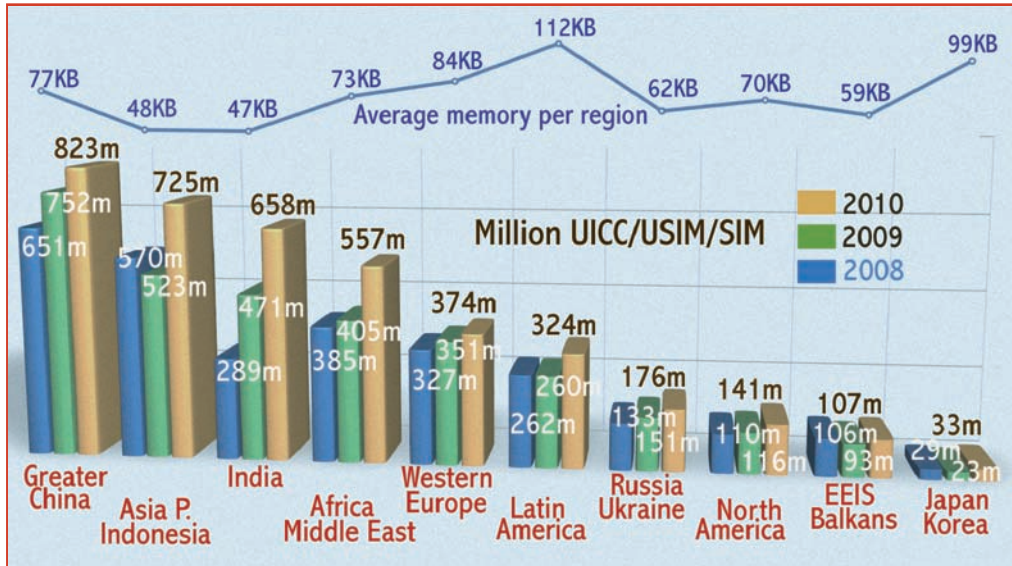
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**TRENDS**



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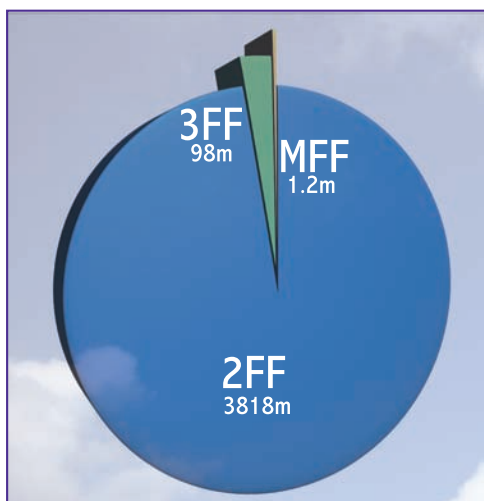
**WORLDWIDE UICC/USIM/SIM SHIPMENTS (2008-2010)  
EVOLUTION WITH AVERAGE EMBEDDED MEMORY SIZE PER REGION**



China posted modest growth (10%), but continues to be the leading SIM market in the world, with 823 million pieces shipped last year, or 21% of the worldwide market. Latin America holds the record for average size of embedded memory in a UICC/SIM/USIM with 112KB when the world average barely exceeds 68KB.

ded memory size in UICC/SIM/USIMs for 2010 was flattening,” noted Frédéric Vasnier, president of the SIMalliance, recently, “but we think that NFC projects that we see developing along with LTE launches already executed or underway will require UICC cards with much greater memory capacity as soon as next year.” For LTE, the ball today is clearly in the MNOs’

**UICC/USIM/SIM  
DIFFERENT FORM FACTORS’  
MARKET SHARE IN 2010**



The SIM doesn’t have a single future. 3FF (for Apple) and SMD (Surface Mounting Devices) known as MFF (Machine Form Factor) are taking off. 4FF and eUICC are still in “limbo”.

camp. The UICC is mandatory, but the level of services depends on the carrier’s choice: for NFC, things are not quite so clear, since the actors are more varied and often in a position of soft or even direct competition in the battle over customer relations and liability – or at least competition, and the result of all this will determine the choice of the type of SIM or Secure Element. The SIMalliance (see page 10) has already adjusted its creed on this point, since the association is now embracing not only UICC, but also the embedded SE and secure microSD card, with a “motto” that explicates the SIM of its logo into “Security, Identity and Mobility, and thus has abandoned the traditional “Subscriber Identity Module” at the origin of the acronym, which now seems too SIM-SIM-centric. What will be the respective shares that these different secure elements will take up in the deployment of NFC services? Will the UICC NFC finally be able to rewrite the history of the SuperSIM or even the HD-SIM, for which ETSI has already written several draft introductions, including SWP, the USB Interchip, the full IP card and the Smart Card Web Server (SCWS)? Nothing is less certain. Once again the ball is in the court of the MNOs, and their ability to negotiate with banks and transit operators, primarily, and above all to assume an attitude that will be more pro-active than in the past with respect to the role they



**NOMINATIONS**

**Kazem Aminae**, the



former President of Hypercom Europe, Middle East, and

Africa, has been appointed President of Spire Payments, the new company created after the acquisition of Hypercom Spain S.A. and Hypercom UK by Private Equity firm KleinPartners.

**Eric Alzai** has been



named Senior technical expert at Think&Go NFC, a company

which innovates on the NFC business model by supplying free or subsidized NFC devices and manages integration into existing IT systems while also offering user recruitment and education services. Formely, Alzai was CTO at Twinlix, Inside Contactless and Oberthur Card Systems.

**Todd Freyman** was appointed Bell ID ‘s Vice President of Operations for U.S. business. Freyman has gained 15 years’ experience in the security and identity industries from roles at Lockheed Martin, Northrop Grumman, CoreStreet and most recently ActivIdentity.

NOMINATIONS

**Dave Habiger** was appointed CEO of NDS Group Ltd. Dr. Abe Peled, previously Chairman and CEO, will assume the full time position of Executive Chairman.



**John Bohan** of Marks and Spencer and **Kevin Lake** of Countdown have been elected new Co-Chairs of The UK Gift Card and Voucher Association (UKGCVA), the trade body representing the UK's £4 billion voucher, gift card and stored value solutions industry.

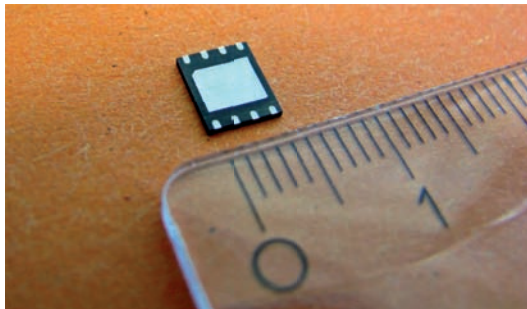
**Alison Greensmith** has been appointed sales director, Northern Europe for Ingenico. Before joining Ingenico, Greensmith was Sales and Marketing Director, EU for Digital River World Payments. She also held a non-executive director position with IT infrastructures and communications services provider, TFM Networks.

**Samantha García and Daniel Davis** join Databac to look after company's accounts and develop new business in the British Isles, US and Africa, supported by Nicky Jermy and Jenha O'Reilly in customer support and purchasing.

Continued from previous page

would like to play with the UICC. The battle over applications, which they've already lost in the blitz led by Apple with the iPhone/App store, then the iPad (15 billion applications downloaded since early July) and which continues today with Android, Amazon, and soon with Windows/Nokia have perhaps not yet had the effect of a salutary lesson in terms of innovation. It should do however, with a little more reactivity and conviction than that exhibited by those who launched the Wholesale Applications Community initiative, the efforts of which are still not terribly visible. With the publication of its "Open API," the SIMalliance is providing the missing link that will allow an SE's (UICC or otherwise) resources to be called upon in any open OS environment, and thus privilege the formation of a developer community, a crucial piece to any future NFC or LTE applicative ecosystem. "Long tail applications and applications requiring security can still be under the MNOs' control," affirms Vasnier. But the future of the SIM – either the 2G or

Source Giesecke&Devrient



MFF chip. Just 1,251 million have been shipped in 2010 mainly in Western Europe (53%) and Greater China (24%), but the future is brightening with the promise of 15-50 billion units.

2.5G produced in volume today for some 20 cents a piece – is also being written elsewhere than in mobile phones. Its metamorphosis in the M2M universe (MFF formats standardized by ETSI) is currently opening a migratory path towards a world

of machines that talk to machines, as well as to objects, and to their Internet, the construction of which is being drafted around a "chip-to-cloud" model. A model that presumes the implementation of secure channels over-the-air, and of a security system approach. Contrary to the developments in NFC and LTE that have resulted in functional enhancements of the classic SIM, the M2M branch of this network will develop above all as an extension, with volumes that could easily exceed those of the traditional mobile phone, and doubtless by putting forth a simple authentication function that all connected devices will require in the future. It's on this path that the "basic SIM or UICC/USIM" will meet up with the eUICC, a not-so-distant cousin of the MIM MFF and the 4FF form factor, younger sibling to a still uncertain 3FF. The SIM doesn't have a single future. It will have many lives. ■

SCT's 50th Issue – Thanks to our Readers

This issue of Smart Cards Trends marks a milestone – it's our 50th. The first issue appeared nearly 8 years ago, on October 22, 2003 on the eve of the Cartes & Identification show in Paris, and with a front page headline that makes us smile knowingly today: "Schlumberger Smart Card & Terminal Becomes Axalto." The rest, as they say, is history... For some of our readers, this issue is also your 50th. We thank you sincerely for your loyalty and interest in the road we've traveled together: the Gemplus-Axalto adventure, the SIM boom, the take-off of EMV and ID, the emergence of NFC, Mobile Security and the debates around a High Speed



The first issue appeared nearly 8 years ago, on October 22, 2003.

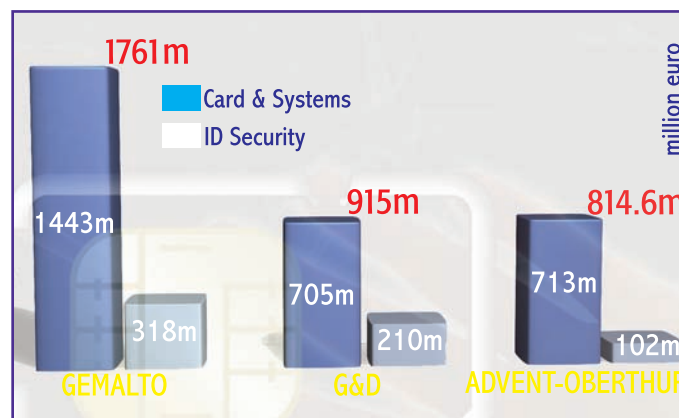
Interface and the SWP, the rise in prominence of trusted services, Chip&Cloud and Shop&Pay models, as well as the new markets in developing nations. Thanks equally to those of you who have joined us in mid-route, and who continue to give life to this news magazine, the chief aim of which has been to provide a link and a forum beyond competition between all players of the smart security industry, and to share a "certain idea" of both the economic but also social role that this industry can and must play, born as it was in garages over 25 years ago, with the kind of good genes that make it predisposed to innovation. ■

# Oberthur To Sells off 90% of its Card Systems & ID Activities

We expected 60% of Card Systems only, but in the end it's 90% of both Card Systems and the Identity Divisions that Oberthur Technology is preparing to sell to a private equity firm, Advent International, for €1.15 billion. The latter promises to sustain the group's growth and doesn't rule out acquisitions to this end. Oberthur, meanwhile, is returning to its first love – its fiduciary business.

