Schlumberger Releases Annual Smart Card Market Analysis

Momentum Returning with Key Developments in Mobile Communications, Banking and Public Sector Markets

Paris, France, April 17, 2003 – Schlumberger Smart Cards and Terminals released its annual smart card analysis today. After a year treading water, shipment rates of microprocessor cards surged back into double-digits with a 13% rise in 2002. Although the general economic climate impacted margins, there are still strong prospects: As a corollary of the increasing need for security we've been facing in the past couple of months, corporate badge and public sector ID cards projects have started to materialize significantly and could become significant volume markets - joining the existing heavyweight mobile communications and banking segments. Such developments will support double-digit growth for at least the next two years, the company anticipates.

On the downside, the effects of the current price pressure in the industry is likely to impact overall spending on R&D and technology – leading to limiting the duplicate developments of similar technology that currently takes place in market segments. Silicon oversupply is also ending, signaling a rise in chip prices.

There are interesting trends in each of the major smart card application sectors. These include dominance of the JavaCard™ platform for high-end banking and mobile telecom applications - driven by interoperability needs of operators, and the innovative use of plastic in the banking sector - as well as the confirmation of EMV migration, and extensive governmental interest in health and public sector ID cards.

Mobile communications: the SIM remains the essential operator-subscriber link

Subscriber churn, and major expansion in China, India and Latin America, all contributed to a return to steady growth for SIMs (Subscriber Identification Modules) for mobile communications, the largest application sector for smart cards. After the shock of an 11% decline in 2001, shipments grew 13% in 2002.

Schlumberger believes there will be no return to the dramatic growth rates of the past in 2003. But it predicts growth rates for the number of units of approximately 7% this year, and well over 10% for the next two years, with annual shipments exceeding 500 million for the first time in 2004.

Within this overall picture are some significant developments and trends, including dominance for the JavaCard platform for high-end SIMs; the positive evolution from low- to high-end cards despite the slow start of third generation USIM (Universal Subscriber Identification Module) cards shipments due to the late 3G implementation; a significant breakthrough in CDMA markets with R-UIM (Roaming Universal Identity Module) cards; and a stronger than ever vision of the continuing need for SIM technology as the key to digital networks which are trusted by users and operators to provide security while protecting customers' privacy.

"As wireless technology begins to pervade communications at work, at home and on the move, the secure, portable and programmable attributes of smart card-based identification provide the vital component that will allow the technology to be used conveniently and effectively in all segments and across various wireless technologies. GSM and CDMA benefit from it today, Wi-Fi™ (Wireless Fidelity) wireless local area networks are starting to integrate its capability to provide seamless roaming and common billing with traditional wireless data and voice networks' and 3G is well equipped to take advantage of its superior convenience and flexibility. Through features such as authentication, billing, roaming and coordinating multi-protocol applications, we see SIMs as the essential operator-to-subscriber link for joined-up wireless experience," said Olivier Piou, president, Schlumberger Smart Cards and Terminals.

The 'write once, run anywhere' Java™ model is now truly established in the mobile communications arena. Thanks to their interoperability and the durability of applications ensured by upward compatibility, Java cards already account for virtually 100% of the high-end SIM market, and approach half of all SIM shipments. In 2003, Schlumberger expects Java cards to account for over half of all shipments for the first time, rising to two-thirds of the market in 2005.

Cost-cutting operators postponed new service launches and limited the shipments of 64K cards in 2001 and 2002. However, with operators' financial results improving, Schlumberger expects strong shipments of 64K cards in 2003, and reasonable volumes for new 128K cards.

Looking to the future, one bright spot is the large-scale adoption of the CDMA equivalent of the SIM, the R-UIM, in China. This could be of real significance for the CDMA market, as it has removed the fundamental barrier holding back progress – the availability of handsets with a R-UIM card interface. Common services – such as information on-demand and games – which are accessible by both GSM and CDMA customers through advanced software platforms deployed within the operators' premises, further demonstrated the universality of the SIM/UIM identification technology, and significantly enhanced the return-on-investment of popular data services offered to subscribers in Asia.

Evolving 2.5 and 3G networks are key drivers for the future SIM market, and Schlumberger expects order volumes for individual USIM projects to run into millions during 2003 -- but starting in Europe and South East Asia first, rather than Japan. The intrinsic security features of SIMs are expected to be vital to provide rights management for many multi-media services.

The worldwide conversion from TDMA to GSM technology -- embracing Latin America, the USA and other areas -- is also gaining momentum, and provides a trend to be watched in 2003-2004.

