Volume 1 / Issue 2 Summer 2006 - Features

Achieving Long-Term Stability in Smart Card Programmes

Author

Kevin Gillick

Title: Executive Director

Organisation: GlobalPlatform

Email: kevin.gillick@globalplatform.org

Website: www.globalplatform.org

2006 will see the deployment of 85 million smart cards in the government and healthcare sectors, according to forecasts from the industry body, Eurosmart. For a sector that faces complex administrative challenges, such as the healthcare industry, the move towards a smart card based system represents a real commitment towards increasing efficiency and improving service delivery within healthcare provision.

As healthcare authorities move with greater momentum towards utilising emerging technologies such as smart cards to simplify administration processes and increase efficiency, they must demonstrate to end users the benefits such a programme can bring. With costs in public healthcare escalating, it is vital that the value of the smart card programme is maximised, and the project is implemented to ensure long-term efficiencies and results.

The Overriding Demands of the Healthcare Sector

Within Europe, there are differences in the way each country delivers its healthcare provision: either through tasking government departments or working in partnerships with commercial healthcare providers. Despite this diversity, the challenges faced are universal:

+ Traditionally, paper-based processes have been a central healthcare standard, creating inefficiencies through labourintensive administration processes, and a system that is vulnerable to fraud.

+ The industry is experiencing escalating healthcare costs due to an ageing population, increase in research and development into new drugs, and the impact of litigation.

+ Patient choice has led to greater demands on the service; con sumerismand the increasing amount of healthcare decisions being driven by the individual have necessitated a growing portfolio of newcustomised products and financial options, to meet consumer demands for individualised products and personalised service.

+ Within the healthcare environment, both physical and logical access is vital for staff and patients. What is left is an industry that requires complex administration, management and optimisation across very disparate enterprises.

Advantages of a Healthcare Smart Cerd

The smart card can facilitate a multitude of different transactions, and represents the most transportable, secure and manageable medium for personalised data. A healthcare system based on a smart card can offer audience benefits across the sector, primarily through enabling secure authentication and digital signatures. With a card based system, healthcare providers can offer services to citizens in an efficient computer environment that also provides secure card content management for applications with privacy requirements. Such a system can:

+ Provide citizens with the ability to access their own medical records online, while retaining control over third-party access.

+ Allow doctors to digitally sign prescriptions, removing the need for a paper based system that is vulnerable to fraud.

+ Make information management easier and more efficient by encouraging self-service.

+ Improve security standards of physical and logical access.

+ Provide a platform for successful joint initiatives – a single secure identity token that will allow a variety of e-services.

The overriding benefit for healthcare providers is increased security and a reduction in paperwork and management time, which leads to a significant reduction in the high costs associated with traditional paper based systems.

The Case for Standardising the Smart Card Environment

Many countries in Europe have already begun deployment of electronic health cards to citizens, but in many cases these have focused on delivering just one function. When an implementation is designed in isolation, without investigating the full potential and long-termviability the smart card programme could offer to various technology providers and end-users, the programme can soon become outdated, resulting in a decrease of usage.

It is not just the advancement of new, efficient technologies that can force the need for healthcare providers to make alterations to the programme - regulatory requirements also have a significant impact. The healthcare industry is subject to a great deal of regulation and updates from governing bodies that often results in a review of the way services are delivered, which in turn necessitates changes to the smart card programme infrastructure. Therefore, the solution envisaged during the start-up phase may not reflect future demand. This can result in extensive and costly re-design, re-building and re-testing.

As healthcare smart card programmes are often deployed widely across a region/country, any modification to the programme, such as the addition of a new application or regulation, could require an extensive upgrade of the implementation's system architecture and the redeployment of cards in a variety of locations and facilities.

GlobalPlatform technology looked to address this problem and provide a standard smart card infrastructure solution that, if implemented into the programme, would prevent the need for costly system architecture upgrades and redeployment of cards, while allowing for multi-applications to be added to the same smart card programme seamlessly. This technology simplifies and accelerates development, deployment and management of applications across industries.

Case Study:
A World First - Taiwan National Health Insurance Card
Pioneering the first and the largest healthcare smart card project in the world, the Bureau of National Health Insurance of Taiwan (BNHI) began rolling out Integrated Circuit (IC) health cards based on GlobalPlatform technology to Taiwan citizens in July 2001. The new cards were brought in to replace its original paper-based system, which brought with it high fraud rates and high administration costs.

The aim of the smart card solution was to create significant time and cost savings for the BNHI as well as provide greater transparency for its service provision.