The first phase of the "Savare plan" has hit the ground running. Scarcely a week after the expiration for filing offers in response to the proposal to sell off a part of its Card Systems business, three of the four private equity firms being considered (PAI Partners, Bain Capital and One Equity) threw in the towel "due to valuation and governance issues", according to the French newspaper Les Echos, while the fourth (Advent International) jointly announced with Oberthur's management "that they have entered into exclusive negotiations for the acquisition of the Card Systems and Identity divisions of Oberthur Technologies." The speed of this move is no less surprising than the size and nature of the transaction: we expected a sale of 60% of the Card Systems business (valued at €1 billion), i.e. a transaction worth €600 million, and ultimately we've got nearly twice that (€1.15 bil-

## A NEW PURE SMART SECURITY PLAYER RANKING NUMBER 3



Taking only the Card Systems business, Oberthur maintains second place. The main novelty for Advent-Oberthur is to become a pure smart security player, and thus arrive at a position from which the sector's leading firm, Gemalto, built its success.

lion) for the acquisition of 90% of the combined Card Systems and Identity Division, overall valued at €1.27 billion. With revenues of €713 million, Card Systems is valued at €1 billion, while the ID Division with revenues of €101.6 million is valued at €270 million. The Savare family thus finds itself today with



## Advent: an international network already present in banking arena

**Advent International is known as an equity firm "investing exclusively in mid to upper mid market buyouts and selective growth capital investments." The company has already invested in France in 2008 with the acquisition of the electronic payment company Monext, sold one year later to Credit Mutuel Arkea. It has also invested in the payment industry area by acquiring one year ago with Bain Capital, the subsidiary business of The Royal Bank of Scotland, RBS WorldPay for an enterprise value of up to £2.025 billion. The group also invested in Fifth Third Bancorp**

**(commercial banking, Branch banking, consumer lending and Investment advisor with 25 million clients, \$6.3 billion revenue in 2010) in the U.S. and Cetip (Banco Central do Brazil). "Advent benefits both from a leading international network across many regions, including Latin America," underlined Cédric Chateau, Managing Director with Advent International. One thing is certain - the new Advent-Oberthur entity will have a substantial new financial and geo-strategic network at its disposal.**

## LASTEST NEWS

### Visa Announces Plans To Accelerate EMV Migration in the U.S.

Visa's plan to encourage the U.S. adoption of dynamic chip authentication technology includes the following three initiatives:

- 1) Expand the Technology Innovation Program to Merchants in the U.S;
- 2) Build Processing Infrastructure for Chip Acceptance;
- 3) Establish a Counterfeit Fraud Liability Shift. "By encouraging investments in EMV contact and contactless chip technology, we will speed up the adoption of mobile payments as well as improve international interoperability and security," said Jim McCarthy, global head of product, Visa Inc. "As NFC mobile payments and other chip-based emerging technologies are poised to take off in the coming years, we are taking steps today to create a commercial framework that will support growth opportunities and create value for all participants in the payment chain."

*Further details and comments from major players, in our next issue.*

## BRIEFLY

**Morpho Acquires Card Manufacturing and Personalization Centers in South America.** This strategic move aims at combining the long-standing regional customer relationships of trust built by Carvajal with Morpho's expertise in international smart card and high security technology. "Our mission is to serve the needs of this fast-growing market as it moves toward secure chip cards and to offer local products and services tailored to customer needs," said Philippe d'Andrea, Executive Vice President Morpho, e-Documents Division.

**Keynectis acquires OpenTrust.** OpenTrust is primarily funded by leading investment funds: Iris Capital, GemVentures, Crédit Agricole Private Equity, Elaia Ventures, Seeff Ventures and 123Venture. Keynectis shareholders are Gemalto, Morpho (Safran Group), CDC (Caisse des Dépôts et Consignations), Euro-Information (Crédit Mutuel-CIC Group), TDH (Thierry Dassault Holding) and Imprimerie Nationale (National Printing Group). M. Thierry Dassault is Chairman of the Board.

▶▶▶ *Continued from previous page*

a 10% share of the new company, Advent-Oberthur, valued at €115 million, while also at the head of another group (Oberthur Fiduciaire) refocused on its fiduciary activities, with revenues around €165.5 million (Secure printing : €145.7 million, cash protection: €17.8 million), not to mention a big fat kitty of €1.15 billion, the amount and liquidity of which were among the primary objectives driving the Savare plan, which would appear to be an eminently healthy balance of financial transaction combined with strategic industrial re-orientation. Where will Oberthur Fiduciaire choose to invest? That's the big question today, the answer to which is at least partly known: in the fiduciary. Despite denials about a forthcoming offer to acquire the banknote activity of De La Rue, the world's largest integrated commercial security printer and papermaker, this option still remains wide open to the group. It's true also that the price for that concern is not the same as it was last January.

### An unexpected "uncoupling"

The world leader, which had experienced some difficulties with its banknote and currency activities for over a year now,<sup>1</sup> is back on track under the guidance of its new chief executive, Tim Cobbold. De La Rue (which had already sold its card business to Oberthur Card Systems in 2001) shares or shared (until now) with Oberthur Technologies, but also with Giesecke&Devrient,<sup>2</sup> the peculiarity of combining both currency and fiduciary business with an ID division. The merger between Oberthur Card Systems and François-Charles Oberthur Fiduciaire in 2007 had furthermore emphasized the synergies that could be generated by this kind of union focused on a global approach to "secure technologies and smart security markets." The unexpected "uncoupling" of these two types of business that is now occurring at Oberthur with the sale of the ID division to Advent International is not an argument in favor of a new union between Oberthur's fiduciary division and the De La Rue group, unless we believe that exclusively financial arguments purely and simply blinded the firm to any strategic or industrial issues. Pro forma revenues for the new company, Advent-Oberthur, will thus combine the Card Systems business with that of the ID division,

and should hit somewhere around €821.5 million, which will put it in third place worldwide, just behind Giesecke&Devrient, whose revenues for 2010 were, for the exact same combination of activities, €915 million. Taking only the Card Systems business, Oberthur maintains second place with revenues of €713 million, where G&D comes in at €705 million. The main novelty for Advent-Oberthur is to become a pure smart security player, and thus arrive at a position from which the sector's leading firm, Gemalto, built its success. And yet, this situation, which could lead to as many opportunities as pitfalls, does offer an advantage that was perhaps always part of Savare's calculations: the potential to be able to reenter the stock market as soon as the situation allows, with the prospects for a more comfortable valuation of the new firm's assets.

### Towards services and emerging countries

However, the road ahead is not without obstacles. Oberthur Card Systems' and ID's R&D and marketing teams will have to be nurtured with a greater investment effort in order to accelerate the migration towards services, and towards emerging countries. The fast track for this could be through acquisitions. "Advent International would also support the company's growth through potential external acquisitions that may further enhance the technological development and growth of the company," confirmed the new company's management team. ■

<sup>1</sup>*De La Rue experienced supply chain and quality control difficulties for a banknotes shipment to one of its most important customers – India. The revenue decrease associated with these problems, but also due to a greater dip than anticipated in global banknote printing volume (from 7.8 billion in 2010 to 5.9 billion in 2010) of 17.4% to £463.9 million, of which £287.6 million was for the currency business, £55.7 for cash processing, £55.7 million again for the security products business and finally, £65 million Identity Systems, of which £31 million came from the U.K. passport contract.*

<sup>2</sup>*Giesecke&Devrient's banknote business reported revenue of €753 million (£655.8 million) in 2010, which made it the world leader ahead of De La Rue (£288 million) and Oberthur Fiduciaire.*

# Safran (Finally!) Completes Acquisition of U.S.-based L-1

**Delayed by the painstaking approval process, notably by the U.S. Committee on Foreign Investment, the acquisition of L-1 by Safran was finally concluded for the amount of \$1.09 billion, just under a year after it was announced. L-1 will take the name of MorphoTrust and be absorbed into the security business of Morpho (within the Safran Group), which thus becomes the world's *de facto* leading ID biometric security firm.**

**S**UD Identification in 2008, Printak and GE Home Land protection in 2009, and now L-1 Identity Solutions today: these four acquisitions in biometric ID and home-land detection systems, which have cost the Safran Group nearly €2 billion over the past four years have helped to strengthen and solidify the French multinational's leadership in ID security, with *pro forma* revenues in 2010 at some €1.4 billion. With average growth at of 21% over the four years (including acquisitions) and organic growth of 15%, Morpho's strategy has been to play off a double accelerator – that of acquisitions and of an already highly dynamic market. In comparison, recall that 3M Security Systems, which along with NEC is Morpho's main competition, followed a similar strategy. In 2010, it posted \$1 billion (€741 million) after its acquisition of Cogent for \$943 million (with revenues of \$130 million in 2009). Also recall that in the biometric ID market (including some portion of secure printing),<sup>1</sup> estimated at \$4 billion in 2008 (with a projection of €7 billion in 2012) that Gemalto attained revenues in 2010 of €318 million (+31% YoY), G&D €210 million (+15% YoY), and Oberthur Technologies, €101.6 million (+10.4% YoY).

## Three different business branches

With the acquisition of L-1, Morpho will integrate three different business branches totaling revenues of \$450 million in 2010 (€346 million). The "Biometrics & Enterprise Access Solutions" division offers expertise in iris and facial recognition, but also a sweet portfolio of IP and plat-

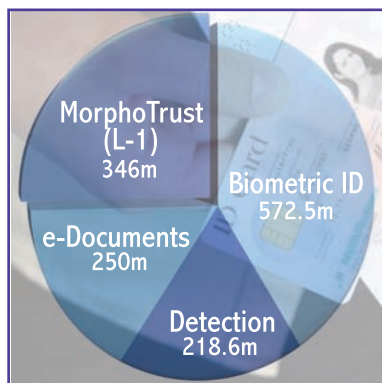
forms of multimodal biometric solutions; the "Secure Credentialing" division opens the market of 44 of 50 U.S. states' motor vehicle departments (for driver's licenses), while the "Enrollment Services" business opens the U.S.

and Canadian market of 1000 enrolment points, along with biometric capture systems and personal data. The latter two branches, which account for some 8% of revenues for the entity, will be managed as a proxy structure, in order to provide the required level of protection to U.S. national security. They will be under the control of three proxy holders, including Barbara McNamara, a former deputy director of the code-cracking National Security Agency. We don't know yet whether Morpho, which continues to invest significantly in India,

will attempt to obtain, in addition to the market share it already claims with Mahindra Satyam, that business which had previously been attributed to L-1, for the first trials of the huge UIDAI (Unique Identification Authority of India) Aadhaar program. "We're in talks at the moment on the subject, but it is too early to say what will come of it," explained Safran's Financial Director, Ross McInnes. ■

<sup>1</sup>The activity range corresponding to this designation are not strictly the same at Morpho, 3M, NEC, Gemalto, G&D and Oberthur. There are, notably, secure printing businesses at the latter two firms that haven't been accounted for here, but the equivalent of which have been consolidated at Morpho, for instance, for which 21% of their business corresponds to detection systems (GE's acquisition) and have no equivalent at the other firms. That's also the case with NEC's video surveillance activity.

### MORPHOTRUST STRENGTHENS FRENCH MULTINATIONAL LEADERSHIP IN ID SECURITY



Morpho confirms its leadership with a *pro forma* 2011 revenue of €1.4 billion.

## BRIEFLY

### Smartrac Reports H1-2011 Revenue of

€93.9 million (+16%

YoY). Sales in the

Security Segment

(Business Units Cards

and eID) amounted to

EUR 67.9 million in H1-

2011 representing an

increase of 13%

compared with sales of

EUR 60.1 million in the

same period of 2010.

The Security Segment

accounted for 72% of

total Group revenue in

the first six months of

2011 compared with

74% a year ago.

### Identive Group

### Reports Q2-2011

Revenue of \$25.6 million (+21% YoY).

Sales in Q2 were

driven by strong

demand for identity

management solutions

for consumer and

citizen ID applications

globally as well as

ongoing imple-

mentations of

employee physical

and IT access control

systems, offset by

continued temporary

project delays with

some U.S. government

customers. Q2 2011

sales reflected 14%

organic growth year

over year net of the

effect of acquisitions.

### AuthenTec Reports

### Q2-2011 Revenue of

\$16.2 million (+51.4%

YoY). Q2 revenue

included \$11.3 million

from Smart Sensor

Solutions (SSS), and

\$4.9 million from

Embedded Security

Solutions.

## BRIEFLY

**Ingenico Reports H1-2011 revenue of €440.3 million (+11.4% YoY).** Total revenue included €365.8 million generated by the Payment Terminal business (hardware, servicing and maintenance) and €74.5 million generated by Transaction Services. Ingenico confirms its FY 2011 revenue target of over €985 million (on a like-for-like basis at constant exchange rates) which was revised upwards on April 25, 2011. This revenue target represents organic growth of more than 6.3% and growth of over 8.6% compared with 2010 reported revenue.

**VeriFone Systems, Inc. has completed the acquisition of Destiny Electronic Commerce (Pty) Ltd.** (trading as CSC), a South Africa-based electronic payments solutions provider.