Longer term, Schlumberger points to the rise of Public Wireless LAN (PWLAN) over Wi-Fi standards, now viewed by operators as a complement rather than threat to 2.5 and 3G services. The next one to two years will see 'SIM-style' developments for this application, perhaps on a separate smart card equipped with a USB interface, but managed by mobile operators. Other handset-implemented protocols, such as Bluetooth, present similar opportunities.

The technology inside high-end SIMs is set to improve rapidly over the medium term with larger memory arrays and significant upgrades to card and handset communications making USB a strong bet for this market sector.

Banking – strong, and less conservative

The banking sector continues to flourish, although the 2002 increase of 17% was lower than expected, largely due to some project postponements in the poor global economic climate. 2003 growth is expected to remain double-digit at 12%; and in 2004, Schlumberger anticipates another sharp increase – with a growth forecast of 21%.

Major drivers for last year's growth include the strong renewal of e-purse cards in Benelux, the roll-outs of UKIS cards in the United Kingdom, and multi-application banking cards in France.

Future growth hot spots include effective EMV migration in Brazil, Canada, Japan, Korea, Malaysia, Mexico and Taiwan, and numerous projects in central Europe. Significant new pilot schemes are also anticipated in Italy and Spain. The single biggest driver on the horizon for the sector will be Brazil, and 2003 could mark the turning point in that country's conversion. Slightly farther out, Proton's migration to its new generation Prisma e-purse with EMV credit and debit capability could start in volume next year. Until the global economic outlook becomes more strongly positive, however, projects will continue to be subject to delays.

The anti-fraud case for smart card migration has been made. However, the second major driver for smart card conversion – the ability to add value and offer differentiating services through multi-application cards – is less clear-cut. Costs and complexities of multi-partner schemes are slowing progress – although examples such as the EMV migration project by Turkey's GarantiBank, which has implemented a co-branded debit/credit smart card with a loyalty scheme involving some 100 retail partners, show the remarkable results that can be achieved.

For this sector, the market requires customized products with dedicated R&D for each project to implement a country-specific customization of the EMV standard. Major application vendors and card suppliers are responding imaginatively by extending the flexibility and scope of their offerings – moves that strengthen the business case for EMV migration. But as a result, there is still no clear standard, and proprietary card operating systems still dominate, with JavaCard and Multos apparently failing to win bankers' hearts and minds.

"We face long migration cycles, but thanks to the proactive role of international bodies like Visa and MasterCard, we expect a boom in financial smart card deployment that really takes full advantage of the facilities offered by multi-application cards and in-the-field upgradability," said Claude Dahan, vice president and general manager, Schlumberger Smart Cards.

Early indicators of future trends in this sector include some ten pilots worldwide of USB-compatible smart cards used to support network-based access for applications such as home banking. Another eye-catching development is the way the physical card is now used to foster brand identity by

means of techniques including vibrant colors, transparent plastics and innovative shapes. Longer term, contactless payment represents a very attractive option, and pilots have started in the US and Asia.

Major public sector and corporate badge growth on the horizon

Volumes of corporate badges, which allow secure logical and physical access and smart ID cards for public sector applications are currently small. This market is still in its formative stage, but growing very fast, and the volumes could be very significant in a few years, notes Schlumberger.

In Europe, for example, both Belgium and Italy have already launched tenders for ID and health cards, and virtually every other country is looking at the technology. Activity is also significant in Asia, where initiatives include a driver's license card in India and a national ID card program in China.

The two main drivers for these markets are security and the simplification of citizens' lives through electronic service delivery. Security has become a major concern for citizens, international companies and governments, increasing awareness of the need for a secure, portable and personal ID device like the smart card. Despite long decision-making cycles, the consciousness of governments is a deciding factor that will dramatically change the market. The current Belgian project could prove influential: the card – due to start deployment in Q2, 2003 - includes two digital certificates, one for authentication and one for the holder's signature. The inclusion of public key technology could allow Belgians to perform a wide range of transactions online, including paying taxes and voting. This echoes the major interest smart card vendors are seeing from corporations for PKI-based smart cards to protect IT systems and networks.

Current smart card technology is more than capable of handling these applications, but the physical structure of the card is crucial – and must meet specific requirements in terms of durability and security printing, imposing new types of plastic materials, such as polyvinyl chloride (PVC), polyethylene terepthalate (PET) or polycarbonate (PC).

One issue that has not yet been addressed to any significant extent is the need for standardization to provide future interoperability between countries in regions like the European Union and Southeast Asia.

Transport – a fragmented market

The long cycle times of contactless smart card ticketing projects for transportation make the sector relatively isolated to macro economic fluctuations. Shipments continue to grow with strong double-digit rises with forecasts for both 2003 and 2004 of at least 25%.