The cards are able to store up to 32KB of information related to health insurance programmes, past medical services, the patient's public health administration and recent medical expenses. As of May 2006, the programme reported the following results:
* More than 23 million Health Care Cards have been issued.
* Appx. 50,000 Health Professional Cards have been issued and is still on-going.
* Appx. 50,000 chip enabled readers were installed in hospitals, clinics, etc.
* De-centralised card issuing centre on service at 6 sites around the island.
* GP Card offers dynamic downloading possibility for improved Health Care Application renewal.

GlobalPlatform provided the foundation on which to build a smart card management environment capable of hosting multiple applications and implementations, and yet able to be adapted to the card holders' requirements. The technology ensures that the continual re-writing and customisation of applications is avoided. Providing a flexible and future-proof smart card architecture, it establishes a universal platformable to support newor modified applications, new cards and interaction with government or commercial entities. Validation of the smart card system only needs to happen once, and updates can be made throughout the programme's life-cycle, efficiently and cost effectively. Backed by an active forum of 50 global member companies, that provide card, device, and system technical specifications on a royalty-free basis, GlobalPlatform standards are universal. By stipulating these standards within a smart card programme, healthcare providers can:

- Reduce development and testing time, and therefore costs, as these standards have undergone rigorous security testing.

- Establish competition between solution providers; as a like-forlike product is being compared.

- Easily switch from one technology provider to another, as the standards are free and can be implemented by any technology vendor.

- Implement a future-proof and scaleable card and systems infrastructure that can support the entire evolution of the healthcare smart card programme.

Driving Usage: Manage a Multi-Application Smart Card Environment

A key concern for any service provider issuing a smart card based system is to ensure the long-termviability of the solution. Multi-application smart cards represent the future of healthcare provision. The introduction of a single card, capable of housing multiple applications would represent an enormous advantage for the healthcare industry. In addition, combining healthcare functionality with other applications such as a government ID and electronic driving license can help to drive public acceptance and usage of the schemes.

In order to meet these current and future requirements, the standard smart card infrastructure needs to be in place at the beginning of the

implementation to support a future multi-application environment.

In the initial phase, many service providers are reluctant to issue high memory cards as these can be deemed prohibitively expensive. However, by ensuring that the smart card infrastructure is based on GlobalPlatform standard technology, low-capacity memory cards with the same level of security can be issued in the first instance, with the option to migrate to higher capacity memory and multi-application at a later date. By adopting these standards and specifications at the beginning, the smart card project becomes future-proof and the need for a costly reissuance and re-development is removed.

Once established, the management of this multi-application smart card environment is the real challenge. From a provider perspective, these specifications are capable of isolating and simultaneously managing all of the different applications on the card, as providers do not need to re-invest in a separate management system for each of the different applications.

From the point of viewof the end-user, the patient, the existence of a centralised application management system means that if the patient were to lose their card, they need only call one phone number to arrange a replacement. The central system will act to maintain the data status for each of the different card applications.

Looking Ahead

In countries such as France and Germany, which have begun to implement secondgeneration smart cards for healthcare, the increased economic efficiency and modernisation of the healthcare sector speaks for itself. In Germany, where the multi-application smart cards will replace 800 million paper-based prescriptions, the government can expect savings of up to } 5 billion per year, according to figures from Eurosmart. Not onlywill the cards serve to eliminate redundant or unnecessary prescriptions, or even potentially dangerous combinations of medication, they will also reduce redundant diagnostic procedures (e.g. identical X-rays being produced by multiple doctors). In France the forecast is just as impressive, with around } 300 million per year of savings in administrative costs.

Utilising an open system in providing a smart card infrastructure that is capable of supporting multiple applications and partners will be key for future-proof smart card implementations and in ensuring the healthcare industry achieves continual yearly savings. With technology developing rapidly in today's society, this means consistently providing added value to the end-user; making new services and features accessible from the smart card, and forming multiple partnershipswith both the public and

private sector. These things can only be achieved through the implementation of an interoperable and costeffective standards-based solution.

Case Study:

The Austrian Citizen Card

Austria's e-card is an example of a second generation health card, hosting a range of applications. Issued during the first quarter of 2005, the implementation involved the issuance and management of 8 million social insurance citizen smart cards in Austria. This new "e-card" system replaced the need to issue and process 40 million paper-based healthcare vouchers annually. In addition to the e-cards, more than 25,000 o-cards for authorized staff in doctors' practices were also issued as part of the project.

Aweb-basedmanagement system was adopted tomanage the complete life cycle of all e-cards and o-cards with integrated 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 contain personal cardholder data as well as up to four digital certificates for data security and verification of the cardholder's identity.

Published on : Sun, 16 Jul 2006