**Google Enters Credit Card Business.** Google is on the verge of introducing a credit card (Adwords Card) for its advertising customers. It's a "one stone two birds" move for Google. A new step ahead into the payment area business after the introduction of its Google prepaid card within its "Mobile Wallet".

## POS Industry In Consolidation De-Consolidation Move

**The conclusion of the Hypercom acquisition by VeriFone strengthens the latter's position, but at the same time gives rise to two new players in the POS and e-transaction market: The Gores Group, which assumed Hypercom's U.S. assets, and Spire Payments in Europe, which acquires Hypercom's Spain and UK assets.**

Consolidation in the POS industry has reached the point where it is now manifesting signs of 'de-consolidation.' The conclusion of Hypercom's acquisition has just demonstrated this trend. If it strengthened VeriFone's position throughout the world, which is now head and shoulders above the market alongside Ingenico, in a sort of duopoly, it also has allowed for the (re)emergence of two new players, the Gores Group in the U.S., which ends up with the U.S. assets of Hypercom, and Spire Payments which picked up the U.K. and Spanish subsidiaries of Hypercom in Europe. And yet, these two buyers themselves both emerged directly or indirectly from private equity firms. The Gores Group, founded in 1987, is a private equity firm focused on acquiring controlling interests in mature and growing businesses. Gores is very familiar with VeriFone. Hewlett-Packard, which acquired VeriFone in 1997, turned around and sold it to Gores Technology Group in 2001. The latter entered into an agreement a year later with one of the oldest and most successful private equity firms, GTCR Golder Rauner, to recapitalize VeriFone. In this agreement The Gores Technology Group retained an ownership interest in the company.

### ViVotech - the loser?

Gores has acquired 80 companies worldwide with combined revenues in excess of \$15 billion. Currently, Gores has \$4 billion in equity under active management. With this acquisition, Gores will hold roughly 20% of the U.S. market for payment terminals, with revenues estimated somewhere between \$100-\$120 million. The question is knowing whether it could sell this activity in one or two years. ViVotech, which today seems like the loser of this transaction, since it made its interest in acquiring the U.S. assets of Hypercom known publicly,<sup>1</sup> may again become a potential buyer, perhaps after the IPO planned for next year. For now, we don't know why this company, founded and directed by Mohammed Khan, was unable to get what it

wanted. The desistance of Ingenico,<sup>2</sup> at one point predicted to acquire Hypercom's U.S. assets, seemed to leave the field wide open. Reached by us for comment, VivoTech had nothing to say on the subject. It had not escaped our notice that ViVotech CEO Michael Mullagh, during the last financial round that allowed him to bring in new investors and \$24 million in funds, oddly made no mention of this potential and attractive acquisition, while at the same time expressing ViVotech's brilliant prospects for the future. Only a month earlier, Mullagh had described his company as the best fit for Hypercom's U.S. customers. There's clearly more to this story.

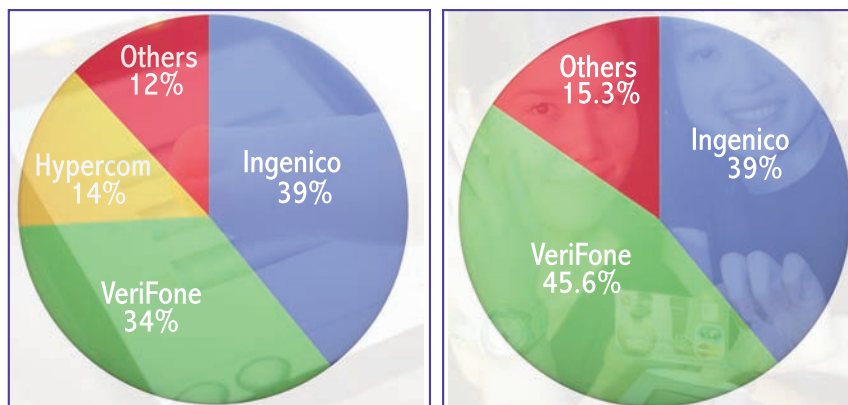
### To resolve any "antitrust" issues

Spire Payments, meanwhile, is a new company owned by KleinParnters Capital Corp, another private equity firm that claims to specialize in companies with "solid management" and revenues between \$25 million and \$250 million. Spire incidentally is closer to \$25 million than \$250. As in the U.S., the sale by VeriFone was part of a strategy to avoid antitrust action. "VeriFone indicated a willingness to sell off select operations to resolve any issues concerning the merger of operations. [The U.S.] DoJ was focused on U.S. assets. Other countries have their own regulatory agencies and concerns," said the company. Spire Payments will lead a business with an estimated base of 650,000 pay-

<sup>1</sup>"We still see the acquisition of Hypercom's U.S. assets as a strategic and transformative opportunity for our company to enhance next-generation NFC platforms, and accelerate the adoption of in-store mobile payment, loyalty, marketing and merchandising solutions in the U.S.," said ViVotech CEO Michael Mullagh last May.

<sup>2</sup>The U.S. DoJ pointed out that the acquisition of Hypercom's U.S. assets would have created a duopoly, given that VeriFone, Ingenico and Hypercom together account for nearly 98% of the U.S. market, worth some \$600 million.

## COMPARED PRO FORMA 2011 REVENUES BEFORE (LEFT) AND AFTER (RIGHT) THE ACQUISITION OF HYPERCOM BY VERIFONE



VeriFone expects to report FY11 net revenues in the range of \$1,170 million (€879.2 million) to \$1,180 million (€887.2 million). It also expected the acquired Hypercom business to contribute in fiscal year 2012 revenue of \$350 million. Ingenico confirmed its revenue target of over €985 million in 2011.

## BRIEFLY

**VASCO Reports Q2 2011 Revenues of \$43 million (+74% YoY).** For full-year 2011, the company expects revenue growth of more than 40% for the full-year 2011 over full-year 2010, as compared to expected full-year revenue growth of more than 20% announced at the end of the first quarter of 2011.

**Xiring Reports Q1-2011 Revenue of €3.9 million (+11.1% compared to Q1 2010 restated).** During the quarter, the company won a key contract in e-ID with the French UGAP (Government Purchases Agency) as well as a 7,500 e-Health terminals order for the German market, confirming the restart of the German program.

**Verisign Reports Q2-2011 Revenue of \$190 million (+13% YoY).** Mark McLaughlin submitted his resignation to become the CEO of a private company. His last day with the company will be August 25, 2011. Jim Bidzos, Verisign's founder and previous CEO, became the president and chief executive officer effective August 1, 2011.

ment devices.<sup>3</sup> With 200 people all hailing from Hypercom, the company will be led by Kazem Aminae, a figure well-known to the payment industry. The new company has the exclusive sale rights to Hypercom's range of Optimum and Artema Modular products in the U.K. and Spain. In other words, this exclusivity forbids VeriFone UK (largely the one-time Lipmann business unit) from marketing the same line of terminals, i.e. the terminals it has just acquired as part of the non-U.S., non U.K., non-Spain assets of Hypercom. "VeriFone plans to grow and enhance all major product lines that existed prior to completing its history and we have a

<sup>3</sup>Compare this to the installed base worldwide, in excess of 30 million devices.

history of continuing to sell older product lines after newer products became available. The acquired products will retain their product identity and gain the strong VeriFone brand identity," said a spokesperson for the company. This situation will no doubt create some market opportunities for Ingenico, which has nearly finished migrating all its terminals to the Telium platform (and which is getting ready to launch a new line of products on the U.S. market). But the entry of private equity firms center stage, when until now they had waited in the wings of the POS market relaunches questions about the fate of Safran's share (22.5%) in Ingenico's capital. A take-over offer by U.S. industrial conglomerate Danaher late last year is still fresh in our memories. To be continued... ■

## PayPal Doubles Mobile Payments Predictions to \$3 billion in 2011

This is the third time PayPal has had to update its TPV mobile 2011 projections.

PayPal, which just crossed the line of 100 million active accounts worldwide (+15% YoY) is seeing its Total Payment Volume via mobile soaring at a rate no one anticipated. "This is the third time we've had to update our mobile 2011 projections. We first predicted \$1.5 billion in 2011 mobile payments volume. At our analyst day in February, we upped that to \$2 billion and just a few months later, we have now added another billion to that number," said Laura Chambers, Senior Director, PayPal Mobile. In less than 4 months, the number of mobile consumers who use PayPal on their mobile phones to pay for purchases has jumped from six to eight million. "Merchants are seeing increased sales by up to 37% when they use our mobile prod-

ucts," explains chambers. The question remains whether PayPal is preparing a "Mobile Wallet," eventually with NFC (an idea Google seems to have "borrowed"). "I don't think that you're going to see NFC with large merchants," confirmed John Donahoe, eBay's CEO, in a discussion with Venture Beat. "You don't want anything that has friction at point of sale." In any case, mobile remains at the heart of eBay's strategy. The acquisition in early July of Zong, a provider of payments through MNO's billing confirms it. "We believe that Zong will strengthen this value by helping us reach the more than 4 billion people who have mobile phones, giving them more choice and security when they pay," said S.Thompson, president of PayPal. ■

## BRIEFLY

**Sierra Wireless Reports Q2-2011 Revenue of \$139.9 million (-12% YoY).** Machine-to-Machine ("M2M") revenue was \$73.9 million, down 12% compared to \$83.6 million in the second quarter of 2010. Excluding sales to Barnes & Noble, the company's core M2M business increased 14% in the second quarter of 2011 on a year-over-year basis.

**Eastcompeace Supplied RF-SIM Cards to Indonesian MNO Telkomsel.**

Currently the company provides three types of mobile payment solutions: 2.4Ghz RF-SIM card, 13.56Mhz NFC-SIM card, and 13.56Mhz Foil Card..

**Turkcell Launched T20 NFC smartphone produced in partnership with Huawei.** Turkcell T20 supports 3G HSDPA (7.2 Mbps) network, has 3.5 inch 320x480 (HVGA) resolution touch screen, 5 megapixel camera, MP3 player, Push e-mail, GPS, Wi-Fi, Compass and 4 GB MicroSD external memory.

**Raisonance partners with Hong Kong-based VWILL** to promote its ProxiSPY and ContactLAB tools in China, where the demand is increasing for Smart Card Tools (contactless and NFC).

## SIMalliance Advances on New Mobile Security Battlefields

**How long before the SIMalliance is renamed the SEalliance or Mobile Security Alliance? The association that represents the SIM industry has come out of its traditional fiefdom. SIM no longer means merely Subscriber Identity Module, but also, Security, Identity and Mobility. An inevitable development if it is to remain at the core of the challenges set by NFC, LTE and M2M.**

"Our organization and our experts are there to work on three major core topics: mobile transactions, mobile Internet security and M2M. We do deliver, in coordination with other bodies such as GSMA or ETSI, guidelines and recommendations in order to help MNOs to deploy secure and interoperable services through all kinds of connected devices. That's why we now embrace not only UICC/SIM/USIM but also secure microSD and the embedded SE as a secure element for these connected devices," recently asserted Fred Vasnier, chairman of



Frédéric Vasnier : "The application battle was more or less lost by telecom operators, but that for secure applications can still be won, just as that for connectivity."

the board of the SIMalliance, the representative body of the SIM industry that joins together 12 members and associates, and accounts for nearly 4 billion UICC cards (some 92-93% of the worldwide market). The evolution is all the more noteworthy given that the association has since the beginning of the year been withstanding a trial by fire with such sensitive topics as rumors of an embedded SIM proposed by Apple. And that we could have understandably expected the occasion to give rise to the expression of more protectionist instincts crystalizing an attitude of reverting to a purely removable-SIM posture.<sup>1</sup> And yet this wasn't the case. Between the "roman tortoise" and a war of movement, the association has made its decision. Its chairman, furthermore, does not shy away from military metaphors when indicating that the association is now on the warpath, with a clear objective to win the next battles. "The application battle was more or less lost by telecom operators, but that for secure applications can still be won, just as

that for connectivity, whether it be with the UICC, the microSD or the embedded secure element," insists Vasnier, who recalls that the services and security architectures built around the UICC, the eSE or the microSD raise the critical question of who owns the SE and who controls it. The device manufacturer, the MNO or the UICC manufacturer? While pointing out that ultimately, MNOs will have to finesse a huge deal to maintain the close relationship with customers. "The user relationship battle is on," he affirmed.