Much of the immediate growth prospects in Europe are from well-publicized schemes such as the London's Oyster™ card, and Navigo™ in Paris. Similar schemes can be found worldwide in

countries such as China, Japan and Brazil. Constraints on growth are imposed by the large number of contactless radio frequency technology standards that are used for electronic tickets, and the fact that most projects are tied to a specific environment.

“The next 18 months are likely to establish the future direction for the smart card in the transportation industry,” noted Xavier Chanay, vice president, Product Development and Marketing, Schlumberger Smart Cards. “As soon as these trends start to take on a clear shape, we could easily see this sector moving into triple-digit growth.”

Cards for Payphones

The market for memory card-based phone cards fell by 5% in 2002 due to the increasing penetration of mobile phones, and is expected to continue its gradual decline for the foreseeable future. This sector still accounts for well over half of the industry's total shipments -- over a billion units in 2002 -- but only for a small portion of its revenue: less than 10%.

The big players in the smart card market are gradually withdrawing from this segment, converting their production and delivery capacity towards higher-end cards as public payphone cards have become a commodity.

Standardization holds key for future

Although the smart card market has reached certain maturity, the intrinsic security, convenience and personalization features are making the technology more compelling. Established applications remain strong, and a number of emerging markets hold significant promise. Key among these are security for the burgeoning number of wireless transactions – with the boost that will be given by Wi-Fi (802.11b Wireless Local Area Networks) and next-generation mobile messaging, including digital rights management of content delivered.

The technology of smart cards is now highly sophisticated, and is moving inexorably towards becoming part of the standard computer systems framework. Standardization will continue to be critical, and developments such as USB interfacing, and the recent .NET ‘Internet card’ initiative – which adds a common language infrastructure for easy integration with multimedia appliances – are pointers to the industry’s future direction.

"Smart card technology is becoming an intrinsic element of the IT and networking system," said Jean-Claude Deturche, vice president, Marketing, Schlumberger Smart Cards. "Standardization continues to be a key challenge, and a recipe for the future success of the industry."

Schlumberger – the world's leading provider of microprocessor cards – also cites the continued need for large R&D investments, the understanding of the complex security requirements for each

card market, and building the right partnerships and distribution channels as key ingredients for the success of players.

Microprocessor Cards	**2001**	2002	Growth actual 2002 versus 2001	2003	Growth forecast 2003 versus 2002	2004	Growth forecast 2004 versus 2003
By market (million units)							
Mobile communications	**400**	**450**	13%	480	7%	530	10%
Banking	**145**	**170**	17%	190	12%	230	21%
Others (E Gov, IT, Pay TV, Transport…)	**97**	**105**	8%	**134**	28%	**170**	27%
Total	***642***	***725***	13%	***804***	11%	***930***	16%
			Share of total		Share of total		Share of total
…of which are							
Multi-application cards	**224**	**352**	48%	420	52%	550	59%
…of which are							
Java cards	**114**	**198**	27%	280	35%	375	41%
By region (million units)			Share of total		Share of total		Share of total
Europe, Middle East, Africa	**320**	340	47%	360	45%	385	41%
Asia Pacific	**272**	310	43%	350	44%	425	46%
Latin America	**20**	25	3%	34	4%	45	5%
North America	**30**	50	7%	60	7%	75	8%
Total	***642***	***725***	12.9%	***804***	11%	***930***	16%
Memory Cards	**2001**	2002	Growth actual 2002 versus 2001	2003	Growth forecast 2003 versus 2002	2004	Growth forecast 2004 versus 2003
By market (million units)							
Payphones	**1060**	**980**	-8%	950	-3%	920	-3%
Others	**99**	**110**	**11%**	**120**	**9%**	**130**	**8%**
Total	**1159**	**1090**	**-6%**	**1070**	**-2%**	**1050**	**-2%**

About Schlumberger Smart Cards and Terminals
Schlumberger Smart Cards and Terminals is the world's leading provider of microprocessor cards - the key to digital networks - and a major supplier of card-related terminals and transaction software. Its 5,000 employees serve customers in more than 100 countries, with worldwide sales exceeding 2.6 billion smart cards to date. The company possesses more than 20 years' experience in smart card innovation and leads its industry in security technology and open systems.

Schlumberger Smart Cards and Terminals continuously creates new generations of products for use in a variety of applications in the telecommunications, finance, retail, transport, entertainment, healthcare, personal identification, information technology and public sector markets. Smart card solutions provide convenience, security and privacy to public and private services operators, their customers and end-users.

For more information, visit us at www.smartcards.net

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