Answers to Frequently Asked Questions About Smart Cards

1.- What is a smartcard and how is it used ?

A smartcard is a card similar in size to today's plastic payment card that has a chip embedded in it. By adding a chip to the card, it becomes a smartcard with the power to serve many different uses. As an access control device, smartcards make personal and business data available only to the appropriate users. Another application provides users with the ability to make a purchase or exchange value. Smartcards provide data portability, security and convenience. Smartcards help businesses evolve and expand their products and services in a changing global marketplace. Banks, telecommunications, computer software and hardware companies, and airlines all have the opportunity to tailor their card products and services to better differentiate their offerings and brands. The combination of applications available on smartcards also may help them to develop closer relationships with their customers.

2.- What is the potential for the smartcard business ?

Today, there are fewer than one billion smartcards in use. Market researcher Dataquest forecasts that by the year 2000, more then 3.5 billion smartcards will be used world-wide. Smartcard activities are growing at 30 percent a year, predominately in Europe in South East Asia. Over the next five years, the industry will experience steady growth, particularly in cards and devices to conduct electronic commerce and to enable secure access to computer networks. Within the same time frame, smartcards are expected to be used in 95 percent of the digital wireless phone services offered world-wide. Asia, Latin America and North America are areas believed to be of greatest potential in the next three years. Globally, the uses that have emerged so far are for payphones, wireless telephony, Internet access, banking, healthcare and pay TV.

3.- Why Europe and Far East countries are ahead of the U.S. in applying smartcard technology ?

Card issuers in different countries are building their business case to justify the issuance of smartcards for different reasons. New markets, or markets that are evolving for other reasons, will be the ones that make smartcards widespread in North America. Two examples are the network computing and cellular telephone industries that use smartcards to authenticate users in new systems that demand the utmost in security.

The European banking industry added chips to existing bank cards because they wanted to authorise transactions off-line, in a secure manner, thus reducing telecommunication costs in a secure manner. In addition to high telecommunications costs, fraud losses played a significant role in the cost of doing business.

Telecommunications companies throughout the world are choosing smartcards with preloaded value as a way to remove coins from telephone boxes, thereby reducing vandalism and operating costs. Customers can purchase pre-loaded stored value smartcards that can be used at public telephones.

4.- Why is interoperability crucial to widespread adoption of smartcard use ?

Even though there are hundreds of smartcard pilots in existence around the world, users may not take a card from one country or scheme and use it in another. In order to accelerate the widespread acceptance of multiple-application smartcard technology , interoperability – compatibility between cards, card-reading devices, and applications –must be achieved. To do this, the industry must examine the business and technical issues surrounding the need for standardised interfaces between cards, terminals and slots, which is the key to securing dramatic growth for the industry.

5.- What role does "standards" play in smartcard use ?

Standards are required to ensure that cards and card-reading devices are built to uniform specifications. This ensures that cards manufactured and issued by one industry sector in one part of the world can be accepted by a device in another part of the world. These cards and devices may support many different types of industries so that, for example, payment cards may be accepted in card-accepting devices at gas stations. This is possible because there are international standards in place. The International Organisation for Standardisation (ISO) has developed standards for smartcards. These standards were developed for use by multiple industries. Individual industries are now developing proprietary versions of these ISO standards to support their own specific smartcard applications. These are designed to conform with the standards issued by ISO. The goal is to ensure uniform standards for smartcards that will allow interoperability of cards among a wide array of industries.

6.- What are the major benefits that smartcards offer consumers ?

The benefits depend on the application. In general, applications supported by smartcards benefit consumers where their lifestyles intersect with information access and payment-related processing technologies. Some of these benefits include : the ability to manage or control expenditures more effectively, fraud reduction, reduced paperwork and elimination of the need to complete redundant, time-consuming forms, the potential of having one card with the ability to access multiple services, networks and the Internet.

7.- How does Regulation E apply to stored value cards ?

Regulation E is designed to protect consumers in electronic financial transactions, such as electronic fund transfers. Among other things, it requires that consumers be provided with a written record of those transactions. Some payment applications of smartcard technology will be covered by Regulation E. Accessing an account through the use of an ATM machine (bancomat) – an application currently covered by Regulation E – would be a "covered" event if triggered by a smartcard. However, it is inappropriate to extend Regulation E coverage to many other smartcard applications. In short, the Smartcard Forum does not believe it is appropriate to regulate smartcard "technology." Rather, Regulation E coverage should be assessed in the context of specific smartcard applications.