Questions of security and

liability are at the core of new developments driven by NFC and M2M, and to a lesser extent, by LTE, which should open an entirely virgin field for new secure data services. The SIMalliance has already offered several recommendations in all three fields: UICC profiles for LTE, including one that combines LTE and NFC, and stepping stones to ensure total interoperability for NFC applications with all three types of SE. It took a task force in the end to contribute significantly to the definition of MFF standards for M2M. Another group is working on finalizing a new high-level API set for Open APIs already published for the use of open mobile OS application developers. "MNOs must integrate these APIs into their RFQ for handset manufacturers. If we want to prevent the Internet mess from overtaking mobiles," explained Vasnier. ■

<sup>1</sup> See our article "Embedded USIM Stirs Up Tension in MNOs Shops" in November 2010 issue.

# New NFC Summer Juice: Google-Orange?

**Recent accords with BNP Paribas in France and Google in Africa illustrate Orange's strategy combining collaborative logic with brand logic. The basis perhaps for an agreement with Google, and why not with BNP Paribas, to launch a UICC-based Euro-Zone Google wallet?**

"Orange wants to combine partner services – which in addition to their specific benefits are from well-known and recognized brands – with its mobile telephone offering." That's a lot to take in. This declaration, made as Orange sealed a partnership with BNP Paribas for the launch as of November of a new bundle of mobile banking services – the first of its kind to include, notably, NFC payment services – summarizes the French carrier's strategy, combining collaborative and brand-focused logics, two forces that seem naturally opposed, as we've often suggested in these pages. How can you reconcile Nice Cityzi with Google Wallet? Do you invent a hybrid model that is built around a bundled offering of services, bearing prestigious brand names such as BNP Paribas, Barclaycard or Google among the "happy few?" Why not? Orange has also just announced an agreement in Africa with Google to allow Orange mobile subscribers to stay in touch with Google services, while allowing Google users to extend their networks by using SMS-based services, specifying that "the services proposed under Google SMS are only the first stage of this partnership."

## 158 million customers

"Orange and Google are now exploring ways of bringing other Google services to the whole Orange customer base," according to Orange. Even if the latter is insisting that the agreement is limited to Africa, where the carrier incidentally is also developing its Orange Money services<sup>1</sup>, thanks to close partnerships with local banks, including BNP Paribas subsidiaries, we can't believe that these explorations of "new ways to bring Google services to Orange's customers" won't expand beyond the African continent. Even if Orange hasn't given up on its strategy as a "content aggregator" beyond its carrier role (Orange Cinema Series, acquisition of 49% of DailyMotion, agreements with Deezer),<sup>2</sup> the sheer mass it represents with 158

million customers, and above all its commitment to the development of mobile contactless services, the assertion and already the implementation of this "collaborative and name brand" strategy would all seem to designate the carrier as the first candidate for the launch of the Euro-zone Google Wallet based on a UICC in 2010.

## BNP Paribas, Barclaycard...

Similarly, the close relationship between Orange and BNP Paribas, the Euro-zone's leading bank, which has already shown its ability to innovate (as one of the first to launch a PayPass MasterCard), also designates the latter as the first candidate to join with Orange and Google to become what Sprint and Citi are with Google in the U.S. Barclaycard, meanwhile, given its numerous agreements with Orange (QuickTap) or Everything, Everywhere (a JV between Orange, Telefónica and Vodafone) in the U.K., where the bank is already by far the leading issuer of contactless cards (over 10 million out of 16 million in circulation as of January 2011) would appear as the best placed candidate in the "Sterling" zone for such a launch. ■

<sup>1</sup>Orange Money, launched in 2008-2009 already numbers over two million customers in the Ivory Coast, Senegal, Niger, Mali, Madagascar and Kenya.

<sup>2</sup>"Although we are no longer publishers ourselves, we are strengthening our position in the fields of aggregation and distribution," stated Stéphane Richard, CEO of France Telecom-Orange, last January.

**North America and Western Europe will account for 50% of NFC payments market by value (globally estimated to \$50 billion) in 2014.** Following on from the Orange Mobile Payments service launch in the UK, 2011 and 2012 are expected to be banner years for NFC service rollouts, says Juniper Research.

## BRIEFLY

**NFC Payment transaction values in China could surpass \$8 billion by 2014.**

According to ABI Research, in China, more NFC handset add-ons are shipped than NFC-enabled mobile handsets: 2.5 million SIMpass add-ons and 50,000 SD add-ons, versus 45,000 handsets last year. WatchData's SIMpass solution has attracted strong interest from all three operators.

**Apple Rises to the Top as worldwide smartphone market grows 65.4% in Q2-2011, IDC Finds.**

Apple shipped 20.3 million iPhones (+141.7% YoY) and has a market share of 19.1%, but Samsung grew faster (+380.6% YoY), and has a 16.2% market share, followed by Nokia (-30.4%) with a 15.7% market share (16.7 units shipped).

**ZTE Achieves 35 Million Handsets Milestone in First Half of 2011.**

Company sees 400% increase in smartphone sales, 300% US market growth.

**HTC Expands Cloud Services with Dashwire Acquisition.**

HTC will utilize Dashwire's cloud sync and device set up products to extend the HTC Sense.com cloud services it launched last year.

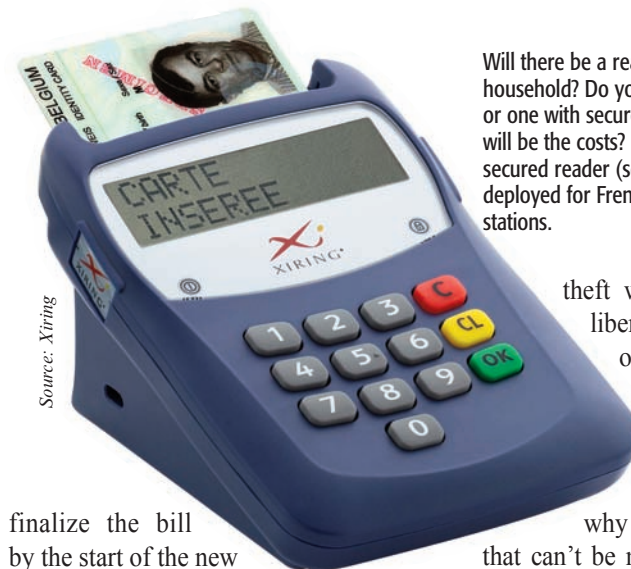
# France's ID Card: Now Create The Ecosystem



**The French ID card is finally on track. We've been waiting for politicians to vote – that seems to be happening, but the French Senate and Parliament must now come to agreement about certain specifications about the biometric database relating to how data are stored on the card's two chips. Biometric data for the official ICAO chip, certificates and personal data on the second chip, dedicated to e-Services. But the card is just the submersible component of a technical and legal ecosystem built to form a shield against ID theft, whose infrastructure of enrolment stations and scanners is one of the key elements.**

After more than ten years of research and work, will France finally join the club of European countries that have a chip-based ID card, such as Belgium, Spain, Portugal and Estonia, or those in the process of deploying, such as Germany, Poland, Romania, Hungary? Very likely. The Senate voted at the end of May in favor of a draft law relating to ID protection that provides for a French eID card equipped with two chips,<sup>1</sup> one for official business and the securing of ID data which will function as an authentic travel document just as the epassport does, and another chip dedicated to securing eServices transactions (online signature, online payment, secure email delivery, etc.). The national assembly followed suit in early July with a second vote on a bill that differs somewhat. One important point needs to be settled: that of the status (range, use, architecture) of the biometric database that will have to be built in order to store the data (two or eight fingerprints<sup>2</sup> and the cardholder's photo) which additionally will be stored on the card's "sovereign" chip, in compliance with the ICAO standard. The forming of a bi-lateral Senate-Assembly commission, along with the traditional back-and-forth between the two houses should allow the French legislature to

<sup>1</sup>The first chip would be a classic contactless microcontroller with a minimum 72KB, the second is contact-based and no more than 48KB.  
<sup>2</sup>By using two fingers, the error rate is 4%, with 8, it drops to 0.16%, according to data provided by the Senate bill's sponsor.



Source: Xiring

finalize the bill by the start of the new parliamentary session in September or October. The divisive question is critical, however: the potential use of the database for other purposes (criminal investigations, missing persons, disaster relief) than the pure prevention of identity theft that has been central in this project.

## "We don't want to leave a time-bomb behind us"

The French Interior Ministry hopes to expand the use in order to create a centralized database, which would complement the existing data base of fingerprints and DNA records (FAED and FNAEG), the Senate is urging the creation of a database with 'non-deterministic links',<sup>3</sup> while the Assembly is more or less going along with the recommendations of the Interior Minister, who personally defended his stance on the floor of the chamber. "The objective we're aiming for is to put an end to identity

Will there be a reader per cardholder or per household? Do you have a "transparent" reader, or one with secured keyboard and screen? What will be the costs? Under €20, says Xiring whose secured reader (see the photo) is already deployed for French Gendarmerie and police stations.

theft while not forgetting civil liberties," insisted the author of the Senate's bill, while the Assembly bill's sponsor explained "We don't want to leave a time-bomb behind us: that's why we want to create a file that can't be modified," alluding to the potential to set up a unidirectional database (from the ID towards the fingerprint, and not the reverse) as well as a bi-directional database.

Whatever happens, the proposed law would impose significant security and privacy measures. It will integrate state-of-the-art technology and doubtless will take into account all legal aspects of the issue. The idea that the bearer maintains control over the use of the data is a crucial prerequisite. The use of the e-

<sup>3</sup>This "non-deterministic link" technology relies on a Morpho patent which allows for each individual fingerprint to be stored in numbered "drawers" of 100,000 prints. Its architecture would thus prevent any access leading from a given print to the associated individual (identification, 1 versus the entire database - 1vsN), but allows for the identification (matching) of a provided print towards a given (and present) person, given the slim chance (0.1%) that an identity thief's print would be located in the same drawer as that of the individual whose ID has been stolen.

Services chip, for instance, would not only be optional and non-discriminatory for access to these services, but the access to the data housed on the chip (basically two certificates, one for signing, the other for authentication) are also subject to bearer control. A PIN code is required for each transaction. The two chips also work strictly under their respective OS environments (ICAO for the official chip, IAS ECC for the e-services one), along with EAL4+ security certification, in some cases EAL5+.

### “Transparent reader” or secured device?

The decision to use two components (one contact-based, the other contactless) rather than a single (dual-interface) unit is not entirely clear, even if it offers a certain clarity in terms of physical security, and perhaps some greater simplicity in the evaluation and security certification processes. The proposed law essentially also provides for means of verifying card authenticity by third-party associations. This corresponds fairly well with the full ecosystem specified by Gixel (the French trade association for electronic components, systems and smartcard industries) and ANTS (the French National Agency for Secure Documents), with respect to the IAS ECC chip.<sup>4</sup>

All conditions are thus met in order for the manufacture and deployment of the first French eID card to be launched by the “Imprimerie Nationale” (French National Printing House), no doubt with support from the three major card manufacturers, starting in 2012. Or nearly so. “If the ID card itself is at the center of the

<sup>4</sup>Three members of Gixel – Gemalto, Oberthur Technologies and Morpho (Safran group) – have written an interoperability document and commissioned the development of a validation tool that has now been officially handed over to the ANTS. Test suite IAS ECC v1.0.1, based on an environment developed by Soliatis, ensures that cards are compatible with the IAS-ECC specification and that IAS-ECC cards from all suppliers are interoperable. This tool marks the first step in the creation of an IAS-ECC certification scheme.

proposed bill, the infrastructure will be the key to its success. This infrastructure must cover the organization of the authoritative bodies, networks and services, as well as the equipment of citizens, administrative bodies and immigration officers. It will entail authenticating an individual at the service counter of any administrative office, in order to make any official declaration, while implementing a kind of self-service structure in public places so that individuals may verify and consult the contents of their eID card, yet retaining the ability to effect official declarations or identification online from home,” explains Laurent Maître, Marketing and International Sales Director at Xiring. As much as the card reader that will have to outfit government offices seems well-enough defined, thanks to deployments that have already been undertaken in French Gendarmerie and police stations, the

device for the general public still seems rather vague. Will there be a reader per cardholder or per household? Do you have an “transparent” reader, or one secured with keyboard and screen? What will be the costs? “A “transparent” reader at the supermarket costs less than 10 euros, while a Pinpad-type device is under 20 euros, but if the volume demand is there, costs may drop dramatically,” elaborates Maître, who points to the Belgian or German examples, where success was ensured through the initial investment in card reader (25 million euros in Germany) to launch the move, thereby avoiding the entire chicken-or-the-egg conundrum. The choice of the reader is a decision that effects both security and privacy, but also the issue of customer support, the main question of which is whether or not to implement a middleware in hosting devices (PCs, tablets, etc.).■

## IN EUROPE, ABSENCE OF CENTRALIZED BIOMETRIC DATABASE IS THE RULE

Neither Germany, Italy, Spain nor Belgium have constituted centralized databases of biometric data during the deployment of their electronic national ID cards.

