# GLOBALPLATFORM

## THE STANDARD FOR SMART CARD INFRASTRUCTURE

## Concise Guide to Worldwide Implementations of GlobalPlatform Technology

Since its inception in 1999, GlobalPlatform has rapidly grown to become the leading worldwide smart card industry standards body, creating, maintaining, and driving adoption of an open technology framework for the global deployment of smart card programs by service providers across all industries.

GlobalPlatform's technical committees have defined requirements and technology standards for smart cards, card acceptance devices and back-end systems, creating a foundation for future smart card growth. As of January 2002, there were in excess of 20 million GlobalPlatform smart cards in circulation across the world and an additional 200 million GSM cards that utilize

GlobalPlatform technology for Over-The-Air (OTA) application download. Current figures for 2005 show the number of GlobalPlatform smart cards in circulation to exceed 75 million and GSM cards 650 million. These figures are expected to increase significantly over the next few years.

Following are examples of GlobalPlatform's implementations in different industries and markets around the world, including the names of GlobalPlatform Member issuers and solution providers involved.  Please refer to the GlobalPlatform website for additional information and featured case studies on the implementation programs at: http://www.globalplatform.org. ■

### GlobalPlatform: Proven Technology
### Australia New Zealand (ANZ) Bank

In November 2001, ANZ introduced its first branded GlobalPlatform credit cards, which deploy the GlobalPlatform Card Specification version 2.0, to upgrade one million existing ANZ First and ANZ Gold Visa credit cards to chip technology. The program also aimed to replace 80,000 merchant credit card terminals with a new chip-enabled electronic payment terminal network called MultiPOS.

By the end of 2005, over 900,000 GlobalPlatform cards have been issued to ANZ customers and approximately 50,000 terminals have been upgraded to MultiPOS, throughout Australia and New Zealand.



The applications on the smart cards include EMV payment, chip loyalty/ electronic coupons and secure e-commerce.  The card can also be used in the 3-D Secure environment over the Internet for cardholder authentication.

ANZ is the first bank in Australia to introduce a fully functioning, end-to-end chip technology system for customers and retailers.  This project is effectively the first smart credit card system in Australia supported by chip-enabled merchant terminals.

By upgrading customer cards and replacing terminals, ANZ is putting in place the foundation for a broad-based introduction of chip cards in Australia.

GlobalPlatform Member solution providers involved in this project include *Cards Etc., Datacard Group, Giesecke & Devrient, Ingenico and Visa International*. ◼

## BC Card Project: Bell ID's ANDiS Management System

BC Card, Korea's largest credit card issuer, selects Bell ID's ANDiS Management System for roll-out and management of their multi-application smart card program. The ANDiS Management System supports the issuance and management of BC Card's multi-application EMV smart cards, whose underlying platform is based on MULTOS and GlobalPlatform technology. Bell ID's ANDiS is the only Smart Card Management System (SCMS) that allows BC Card to effectively manage approximately 17 million EMV-compliant credit cards for 11 Korean banks and credit card companies over the next three years. Since the live launch of this project in January 2005, BC Card has issued over 300,000 cards.

Credit and debit are the initial on-card applications. Other applications such as electronic cash and transit are available via the ANDiS Post-Issuance Personalisation (PIP). PIP is a service that enables card issuers and cardholders to add or delete

## Austrian Citizen Cards: Bell ID's ANDiS Management System

In the first quarter of 2005, Bell ID's ANDiS Management System facilitated the issuance and management of 8 million social insurance citizen smart cards in Austria. Based on GlobalPlatform Systems Technology, the new "e-card" system replaces the need to issue and process an annual 40 million current paper-based healthcare vouchers. In addition to the e-cards, ANDiS also issues and manages more than 25,000 o-cards which are for authorized staff in doctors' practices.



Bell ID's web-based ANDiS Management System manages the complete life-cycle of all e-cards and o-cards with the integrated GlobalPlatform based Post-Issuance Personalization (PIP) functionality. This added feature not only allows cardholders to download and reload applications at a later date, but also enables the Main Association of Austrian Social Insurance Institutions to change on-card data via their own e-portal, the Karten Service Portal. In addition, the PIP feature assists the Karten Service Portal in allowing citizens to apply for and download digital certificates.