8.- You will hear the terms "chip card," Integrated circuit card," and "smartcard" used to refer to a plastic card with a chip. Are these different types of technology ?

There are three types of integrated circuit cards : simple memory card, hardwired logic card and microprocessor card. The term smartcard is used in different ways by different organisations.

9.- What is a multiple application card ?

The smartcard has the capability of carrying multiple applications. A multiple application card can support different types of applications (e.g., healthcare, financial services, travel, and loyalty programs) on the card itself thereby reducing the number of cards in the wallet.

For example, Visa's multiple application card plans call for a card to include a combination of Visa-developed credit, debit and stored-value functions along with member-developed Java cardlets such as loyalty programs, local transit applications or drivers license programs. This open architecture will allow Visa issuers to add applications to existing cards after they have been issued while maintaining security "firewalls" between applications.

A hybrid chip and magnetic stripe card is in use with nearly 60,000 students, faculty and staff at the University of Michigan and Western Michigan. The multi-application card features personal identification and dormitory security, banking, and a wide range of stored value functions for the purchase of food, books, photocopying and vending services.

10.- What is a contactless card ?

There are two types of contactless cards. The first is a contactless proximity card in which the card is read by inserting it in a special reader. The second is a remote contactless card in which the card can be read from a distance, such as at a toll booth.

11.- How is a chip card different from the magnetic stripe card that I carry in my wallet ?

Existing magnetic stripe cards have limited capacities to carry information. A smartcard carries more information than can be accommodated on a magnetic stripe card. It can make a decision, as it has relatively powerful processing capabilities that allow it to do more than a magnetic stripe card (e.g., data encryption).

12.- How many chip cards have been issued world-wide ?

According to the consulting firm Frost & Sullivan, more than 676 million chip cards were issued in 1996. The approximate breakdown is as follows : 575 million phone; 15 million GSM ; 36 million financial ; 30 million ID cards, 17 million pay TV, and 3.8 million other cards.

13.- What is the cost of an average chip card ?

Trying to respond to this question is like asking the cost of a car without defining whether it is a used VW or a news Rolls Royce. Chip cards range from $.80 to $15 depending upon their capacity and quantities.

14.- Why is reloadability important to the development of the smartcard vis-à-vis disposable cards ?

There are markets for both disposable and reloadable cards. Disposable cards work well for an event and as a collectible card. Disposable is also desirable when people are travelling or visiting a location and may only want to purchase a stored value card for a specific amount of time. If the card is a multiple application card supporting for example debit

and/or credit and stored value, the customer would not want to throw this type of card away. It would be more appropriate that the stored value application be reloadable.

A standalone reloadable card (as opposed to a standalone disposable card) is very attractive to some customers. This customer would tend to be someone who uses their stored value on a frequent basis perhaps for public transportation, corporate cafeteria etc. and wants to be able to reload the card on a periodic basis rather than have to buy a new card each time.

15.- How secure and confidential are smartcards ?

Smartcards actually offer more security and confidentiality than other financial information or transaction storage vehicles. A smartcard is a safe place to store valuable information such as private keys, account numbers, passwords, or valuable personal information. It's also a secure place to perform processes that one doesn't want exposed to the world, for example, performing a public key or private key encryption.

Chip cards have computational power to provide greater security, allowing verification of the cardholder. Entering a PIN is one method of verification. The benefit of the smartcard is that you can verify the PIN securely, off-line.

16.- Have guidelines been established to govern the use of consumer data obtained through smartcard applications ?

Yes, in anticipation of and to allay potential privacy concerns, the Smartcard Forum issued the first-ever cross-industry guidelines on data privacy for industry and government issuers of smartcards at its recent Legal and Public Policy Symposium. The release of these guidelines is significant in that it marks the first time data privacy guidelines have been developed for adoption across multiple industries on a voluntary basis.

Chief recommendations presented in the guide to responsible consumer information practices include:

- Identify, recognise and respect the privacy expectations of consumers and make applicable privacy guidelines available to them.
- Limit the use, collection and retention of information about consumers to what is necessary to complete a consumer transaction, provide superior service and offer consumers new opportunities.
- Provide a means for consumers to remove their names from the company's telemarketing, online, mailing and other solicitation lists.
- Implement policies and procedures to limit employee access to personally identifiable consumer information to a need-to-know basis. Educate employees about privacy standards and employees' responsibilities to protect consumer privacy and monitor employee compliance, and take appropriate disciplinary measures with employees who fail to adhere to such standards.