Only the Netherlands and Finland in fact have such databases as of today.

Spain and Italy have made fingerprinting mandatory. Fingerprints are optional in Germany, where the user has the ability to control access to personal data during internet transactions – not true for Belgium, Italy or Spain, but soon to be the case in France.

The ID card is optional in Germany and Italy (where two types of cards are available, although neither have seen massive roll-outs for the moment).<sup>1</sup> The creation of a centralized database



Mobile biometric scanner (Visotec) developed by the Bundesdruckerei for enrolment with German ID card.

is useful in preventing the issuing of multiple ID documents to the same person, particularly under different stated names. It does however incur the risk of misuse, given the traceable nature of fingerprints.<sup>2</sup>■

<sup>1</sup>One of these cards, the Carta d'Identità Elettronica is furnished by LaserCard (HID Global Group). LaserCard's multi-technology ID cards are used by two Italian government agencies – the Ministry of Justice and the National Police (Carabinieri) – to help protect employees and provide secure access to government services.

<sup>2</sup>As opposed to iris or vein scanning, which leaves not trace, but are uniquely inalienable.

# M-Payments & Banks - Too Big To

**Too big to innovate, yet too big to fail... Banks have very little wiggle room any more. Payment represents between 30 and 50% of their revenues, and is under threat. Bruised by the recent inroads by alternative e-payment systems, and now confronted with the m-payment behemoth, they continue to seek the best path to attain a summit that may soon be claimed by others.**

*Continued from page one*

Last April, the electronic payment director of a large French retail bank, who also happens to be a talented amateur artist, presented before a limited audience, in the form of a few reasonably humorous sketches, despite their catastrophic message, a chronicle foretelling the death of the “white mouse” banks, under the bemused eye of “cat” regulators and (either accidentally or deliberately) allowing the internet player “black rats” to get at the “cheese plate” interchange. (Nearly) all players are present, and (nearly) everything has been said: volumes and revenues, especially for bank cards, are under threat, both from the cat and the black rats in the allegorical drawing. The well-fed white mice, languishing for ages in their ‘Delights of Capua,’ need, in the best-case scenario, to go on a diet. Their portion of cheese will be reduced by a good third at least. Moral of the story: costs will have to be reduced in order to rebalance the system. And to implement the two weapons the banks still have up their sleeves – interoperability in payment transactions and a customer relationship that in theory could rival in scale with that of social networks, in order to stave off the danger of being squeezed out of their role, little by little, as we’ve seen happening.

## The lack of banking infrastructure

Whether it’s new initiatives from mobile carriers (payment on your monthly phone bill, for example) or others from Google, Apple, Amazon or PayPal, all offering or soon to offer their own mobile wallets and branded payment options. These treats bearing down on banking’s payment sector are ever more specific and pressing in the case of m-payment, even if this niche still represents very few transactions (3.1 billion in 2009) or very little in exchange

volume (€41.5 billion in 2009), especially in terms of revenues, compared to other non-cash payment operations (more than 300 billion transaction in 2009). But it is on the rise, riding the wave of the lack of banking infrastructure in developing countries where the number of mobile subscribers far outpaces the number of people with bank accounts. There are, for example, 20 million bank accounts in Nigeria, compared to 100 million wireless subscriptions. “Emerging markets also have far more limited banking infrastructures than developed markets, and these constraints are spawning a significant number of payments innovations, which should be an important source of growth in payments volumes in the years ahead,” underlines the World Payment Reports 2010,<sup>1</sup> signaling at the same time that m-payment crossed the billion-transaction mark in 2009 in Southeast Asia.

In more developed countries, the deal is significantly different, which doesn’t mean that the threats aren’t equally pressing, or specific. They just materialize in different ways, visible through a combined effect of regulatory decisions (both in Europe within the SEPA and EC recommendations and in the U.S. with the recent Durbin amendment) affecting interchange fee revenues and the offensive strategies of new entrants.

## Who’ll pay fees?

We can see, for example, that the weakening of the ‘four corners’<sup>2</sup> model for interchange fees makes its application to mobile payment even more difficult, given the emergence of a fifth or even sixth “corner” (the carrier or the wallet’s owner) in the game, while the average amount of each transaction is inclined to

## Innovation: BNP Paribas Leads

**BNP Paribas, the leading bank in the Euro zone, has just proven that you can be ‘big’ and still innovate. By signing a brand licensing partnership at the end of July with Orange, the largest French mobile carrier, the bank is preparing to launch an unprecedented m-banking/m-payment bundled offering next November. “This offer will come in four features across our 2,250 branches, our call centers and our online banking portal,” explains Virginie Fauvel, Head of Online banking at BNP Paribas: first with a smartphone,<sup>1</sup> the majority of which will integrate an NFC chip, then a subscription offering with full internet/data**



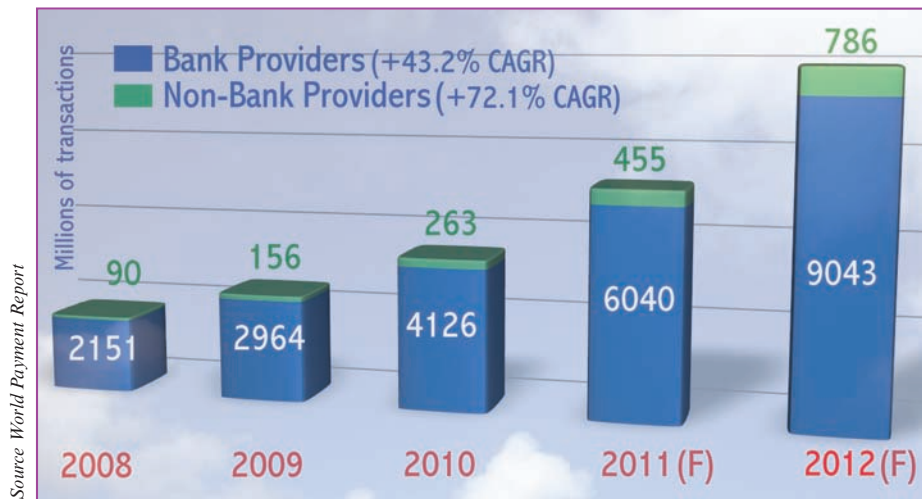
Virginie Fauvel, Head of Online banking at BNP Paribas: “We are not becoming an MVNO.”

**package. Added to that we’ll offer m-payment services, not only via NFC, and finally a banking services package. We are not becoming an MVNO, but our offer will be branded with our logo BNP Paribas Mobile, in association with Orange. With this agreement, exclusive for France, each partner will play its role and bring the best of its area of expertise.” This is precisely the kind of cooperative model Orange was describing,**

**in which the various mobile players seek a natural sharing between roles, added value and liability (see our interview of Anne Bouverot, Head of Mobiles at Orange-FT**

# Give Up?

## GLOBAL MOBILE PAYMENTS VOLUME OF TRANSACTIONS 2008-2012



Mobile payments are growing fast (and faster for non-banks providers), but are so far are mostly used today for low-value transactions in developing countries.

fall below the €25 or \$25 mark, due to risk management practices. The effect has been immediate: cutting a shrinking pie (or cheese) into a greater number of slices leads not only to smaller portions, but also to rather bitter discussion on who gets a

slice and in what order. Unless banks can convince MNOs to pay fees in order to embed payment applications on the UICC/USIM/NFC cards (and not the reverse, where banks pay to rent space on the UICC/USIM), it's hard to see what

## the Pack

Group, in the May-June issue). For BNP Paribas, this initiative falls within a strategy of innovation focused on the internet and mobile technology that has already emerged in other forms, and first, such as an application for Apple's iPad, in May 2010, as well as the creation of an entirely virtual "online" branch, "La Net Agence," which already boasts 12,000 customers.<sup>2</sup> Opéra, the BNP Paribas Concept Store, opened its doors in December 2010, and since then, over 300,000 customers do their banking using their mobile phones each month. "We've noticed that with our internet customers, who access their accounts online an average of 8 times per month, that number doubles when they have a mobile service to perform the same transactions, and that also increases their visits to their branch," affirms

**Fauvel. Payment applications will soon be embedded within the UICC, and will be implemented during the UICC card personalization phase. However, other banking services (notably access to online banking)<sup>2</sup> require downloading specific applications to the smartphone – this will also bring the graphic interface bearing the two brand logos, which will allow access to the full package of services.■**

<sup>1</sup>It's too early to tell which smartphones will be chosen for this program. Orange has already announced that it will offer between 8 and 10 NFC smartphones by the end of the year, or early next year at the latest.

<sup>2</sup>Access to the account will take place in a multi-channel structure with the same access methods (account number and secret password).

incentive could urge the banks to venture fully and quickly into m-payment, where margins are far below their accustomed 25%. The argument in favor of MNOs being charged a fee by those who provide payment services is strong. Payment services provided on a mobile phone could offer MNOs a way to reduce churn, or even attract new subscribers, where the acquisition cost is increasingly greater. This model has already been put into place in China, where the three largest carriers have discovered that NFC mobile ticketing services have generated new subscribers, with a strong incentive for signing them on and keeping them loyal. The recent announcement in mid-July by the U.S. JV Isis that it would henceforth work with all four major American and global networks (Visa MasterCard, Amex and Discover)<sup>3</sup> to ensure the development and launching of its initial NFC trials, was both a response to the announcement a month earlier by Google, Sprint, Citi and MasterCard – too limited by the number of players and the nature of the payment service – as well as a correction to the JV's original plan to take on the card payment industry directly by opting for a resolutely merchant-centric and consumer-centric orientation, which implied implementing a different attribution model, with interchange fee schedules more favorable to merchants than those currently practiced by Visa and MasterCard. "Isis intends to deliver new levels of competition and value to consumers and merchants," claimed the young JV at that time.

## The Durbin amendment effect

It's likely that between the announcement of its launch in 2010 and the most recent announcement, it was the Durbin amendment, as well as some of the evolutions in favor of merchants since undertaken by Visa, MasterCard and Amex (Discover had long since adopted this position), that helped to bring the various points of view together, and above all to reconfirm the considerable strength and influence of the two major networks in the U.S. payment universe, and beyond. Does the path





opened by these major networks through acquisitions and technological and geographical developments<sup>4</sup> in order to open payment towards the merchant and mobile universes now offer enough value to banks to encourage them to finally enter the m-payment market? Or if necessary, will they offer a more global approach in the long term to this market – both in the direction of developing and developed nations? Nothing is less certain.

All these maneuvers are not without a certain ambiguity, and indicated by MasterCard's position, cultivating a privileged relationship in all of Google's payment initiatives (prepaid card, Adwords credit card, mobile wallet) but also remaining a team player within Isis, all the while not hesitating to ally itself directly with carriers such as Telefónica in regions where it has everything to gain by playing its ace in the non-banking payment sector. Or take Amex's position, announcing its membership in Isis on the same day it signed an agreement with Sprint (Isis dissident, but allied with Google) to use its "Serve" platform that unifies online, offline and mobile payment options into a single Amex account within the Android, Apple iOS and soon Microsoft and RIM

mobile environments. And Amex also launched, nearly the same day, a payment application on Facebook. The major network operators no longer distinguish between their banking and non-banking members. They also know now how to develop themselves well beyond the inter-banking platform that used to connect them within EMVco. It remains to be seen whether the major standards still binding interoperability in payment transactions today will also evolve in order to respond to the new payment positioning prompted by such players as Paypal or Google. "Payment is no longer a simple small piece in a value chain primarily centered on privileging shopping," was how Stephen Gilett, CIO of Starbucks recently put it, for whom a growing segment of customers pay with their smartphones using the Starbucks Card Mobile App.