Used as citizen cards, the new multi-application e-cards managed by the ANDiS solution, contain personal cardholder data as well as up to four digital certificates for data security and verification of the cardholder's identity.

GlobalPlatform Member solution providers for this project include *Bell ID*. ◼

on-card content via the internet and mobile handsets, and thus eliminates the need for BC Card to reissue the entire card base if and when changes occur.

ANDiS involvement in BC Card provides for leading edge SCMS with the greatest level of flexibility in the competitive banking market of South Korea. Cardholders use BC Card more often than any other cards in

the market. As a result, BC Card has become the leading and largest credit card company in Korea that uses an effective SCMS. BC Card could further expand ANDiS through market movement such as loyalty and membership services.

GlobalPlatform Member solution providers involved in this project include *Bell ID*. ◼

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## The Standard for Smart Card Infrastructure

### Cassis: MobileMatrix Solution

In 2004, Singapore based Cassis International launched its MobileMatrix solution that enables customers of SK Telecom, the #1 mobile phone service provider in South Korea, to download a credit application onto the SIM over-the-air. It's the world's first over-the-air download of an EMV payment application onto a USIM enabled 3G phone. The SIM card communicates with SK Telecom's back-office network and sends commands to drive the handset, allowing the mobile phone to act like a credit card. Customers can use the downloaded applications to make purchases with their phones via infrared waves or radio frequencies at point-of-sale terminals equipped with dongles to accept the transmissions.

Standardized GlobalPlatform software on the cards and back-end systems technology allow for secure downloads and keeps the applications separate with security firewalls. This implementation of GlobalPlatform brings new functionality to the ubiquitous mobile phone and transforms its traditional use into a one-stop payment device. SK Telecom customers can decide the type of applications to be loaded into their handset, which include CAS (Conditional Access System) for DMB (Digital Multimedia Broadcasting through satellite) and T-Money (Public Transportation).

Today, over four million handsets support the "Moneta" m-commerce project, which can utilize Cassis'

MobileMatrix solution. The GlobalPlatform technology that makes the download, addition, and post-issuance of applications possible is the GlobalPlatform Card and Key Management Specification as well as the Smart Card Management Functional Requirements.

The deployment of MobileMatrix to SK Telecom is the first eco-system that supports GlobalPlatform cards in the mobile environment and is the first remote personalization of a Visa EMV application into the 3G SIM cards.

GlobalPlatform Member solution providers involved in this project include *Cassis International*. ■

### Citibank CitiSmart

In December 2001, Citibank launched a MasterCard branded card in the US called CitiSmart. Citibank projected it would issue four million smart cards through the program.

The CitiSmart card is a combination charge and revolving credit card, which enables cardholders to use the card to securely shop on the internet and make purchases in stores

with a credit application stored on both the card's chip and magnetic stripe.

Citibank's smart card functionality includes an EMV payment application, an electronic wallet that stores frequently visited website URLs and other data such as payment account numbers and shipping addresses as well as a loyalty application.

GlobalPlatform Member solution providers involved in this project include: *ActivCard, Datacard Group, MasterCard International and Axalto.* ■

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### Daejeon Project

In October 2003, Visa Cash and Hana Bank launched a project to transform the city of Daejeon into a "digital city" and issue GlobalPlatform smart cards with transit functions. The first phase of the project targets a customer base of 500,000 cardholders between the ages of 14-24. Hana Bank plans to issue multi-functioned cards to customers over the age of 18 and single cash applet only cards to its customers under

the age of 18. Both cards will carry the Visa Cash, membership, loyalty, ID, and Internet applications. Only the multi-function cards targeted at 18 and over will carry the Visa Smart Debit Credit application.

In addition to payment capabilities, the GlobalPlatform smart card will allow for personal portable storage capabilities in the area of online transaction certification, ID student cards, and medical card functions.

Visa's role in the project is to provide the e-purse system and servic-

es, installing the infrastructure for Hana Bank, reloading the card, and coordinating with City Hall, Hana Bank, and other vendors. Hana Bank is responsible for issuing and personalizing the cards, settlement, installing the infrastructure, and arranging for the system provider. City Hall is responsible for service planning, policy and regulation, and coordination.