### Towards Shop&Pay business model...

"The smartphone is above all a personal shopper," suggested Stephanie Tilenius, Google's VP of commerce and payments. "We're in a strong position in online payments to expand to point of sale. We intend to help retailers grow offline in the same way we helped merchants grow online," insisted meanwhile eBay's CEO,

John Donahoe. PayPal continues to demonstrate strength in mobile payments and now expects more than \$3 billion in mobile TPV this year, compared to \$750 million in 2010.

The m-payment landscape is opening and expanding, but is becoming singularly more complicated for banks, which are losing their sanctuary. It thus comes as no surprise to see these large initiatives from the major networks, in many cases prompted by major banks, in an effort to take back the reins. In the U.S., for instance, we saw the formation in May of clearXchange, a JV initiated by Bank of America, Chase and Wells Fargo, "to enable their customers to move money more conveniently and safely using a mobile number or email address." "This is an innovative game-changer in electronic payments," said Mike Kennedy, EVP and Head of Payments Strategy at Wells Fargo. It's also an initiative that is clearly aimed at countering PayPal's impressive growth in P2P, not to mention that yet to come from Facebook and the progress Google has made in the same direction via "Shop&Pay."

In Europe, the inter-banking culture and the launch, however painful, of SEPA (the Single Euro Payment Area) have already privileged, and for some time now, the formation of diverse instances of coopera-

## "We want to leverage the mobile channel for SEPA



Dag-Inge Flatraaker, Chair of the EPC M-Channel Working Group.

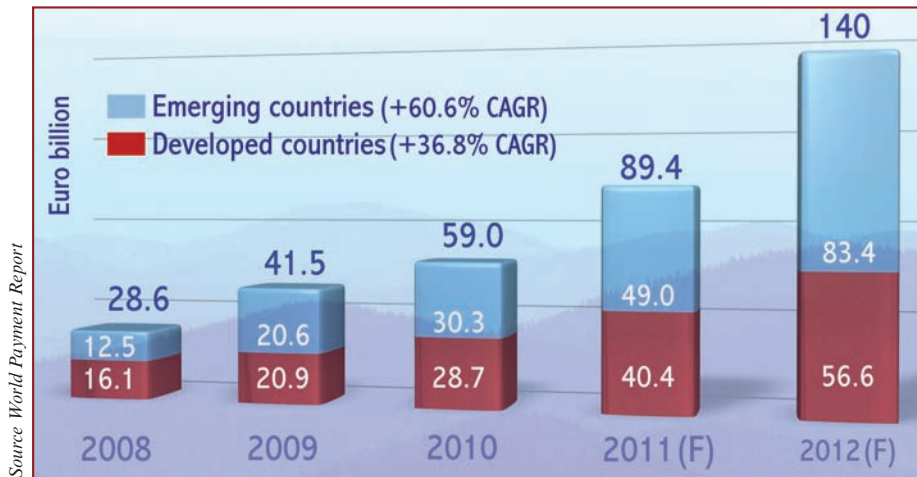
The EPC published a document (draft status) at the end of April to provide guidance for the implementation of Mobile contactless SEPA card systems. This document is the product of the EPC M-Channel working group, which you chair. Were these guideline issued in concert with the other standards bodies such as GlobalPlatform, EMVco, GSMA, NFC Forum, French AFSCM, ETSI, Mobey Forum, etc.?

► The paper was developed by the EPC, and is part of a comprehensive program driven by the European banking industry which is also addressing remote mobile payments. If today we are putting the emphasis on contactless mobile, that's because contactless is the sector that requires the greatest amount of

preparation and the broadest collaboration among the different players including the banking industry, certainly. We've already developed, with GSMA, the requirements and specifications for mobile contactless payments management where the Mobile Contactless Payment application resides on the UICC/SIM. This time we intend to allow for the possibility that the secure element can also be either a secure embedded element or a microSD.

Why did you limit your work to those two SEs not taking into account stickers, the Trusted Executive Environment (TEE) recently specified by GlobalPlatform and Embedded UICC/USIM/SIM, for which work is under

## GLOBAL MOBILE PAYMENTS MARKET 2008-2012



Emerging markets are expected to account for 59.6% of the total M-payments market in 2012. Usage of M-payments is growing faster than in developed countries since the unbanked population is so large.

tion to support competitiveness for the European economy. "Europe should take advantage of a unique and overall solution for innovative payment services, such as e-payments, m-payments and contactless payments, for all European cardholders," affirmed several major banks gathered for the Monnet project "to create a consistent domestic market for card payments in Europe." A declared rival to Visa Europe and MasterCard, the project, whose success remains subject to the response from the European Commission concerning the

new interchange fee structure, plans to link payment transactions to such value added services as current account balance at ATMs, P2P payment, savings options and loyalty programs. This alliance strategy among banks, with the goal now to take into account the customer experience from an angle no longer dictated solely by the famous (and hypocritical) motto KYC (Know Your Customer), too often subject only to a logic of selling financial products, perhaps marks an upward shift in the attitudes of banks towards new methods

of payment, and m-payment specifically. The idea of adding Mobile SEPA to the Card Framework has already made inroads, as witnessed by the efforts of the EPC's mobile working group (see our interview with Dag-Inge Flatraaker, chair of the EPC M-Channel Group). Investments should follow, but only when the competitive landscape has somewhat cleared. Yet this can only happen when the banks make a clear choice to enter into a cooperative framework. The most important question is knowing with whom (beyond themselves!) or against whom (always easier). And time is pressing on.

### ... and Multi-polarization

The arrival no doubt next year of Google in Europe, with projects following on the model of its U.S. programs with Sprint and Citi could have entirely unexpected results – either creating total discord among the major banks and mobile carriers, or else on the contrary, reinvigorating the cooperative efforts already undertaken in some countries (France, notably, with the AFSCM for example) in order to accelerate NFC m-payment deployment programs. We'll also have to count in Apple. Payment will inexorably create



## instruments"

way at the ETSI and GSMA – all as alternative solutions for hosting SEs?

► Every program is based on an assessment. We focus on those technologies which we consider to be the most important ones for the future. Other solutions do exist, of course, but some of these may prove to be bridging solutions. There's also another aspect that explains this situation – it's the fact that the market evolves very quickly, and there is inevitably a gap between the time work such as ours takes to complete and the time required for the development of technological offerings of others.

What is your opinion about the best scenario

in terms of SE architecture, issuance, card management to meet both security and simplicity demands for quick deployment of Mobile Contactless Payment applications? Do you think we'll see a solution emerge from the pack, and if so, which?

► Yes, perhaps one solution will predominate – in the choice of an SE architecture, and consequently in the choice of an economic model for contactless payment services – but it is still possible that there could be more than one. It's really a tough question to answer today. Add to that the fact that a lot of things are happening faster and faster in this market with quite a few big players now highly involved: that's also an area of tremendous uncertainty. What we want to show is that there are still open gateways in the mobile payment sector for the banks, for the payment

service industry (banks and payment institutions as defined by the PSD), and that they should follow a path with the guidelines we suggest if and when they start to implement. We are adamant about the fact that there's not just one gateway, but several, we don't wish to lock the mobile payment sector into one solution. What's important for us is that in any eventuality, we are in total control of our payment applications. This must be the case whether they are hosted on the carrier's UICC/SIM or provisioned in some form factor independent of the mobile operator. In addition, there must be interoperability between them.

Doesn't mobile, and more specifically, contactless mobile payment threaten to reopen the debate on the economic models





multi-polarization. Which should create greater choices for consumers. Although we still have to wait for service offerings capable of winning them over.

Recent market studies show that nothing is yet set. Sandy Shen, a Gartner analyst, says in a report announced on July 20, 2011 that even though m-payment volume is forecast to soar 76% year-on-year to \$86.1 billion this year from 2010 volume of \$48.9 billion, significant barriers are holding back adoption in both the developing and developed worlds. "We believe mass market adoption of NFC payments is at least four years away," she said. "In developed markets, companies are trumpeting the prospects of NFC without realizing the complexity of the service model. The biggest hurdle is the need to change user behavior by convincing consumers to pay with mobile phones instead of cash and cards."

Gartner estimates that worldwide mobile payment users will surpass 141.1 million this year, but that 2011 m-payment is above all comprised of remittances in developing countries and WAP payments (SMS and Unstructured Supplementary Service Data - USSD) in Europe (70% of transactions) and North America (90% of

transactions). Another recent study from Juniper Research (July 2011) points out that "Tech-savvy consumers are increasing their use of smartphones to do almost everything these days – everything, that is, except mobile banking and purchasing." And it says why: "One reason – smartphone owners perceive mobile banking as less secure. Between 2009 and 2010 the number of consumers who rated mobile banking as 'unsafe' or 'very unsafe' increased by a shocking 54%."

### Bank-MNO agreements are the key

M-payment thus poses banks at least two questions. The first: how to offer customers a service that offers undeniable advantages over cash or card payments? And secondly: how to offer consumers both a guarantee of payment and the sense of security they need to effect transactions? How can they combine ease of use with security? How can they reconcile a better understanding of the customer with protection of personal data? The difficulty also lies in the number of actors who have to reach a consensus in answering these questions. Yet another confirmation that bank-MNO agreements are the key to m-payment. ■

<sup>1</sup>World Payment Report 2010, prepared by Cap Gemini, RBS and the EFMA.

<sup>2</sup>The four corners model (issuer bank, customer, acquirer bank, merchant) is the one practiced by the major networks Visa and MasterCard. It is based on the payment of a fee by the acquirer bank to issuer bank for services provided to the merchant. The latter pays a commission on each transaction to its bank.

<sup>3</sup>These four networks are in fact the 4 major networks operating in the U.S. At the worldwide level, China UnionPay, JCB, and perhaps an Indian network, certainly a European one (Monnet) will clearly have joined the four U.S. entities.

<sup>4</sup>We are thinking specifically about the efforts of Visa Inc., which invested in order to adapt its VisaNet network to P2P transactions (agreements with CashEdge, Fiserv) and which has implemented a program aimed at VARs, acquirers and other gateways, by offering an API kit that allows for the development of applications peripheral to payment transactions, an illustration of which would be "Click&Buy." Also worth noting is the acquisition of Fundamento, investments in Square and accords with DeviceFidelity.

### ▶▶▶ KEY PEOPLE INTERVIEW

associated with SEPA instruments, and more particularly the bank card?

▶ In the mobile phone, the card is still a card, backed by a scheme. That changes nothing. The nature of the channel changes nothing. The interchange models are marketing and business issues of the individual card schemes and not in scope of the EPC. Our program is based on existing models, and our efforts are aimed precisely at leveraging the mobile channel for all SEPA instruments: cards, but also remote payment and credit transfer, for example. For us, it's about creating user cases in the mobile world for those instruments that are the standards, and therefore guarantee a large measure of interoperability: each individual

consumer should have the same experience, across all borders, when performing a mobile contactless or remote transaction.

**What role do you see Google, Apple, Facebook, PayPal and Amazon playing in the mobile payment sector in the near future?**

These players are so huge that they will obviously have an impact on the mobile payment environment, but it is really difficult and premature to say what will exactly be the nature and scale of that impact. When we see the important role that social networks have come to play, and the number of users now connected, we see that there is enormous potential. For opportunities or threats? In light of these developments, our credo is

interoperability, thanks to SEPA, and all of our efforts are aimed at avoiding fragmentation in the market, which would hinder the emergence of open, non-proprietary technology standards for user-friendly mobile payment services. ■

*Dag-Inge Flatraaker is General Manager and Head of Interbank Infrastructure and Payment System Strategy in DnB NOR. In DnB NOR, he has held different management positions including payments, treasury, securities & mid- and back-office functions. Before that he had a long career at the Central Bank of Norway. He is a standing member of COGEPS, the APACS Council and the EBA Association and holds key positions in the Norwegian payment infrastructure.*

ERIC DUPRAT, CEO, VERAYO

## ***“PUF Technologies will democratize security”***

**You’ve just taken over at Verayo as CEO, after several years at PayPal, where you headed up mobile development. That move has a certain logic to it. What application fields do you see opening up for PUF (physical unclonable function) technologies invented and developed by Verayo?**

► Verayo was founded in 2005 by Dr. Sridhar Devadas, professor and Associate Head of Electrical Engineering and Computer Science at MIT. The company today holds the exclusive rights to all of MIT’s silicon PUF patents. The first application area for this technology is RFID tags, where the cost/security ratio today is certainly one of the best in the market (under 10 cents). Security based on the physical characteristics of each silicon circuit offers unprecedented advantages, since they are both not very costly to implement (the secrets are generated from the silicon, and the silicon characteristics are impossible to clone) and very secure, since with the challenge-response mechanism, either online (with a server in the cloud – a sort of SE in the cloud) or else offline (with a SAM – security access module – on a NFC reader) is implemented with the assumption that there is ‘nobody below in the silicon’, if you will. These advantages, along with the technology’s maturity, open the way for us to new application areas today, particularly that of mobile security. This is a key question, the crucial significance of which is lost on no one. The new strategy I’m trying to implement makes it a priority. By offering silicon vendors and service providers in the mobile ecosystem the possibility of creating security bases at the silicon level for many service providers, we will democratize security, by making it more accessible. An Android developer will, for example, access the secure part of the chipset for authentication, ID or signature functions it needs for its own applications.



Eric Duprat: “The mobile is a system. We now should address security issues in a more holistic fashion, with an overall view rather than a separate ‘black box’ approach.”

**How will you market this technology? Have you already signed agreements – with silicon vendors or service providers?**

► We are currently considering a variety of solutions that will allow us, initially, to supply PUF chips and will also provide IP blocks to silicon vendors in the mobile ecosystem. We have a two-level approach, addressing service providers as well. This is a field I know well. When I was at PayPal, my principal quest was to improve security on devices so as to reduce authentication constraints for customers. I know very well the “Holy Grail” for service providers is to offer customers the best possible user experience, while at the same time optimizing risk management. For contracts, it’s too early to say anything. We will announce when the time comes.

**Mobile payment is a domain where an increasing number of players are fencing off, and where of course security has become a huge challenge. How do you see your solutions addressing both the economic and security demands for mobile services?**

► I believe that financial institutions aren’t really that happy with the solutions that are being proposed to them today in

the connected devices space. They are losing control in the issuing process of their payment instruments compared to their traditional card business. Our solutions can provide more direct access and better control of the issuing process, while putting the consumer in the center of the picture since at the end of the day, only the consumer will choose what payment instruments will be installed on his connected devices. This does not cut the business relationship with other actors, particularly MNOs, and still allows for healthier relations relating to questions of renting space while addressing the liability issues.

**To enter these markets, your solutions are going to have to run the gauntlet of the usual security and certification tests, associated with the traditional security roll-out. Isn’t that an obstacle?**

► We think that some elements of the model of security associated with a smartcard is not really suited to that of mobile applications. The mobile is a system. We now should address issues in a more holistic fashion, with an overall view rather than a separate “black box” approach. That’s the reason why we recently hired Dr. David M’Raihi, Apple’s former security architect, as our Chief Technology Officer, who also spent 10 years at Gemalto as a founding member of the crypto team and then as director of technology of corporate development. Among other things, his role will be to define our approach to security and the alternatives that our technology offers, in order to make security reliable, cost effective, easy to implement and to access by many. The path will be long and arduous, because there is a lot of money at stake, but the traditional players of the payment realm will also see the risk for themselves, they are always on the look for solutions and products that will allow them to improve their business. Having said that, payment is only a small part of our business, but the most difficult to address. ■

## BRIEFLY

Research in Motion (RIM) launched BlackBerry Bold 9900 (see photo at right) and 9930 Smartphones with touch display, keyboard and NFC. The new smartphones include built-in support for NFC enabling pairing accessories or read SmartPoster tags with a simple tap of the smartphone.

Infineon Technologies is shipping Trusted Platform Module (TPM) chips for devices running Google's Chrome-based operating system. One key part of the design is called "defense in depth", which provides multiple levels of protection against malware. The security architecture includes hardware-backed features, including functions that are supported by the TPM chip built-in to every Chromebook.

**Software POS Vendors To Standardize on FaceCash Mobile Payments.** With the FaceCash API, POS software vendors can create a new tender type button for FaceCash mobile payments. FaceCash uses a barcode or NFC signal to facilitate secure retail transactions, and is currently available as a mobile app for iPhone, Android and BlackBerry.

## Does "Security in the Cloud" mark the end of "embedded security"?

The development of m-payment and e-commerce is confronted with the triple question of security, convenience and richness of experience. Could this ultimately be resolved by "all-in-the-Cloud"?

"You don't want anything that has friction at point of sale," recently stated John Donahoe, eBay's CEO. This argument confirms the leit-motif regularly invoked by PayPal: in order to win the mobile payment battle, you must offer the user an experience that is so rich, it is able to dissuade customers from using bank cards or even cash for small purchases. This explains the importance of such concepts as "Shop&Pay," a seamless one-click payment interface. But what about security? Does this make entering a PIN counterproductive and something of an unfulfilled promise for "Tap&Go?" The same holds for having to provide bank card details and DOB

(3D Secure) for online purchases. Which thus explains the boom in solutions offering a "Chip-to-Cloud" model in which security is less and less on the chip (which must first offer an interface, ergonomic design and the greatest possible convenience) and more and more in the Cloud. For instance, the solution that has just been developed by a French start-up, genMsecure.

### Built-in Security in the "bunker-ized Cloud"

The latter is offering a strong authentication solution based on the use of a mobile phone to guarantee mobile banking and commerce transactions, where the security does not lie in encrypted transactions effected by smart secure devices (the smartphone or its SE), which thus must house the secret data, but rather "in the Cloud" in a dedicated and "bunker-ized" server, which meets PCI DA DSS standards.



There is a need for a root of security anchored in the device. In the "genMsecure" solution, the combination of the smartphone (what I have) and the PIN (what I know) constitutes a dual-factor authentication. But the latter is strengthened via the synchronous channel offered by wireless communication.

"There's no secret data stored on the smartphone that we use, not even the application, which is loaded when the user signs up, and which allows us to associate a bank account or card to the mobile phone number, nor a PIN, which the user creates upon signing up, and enters to confirm purchases. Nothing is stored on the phone, nothing is encrypted or transmitted to the server, explains Mauro Israel, an IT systems security expert, and co-developer of the genMsecure solution. The latter does use a smartphone as a kind of key (an encrypted hash based on the MSISDN and PIN). The combination of the smartphone (what I have) and the PIN (what I know) constitutes a dual-factor authentication. But

the latter is strengthened via the synchronous channel offered by wireless communication. When a payment transaction is effected on the web from a PC via the genMsecure server, a message is sent to the mobile to confirm the transaction by entering the PIN. The system "reproduces" in the cloud the experience of the face-to-face transaction where the PIN code must be typed on the Pinpad of a POS device (in this case, the keyboard of the smartphone). The company has also developed an application with the same architecture to use the smartphone, via Bluetooth, as a hotel key (power and a 3G internet connection are required, of course). For m-payment applications, where the second channel is *de facto* also the first, the company is envisioning the possibility of using two channels (Internet and SMS) in the same smartphone. Pilot programs are planned for September, with banks apparently (we know that Société Générale is interested). ■

## All aboard for NFC at 10 Mbit/s!

The European BioP@ss project, launched in 2008, concluded at the end of 2010, but the financial component of its final results were just published in July by the German Federal Ministry of Education and Research (BMBF). They presage a new generation of connected smart secure devices and already outmode today's NFC.

Although scarcely on its feet, is the current NFC technology aging poorly? The completion of the EU BioP@ss project (Medea+),<sup>1</sup> launched in 2008 and the results of which have just been published once again puts the accent on efforts undertaken in the high-speed contactless domain, and more particularly the promise of VHDR (Very High Data Rate), known today as VHBR (Very High Bit Rate). The research shows that an extension of the ISO14443 standard in the UHF frequency wave at 13.56 MHz is possible in order to reach much greater data rates than those attained today (from 106 to 848 kbit/s) with contactless cards or NFC devices (smart objects and mobile phones).

### Alignment with enhanced SWP VHBR

The technology allows for tremendous scalability: we're thus talking about bandwidth rates from 1.7 Mbits/s to 10.2 Mbits/s by way of 3.4 Mbits/s and 5.1 Mbits/s. The result of R&D work undertaken some time ago by researchers at France's CEA-Leti,<sup>2</sup> this work has already developed, in the course of other European projects (Onom@topic, F@cil).<sup>3</sup> Today, they have clearly reached a level of maturity that would allow them to envision the first roll-outs, especially given that the developments conducted elsewhere on SWP (Single Wire Protocol)<sup>4</sup> VHBR by Gemalto will allow the alignment of performance between secure element, the NFC circuit and the reader. "The advances of this technology enable a range of data-rich applications that were impractical or impossible with today's slower data rates. And thanks to backwards compatibility, we still maintain foundations in today's technology that represent an immense investment by the industry and are still pertinent for a variety of applications such as payment and ticketing," as Francis Lamotte, founder and director of Raisonance, pointed out already two years ago. VHBR technology was developed thanks to new modulation techniques (multi-phase modulation), although with attention to backward

compatibility and the optimization of ratios between transmitted energy to run the card or NFC device, and the data transmitted to allow for proper retro-modulation of the card and transactions, with the same coil antenna. ■

<sup>1</sup>This project was endowed with €13 million, half of which has been provided by participating partners from business and industry. The other half is covered by funds from the European Eureka clusters Catrene/MEDEA+, which are provided by individual governments, including Germany and France. Twelve companies participated in the project: NXP Semiconductors, Gemalto, Giesecke&Devrient, Infineon Technologies, Precise Biometrics, OKsystem, Compuvox, STMicroelectronics, CEA-Leti, ID3 Semiconductors and Esterel Technologies.

<sup>2</sup>See the work of Elisabeth Crochon and Philippe Vacherand, presented during the Smart Event conference in Sophia Antipolis.

<sup>3</sup>The F@cil project work, which brought together CEA-Leti, Gemalto and Raisonance, a French test tool technology company were awarded the Sesame for best hardware, for a 6.7 Mbit/s demonstration that allowed for the transfer of high-resolution medical energy (x-rays, MRI scans, etc.) in speeds ranging from a half second to 5 seconds.

<sup>4</sup>The bandwidth offered by SWP is already double that (1.6 Mbit/s) offered by ISO 14443 packages.

**STMicroelectronics Reveals World's First Independent Calypso Revision 3 Smart-Card IC.** It is based on a secure microcontroller IC which is certified compliant with EMV global standard and achieves EAL5+ CC security assurance. It also meets the established ISO/IEC 14443 and ISO/IEC 7816 smart-card standards and is compliant with the EMVCo Level 1 radio interface specification. Meeting these standards allows use in many other access control, payment and ticketing applications such as municipal services, events and corporate or student card schemes, in addition to transportation.

## BRIEFLY

**MorphoAccess VP is the world's first device combining finger vein and fingerprint recognition.**

France's Data Protection Authority (CNIL) considered that the device's security features provide a sufficient safeguard against identity fraud, function creep or the misuse of personal data. From the outset, the product was developed based on the 'Privacy by Design' principle. The authorization covers use of the device in identification mode, where biometric data is stored in the terminal's internal database.

**AuthenTec launches first commercial fingerprint sensor SDK for Android Smartphones.**

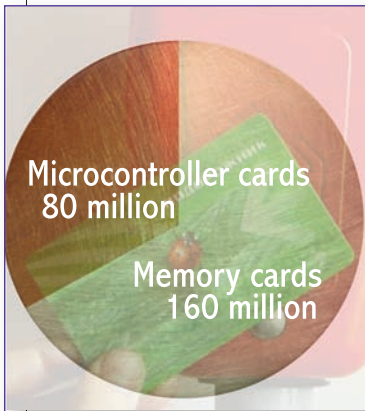
Features include fingerprint authentication, mobile payment security and user personalization.

**NXP Semiconductors AuthenTec and DeviceFidelity** are

jointly developing reference designs that enable highly secure mobile payments via Android-based phones through the use of fingerprint biometrics and NFC technology. They complete the first biometrically-enabled NFC mobile payment transaction in the U.S.