GlobalPlatform Member solution providers include *IBM, Phillips Semiconductors, and Visa International*. ■

### Finnish National Smart Card Payment Program

Luottokunta is the leading payment card service company in Finland. In 2000, Luottokunta decided to implement a smart card issuing, management and processing solution. The solution incorporates an open systems technology that enables migration from single application EMV smart cards to multi-application GlobalPlatform smart cards.

In the spring/summer of 2005, Luottokunta plans to launch the first phase of its national smart card payment program - the first of its kind in Finland. Completion of the project is expected by end of 2005. The smart cards will enable EMV payments and will provide a platform for issuing other applications such as government programs, ID,

advanced loyalty and travel. Post-issuance capabilities are planned for 2006. The initiative will support 1.5 million cards.

GlobalPlatform Member solution providers involved in this program include *Datacard Group.* ■

### First Investment Bank of Bulgaria: Bell ID's ANDiS4EMV

In September 2005, First Investment Bank, one of Bulgaria's fastest developing banks, implemented Bell ID's ANDiS4EMV solution based on GlobalPlatform systems technology to drive EMV compliance for the issuance and management of its multi-application smart cards. The solution enables issuers, such as First Investment Bank, with the advantages of fast data preparation, cryptographic key management, EMV parameter management, EMV scripting, Post Issuance Personalization (PIP), and a basic card management environment for single application cards that can be migrated to multi-application cards in later phases.

GlobalPlatform Member solution providers for this project include *Bell ID.* ■

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### First National Bank of Omaha

First National Bank of Omaha became the fifth US Issuer to offer a Visa smart card, based on GlobalPlatform technology, in September 2002.  First National's smart card is branded *smartOne$^{SM}$* and is issued with a free card reader and reader software to each cardholder account. Once the reader and software are installed on the cardholder's PC, with the card inserted in the reader, the cardholder retrieves a Passcode for the card.

Upon subsequent visits to the Bank's website, the cardholder inserts their card and Passcode to authenticate the user to the site for secure online transactions.

Currently the *smartOne$^{SM}$* card incorporates the Visa smart debit & credit application (VSDC).

All First National smart cards also currently offer fileIt$^{SM}$ Convenience Storage, a data storage application that the cardholder can use to store and port personal information.

The data is kept secure by the same Passcode access the cardholder uses for web authentication.  First National will continue to develop card features that will provide added value and conveniences for their smart card customers.

GlobalPlatform Member solution providers involved in this program include *Datacard Group, Gemplus, Oberthur Card Systems and Visa International.* ◼

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### KT Corporation (formerly Korea Telecom)

In association with a number of South Korean banks, KT Corporation, South Korea's largest telecommunications provider, has undertaken a program of issuing co-branded smart cards to subscribers, which initially include up to seven applications in the field of electronic payment (EMV credit/debit application and I-Cash electronic purse application), loyalty and ticketing.

By doing so, KT Corporation becomes the first card issuer / telecoms provider to take the step away from magnetic stripe cards to offer its subscribers multi-application EMV smart cards in Korea. Currently 200,000 GlobalPlatform cards are in circulation and the total pro-jected number of cards to be issued under this scheme is estimated at 10 million.

In the third quarter of 2002, KT Corporation selected Bell ID's ANDiS Management System to enable the central life cycle management of its EMV smart cards, applications and cryptographic keys. This Smart Card Management System (SCMS) from Bell ID has enabled KT Corporation to issue both GlobalPlatform and MULTOS cards with post issuance personalization capabilities, allowing cardholders to load or remove up to five additional applications from their card after it has been issued. KT Corp- oration has full control over all card, application and key-related processes, whereas application providers and legacy systems are connected to KT Corporation's central ANDiS Management System, running in a Unix environment.

GlobalPlatform Member solution providers for this project include *Bell ID.* ◼

### Macau Special Administrative Region (SAR) Project

In 2003, the Macau Government's Identification Department (DSI) commissioned the distribution of multi-application, smart-card based identity cards to all of Macau's 460,000 citizens, resident within the Chinese Special Administrative Region (SAR), with a target completion date of 2007.

In January 2003, distribution of the 460,000 GlobalPlatform multi-functional cards began. The cards have built-in security features to prevent forgery, such as the use of fingerprint matching for automated identity verification.  They also allow the uploading of other applications to

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