KEYS

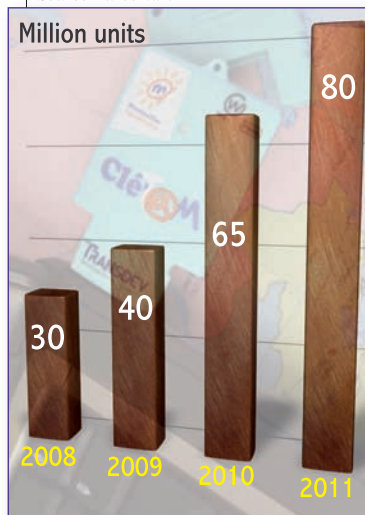
**CONTACTLESS CARDS MARKET (2011)**



According to different sources around 240 million contactless cards will be shipped this year, up to 6-7% over 2010. The microcontroller card 'take-off' has been confirmed. The shift has benefitted from the spread of a second-generation contactless technology to replace old schemes.

**MICROCONTROLLER CONTACTLESS CARDS EVOLUTION 2008-2011**

Source Eurosmart



Microcontroller cards are growing faster than memory cards: 33% in 2009, 62.5% in 2010, 23% forecasted for 2011. Security and multi-application features are the main drivers.

# Contactless in Public Transport

**The public transport sector is still a long way from experiencing the rapid-fire developments currently shaping that of mobile phones, but it has seen a shift in trends that seems to promise significant changes in terms of technologies, developments and practice. And at the end of the road are smart cities**

In ten years, across the globe, the number of contactless microcontroller-based cards deployed in transport have multiplied by a factor of ten. 8 million in 2001, 80 million in 2011, according to figures published by Eurosmart. Different sources agree to estimate that around a third of the transportation cards to be shipped this year will be contactless microcontroller cards, bringing the number of memory cards closer to 160 million, with the understanding that total shipments (memory and microcontroller) should exceed 200-240 million, up 6-7% over 2010. A trend that has been evident for several years has thus been confirmed, to a great extent driven by increased request for security, but also by demand for functional (multi-applicative) enrichment.

## The opportunity to reshuffle the deck

As NXP Semiconductors has confirmed, this shift has benefitted from "the spread of a second-generation contactless technology, replacing schemes developed by 1994 and providing more security and extended sets of applications." This replacement is at the center of a number of significant challenges, since in a certain way, it offers the opportunity to reshuffle the deck in a booming market, although one whose principal characteristics have been dominated by a single model - that of Mifare, deployed with success, but also with defects (Mifare Classic) we are aware of, through Philips Semiconductors, then by NXP Semiconductors. The initiative launched at the end of last year with the creation of the Open Standard for Public Transport (OSPT) alliance, led by the four founding members<sup>1</sup> - Giesecke & Devrient GmbH (G&D), Infineon Technologies AG, Inside Secure and Oberthur Technologies, is clearly aiming for this window of opportunity. "The aim of the OSPT Alliance is to federate efforts and contributions towards a new business model in the public transport access systems. The current situation is not satisfying as markets are depending on closed local solutions based on proprietary products and systems. The OSPT stakeholders there-

fore wish to renew the business model in public transports thanks to open standards and rules implementing state-of-the-art technologies," emphasized Laurent Cremer, Executive Director of the alliance. Meanwhile, NXP is vaunting its own solutions for migration beyond the basic Mifare model. "With regard to OSPT, we did not find any new or innovative areas in relation to security or convenience. Its effectiveness has neither been proven nor tested anywhere in the field and therefore, we believe that transport operators and system integrators will hesitate to adopt such new specifications. Mifare has been implemented in more than 650 cities worldwide and operators can rely on years of experience in the ecosystem. To a certain extent, the situation can be compared to the CD scenario, a technology invented by Philips. After a great number of companies had bought into the CD license, the product became a *de facto* standard. Nowadays, several companies have signed up for a Mifare license and more than 1000 companies are registered on Mifare.net community site. This represents a strong base for preparing and accompanying future generations of products and systems," noted Rainer Lutz, Global Marketing Manager, Public Transport, NXP.

## The increase in NFC City projects

One of the cornerstones of the developments to come is no doubt still to be found in the coming convergence between payment and NFC, payment and ticketing<sup>2</sup> driven by the strong growth in power of smartphones and NFC objects (USB keys, stickers, microSD cards, etc.), offering the possibility of downloading or reloading transport passes over-the-air or over-the-internet. As Michel Leduc, Head of Sales and Marketing at Neowave has shown, the alignment of new solutions along ISO standards, as well as at the level of applications and management systems, represents clear progress in the deployment of interoperable solutions by simple software modification of infrastructure equipment. "Facilitating the development of infrastructures by ensuring their ability to inter-

## - An Avenue Towards Smart Cities



act with an entire object of families is essential," insists Leduc, "and the initiatives undertaken by the administration (national or at the municipal level), as has been the case, in France for example, with the increase in NFC City projects,<sup>3</sup> will force us to ask some good questions. These projects will also create a number of opportunities for the creation of new applications." The International Association of Public Transport (UITP) which is generating piles of recommendations to extend the use of public transport (the objective is to double their share by 2025) in order to accompany the inevitable urbanization movement of the entire planet, all of which argues for greener cities and sustainable development) recently reached a new official position on "Combined Mobility". For this purpose, UITP has put forward some recommendations for a successful collaboration between public transport and so-called Combined Mobility services – car-sharing, car-pooling, bike-sharing, shared taxis, etc. This development, which in certain cities (such as Hong Kong) is already pushing the transport card or mobile ticket to become a veritable "City card," as well as a payment card (e-wallet) shows the cardinal role that "smart transport" could play even in the design of new cities, or the planning and development of current cities and agglomerations. ■

<sup>1</sup>Watchdata Technologies Ltd. and the Open Ticketing Institute of the Netherlands in November 2010 announced joining the OSPT Alliance.

<sup>2</sup>A few technical questions still must be resolved in order to reconcile the rapidity imperative required by transport operators, and the sluggishness of the security protocols imposed by EMVco. This key issue is the subject of discussion among a variety of different working groups.

<sup>3</sup>20 million was allocated by the French Ministry of Industry to assist nine large cities with the deployment of NFC transport and payment services.

***"The trend towards interoperable solutions is happening everywhere across the world"***



Rainer Lutz, Global Marketing Manager, Public Transport, NXP Semiconductors.

At NXP we currently see five major trends in the public transport arena: First, the deployment of ticketing systems at a regional/country-wide level, providing inter-city compatibility; second, a migration towards fully contactless schemes for frequent-rider cards and single tickets, making it no longer necessary to use a magnetic stripe tickets and significantly reducing the cost of maintenance; third, the growth of a second-generation contactless technology, upgrading legacy schemes and providing more security and extended sets of applications; fourth, the development of multi-application cards, e.g. student, social or banking cards with embedded ticketing functionality; fifth, the emergence of mobile ticketing with NFC enabled phones. NXP is in discussions with leading transport operators and systems integrators about mobile ticketing. From the strong interest in mobile tick-

eting we see a clear trend via trials to mass deployment. Downloading both travel information and on-the-go tickets via the mobile phone is a service actively expected by users.

Regarding the trend from simple and local systems to interoperable regional and countrywide solutions, we see this happening everywhere across the world, from New Zealand to Germany, from the UK to China and India, from the Americas to Africa and the Middle-East. The situation is not uniform, depending on areas where large quantities of the population use public transport or stick to their own individual mode of transport. A common feature that does overlap in all areas is the need for reinforced security. After a 15-year period of contactless technology, many installed systems do not provide state-of-the-art security capabilities. NXP supports the migration of technology by developing evolving platforms that allows the introduction of new versions of system components with enhanced security and backwards compatibility. Products such as MIFARE Plus™ and MIFARE DESfire™ combine tailored functionality similar to memory cards with the certified security and flexibility of CPU cards. Improved privacy, new applications and extended memory are generally the requirements for new generation devices.

***Bank cards for ticketing? One of the challenges is the cultural gap between banks and transport operators***

We see strong interest from the banking sector to offer combined services to end users - the result is a single card with payment and transit functionality. Banks are interested in increasing the usage of contactless bank cards, so transport ticketing is very attractive to them. To use bank cards for public transport is a unique benefit for occasional business travelers. One of the challenges to overcome however is the cultural gap between banks and transport operators. The latter are generally state-owned and more committed to providing customer service. For banks profitability is the main focus. The move is however becoming a reality, e.g. in London where transit systems will accept bank cards for the 2012 Olympic games, after having modified accepting terminals. As a solution, NXP offers the SmartMX banking platform with MIFARE implementation on a single chip - providing banking and public transport application in a single solution. As a leader in contactless banking schemes and public transportation, NXP is well positioned to support this convergence. ■



## LEAD-IN

► Continued from page one

reaches the limits of purely industrial consolidation. Is it the financial manifestation of an entrepreneurial spirit? Doubtless too, as MBAs progressively replace engineers and self-made men in top executive positions. It's also a question of time, however. The financial sector has indicated that the "deal flow" index (the rate at which new proposals are flowing to the underwriters of investors) for the high-tech sector has not been this high in three years. So it's also a sign of acceleration in innovation cycles that provide disruptive developments, which are heavy in their consumption of both human and financial resources. Time is money. Sudden 90° turns and migration towards new core businesses are expensive. M&A is required now more than ever. As it happens, private equity firms are on time. And the right time is honey to investors.

Yvon Avenel

ELECTED

## THE SMARTCARD



Issued by U.S. Bank, the MasterCard PayPass VITABand contains a RFID payment chip, which enables contactless purchases. Each band also carries a VITANumber, a unique, eight digit numeric identifier that links the wearer to a customizable Emergency Response Profile, which houses the individual's identity and critical medical information.

## Public Transport Market



## "Fragmentation in the market is being resolved"



Michel Leduc, Head Sales & Marketing, Neowave.

The traditional fragmentation in the transport market is being resolved. First at the level of the ISO. The movement towards established and known standards (ISO14443 Types A & B) has been launched. And won't be stopped again. Things won't happen overnight, but the cards have already been played. We are, for instance, in the midst of releasing type B' (Innovatron) in order to migrate 90% of the networks in France to type B, thanks to works led by the AFIMB (French Multimodal Information and Ticketing Agency) with help from the govern-

ment. Meanwhile, we've seen that the release of 'Mifare,' desired by everybody, is currently underway towards type A, with DesFire (this is the case in London, which selected this migration, for example). Elsewhere, we can also see that the usual fragmentation at the level of management systems is also being reduced. A Calypso, ITSO and VDV card has already been demo'd. These standards can be downloaded in applet forms, and then perfectly coexist within the same card, and hence can be used in a seamless manner in several types of networks. These developments, of course, are headed in the right direction, and will privilege the deployment of micro-controller-card- and e-ticket-based solutions. They are also being driven by the convergence we're seeing with new media such as the mobile phone and NFC objects, on the one hand, and by convergence at the level of applications between the payment and ticketing segments, and an entire "city" family of applications around transport, on the other hand. Here again, things are progressing thanks to work led in concert by such payment bodies as EMVco, and on the transport operator side by groups such as STIF and AFSCM (French Mobile Contactless Association).

*"Multi-application and multi-services can succeed when approached via a community of users or usages"*

The emergence of the mobile and NFC objects – we believe for instance that the objects will soon far outnumber mobile phones – seems to be a major trend in the transport world. The idea that transport passes can be downloaded over-the-air or as we believe even more strongly, 'over-the-internet' provides strong leverage for the development of the market. The feedback we've had from pilots using our "USB contactless smart-objects" in cooperation with the SNCF and RATP (respectively the French rail network and Paris' mass transit authority) have been extremely positive. The recent work conducted at the ISO to define NFC antennae classifications (6 in all) corresponding to implementation referentials for an entire family of objects of different size and format, also represents a major step in guaranteeing the optimization of transactions between scanners and a wide variety of NFC objects, and will privilege the creation of an infrastructure with a solid base of interoperability. This will obviously also create a certain amount of complexity that will still require optimization efforts, but it will likewise free up new opportunities in terms of services for transit users. In Montpellier, we've seen that multi-modality (bus, train, trams) extended to bike rental systems and parking lots can offer users extreme added value. We also see that in our collaboration with payment systems such as Monéo, where the contactless payment, ticketing and top-up via USB-Internet offers convenient and easy-to-use services to students. This also confirms that multi-application and multi-services can succeed when approached via a community of users or usages, for which transport is a major vector. ■