

itsoneews

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March 2006: Following The ITSO Workshop

The 2006 Budget includes free concessionary travel on a national basis from April 2008. Whilst the commercial rules are still to be defined, the overall requirement would be considerably helped by Interoperable Smartcards. The case for ITSO-based schemes is even stronger.

Dear Reader,

The ITSO Workshop took place at the 5th Moving On conference on 8 March, 2006, in Glasgow. The session was chaired by Neil Scales, the Chairman of ITSO, Chief Executive and Director General of Merseytravel.

This edition of The ITSO Newsletter includes some of the Workshop speakers' presentation papers. You can find more information on this conference and presentations on *What's New* page of our web-site at www.itso.org.uk.

Peter Stoddart, Head of Marketing, ITSO

International Standards

What is happening and where does ITSO sit?

John Verity, ITSO Ltd.

ITSO is not just a technical standard in its own right, but one that has to meet and support a number of other external standards. This article outlines the key standards ITSO supports.

ITSO has an on-going programme of active involvement in standards development, such as these, through a range UK, European and International bodies.

- **Media:** ISO/IEC 7816 and 14443. These are the standard industry interfaces between a contactless smartcard and its reader: one is describing the shape and size of the card, the other – the communications. ITSO validates that the media and reader comply, as part of the testing prior to certification.
- **Data Elements:** EN 1545. This is a new European Standard setting out the data structures needed for smartcard applications in the transport field. As such it is now mandated for all EU procurements.
- **Applications:** prEN 15320 (IOPTA). Still awaiting formal approval, this draft standard covers the transport applications themselves. ITSO has been actively involved in the development of this standard (and EN1545 and EN ISO 24014), to ensure full interoperability is catered for.
- **Architecture:** EN ISO/DIS 24014-1 This standard, also known as Interoperable Fare Management, IFM, is the highest level of the transport related specifications and describes the actors, organisation and "use cases" for the way a scheme, such as ITSO, must operate. In due course, it will have further implications on how different schemes interconnect. The standard has received

strong support at the working group level, and it moves to a full ISO vote in April 2006. If accepted at that meeting, it could be implemented in Europe by year end, adding to the standards mandated in transport procurements.

- **ISAM Security:** ISO/IEC 15408. This is a long standing standard, originally known as "Common Criteria" (see ITSO web site for more details). Within this standard are set both, the security profile the ISAM is judged against, and the level of assurance we are aiming towards. ITSO became approved to this demanding standard in November 2005.

On top of these standards, ITSO also uses a number of other standards to shape the internal processes and procedures. Amongst these are ISO 17799, which sets out how to manage our Security System, and the well known ISO 9001, which sets out the standard for our Quality Management.

ITS WORLD CONGRESS

Now that Moving On has happened, our attention turns to the next major (and I mean MAJOR!) exhibition – the ITS World Congress at Excel in October 2006.

ITSO is creating a village for the exhibition, and to date the following suppliers and schemes are participating:

ITSO
ACT
Burall
Cheshire CC
Cheshire CC
CNA with Oberthur
Ecebs
ESP
Giesecke & Devrient
RBS
Unicard
Wayfarer

If any other suppliers or schemes wish to participate in the ITSO village, then please contact me urgently.

Peter Stoddart

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SmartConnect

The National Smart Card Project Software & ITSO

Conn Crawford, NSCWP

The components of the Smart Connect software package for local authorities are as follows:

- Web-based enrolment system, designed to be flexible enough to incorporate any existing paper-based application form
- enrolment system facilitating the rationalisation of a number of application forms (allowing a citizen to apply for a number of services without completing multiple forms)
- Image capture capability (including the citizen's photograph and signature)
- Sophisticated eligibility checking and recording facilities (allowing citizens to present their proof of entitlement only once and enabling a scanned copy of any documentary proof to be stored in the card management database)
- Microsoft SQL Server 2000 Cardholder database
- Card management system including routines for data import / export, hotlisting and re-issuing cards
- Card print and personalisation software allowing local authorities to produce cards without the assistance of an external print bureau, if desired
- On-card java applets
- Card data viewing software allowing citizens to view the data that is stored on their smart card
- Card data maintenance software allowing local authorities to update the data stored on a citizen's card and, at the same time, ensure the integrity of the data in the back-end database
- Web-based user interface allowing citizens to log-on using their smart card and view the details stored about them on-line.

Back offices

The role they play in ITSO

David Hytch, Logica

From the very beginning ITSO has acknowledged that the back office would play a pivotal role in the success or failure of any scheme. Indeed, the ability to provide the interoperability that is seamless from the card use through to being paid for travel will only work, if the back office is designed and built accordingly. I can recall the first meetings of ITSO, that started to get to grips with the business rules, and the lengthy work it took to start to evolve a working mechanism.

There is a danger of relegating the back office to the subsidiary role, in the face of all of the technology being applied to the cards, readers and communications. It is well accepted that those will change over time, and the likelihood of the smartcard, surviving in the form we currently see it, is already under threat from the mobile phone, tags or watches.

The solution must ensure that the architectural foundations are sound and provide an economic basis for future development. The costs of change, due to retrofitting further features on inadequate technology platforms and of fire-fighting unreliable components, would far exceed any additional initial investment needed to build a more scalable system in the first place.

I view the back office as comprising a number of interlocking pieces regardless of the size of any particular scheme. The first part is the HOPS/AMS, which provides the means to implement the ITSO rules and manage transactions. Behind this are the rest of the back office functions to support the scheme, including settlement and apportionment. Part of the picture is the architecture that describes the services to support the back office and the scheme in general. There has been a lot written about HOPS/AMS and so I don't propose to say more about them here, except to say they are critical in the implementation of the ITSO requirements, and proper attention must be paid to ensuring they deliver the goods when required.

The other parts of the back office cover apportionment and settlement, accounting in the scheme and links to other stakeholders systems, data management and reporting. The focus up to now has been on the first two areas, but as more experience is gained in live schemes, I believe, the true value of the data being collected can be realised. It is sometimes claimed that the difficulties of business cases dogs the potential success or even starting schemes, and whatever the truth, the value of a range of data presented in coherent and usable forms to all of those responsible or working in a scheme is of immense value. Making services to fit the needs and travel patterns of passengers is of high importance.

In any complex project the need for a single point of not just responsibility but also accountability is critical. Fragmentation in these can lead, at best, to lengthy decision cycles and, at worst, to confusion and loss of focus in delivering the project. The interest by companies like LogicaCMG and other system integrators in this market is partly because of their track record in delivering major projects and programmes in other industries. As schemes become more complex and bigger, it is essential to have a company doing the implementation, who has the experience and strength in depth to see the project through not just initial implementation but through the life of the scheme; I believe this requires more than the traditional equipment suppliers capabilities.

The role of the back office in an ITSO world is absolutely pivotal to the success and continued secure running of the scheme(s). ITSO is more than a standard: it is a way of working that provides the means for individual schemes to operate in conjunction with others without having to rebuild each time. The successful back office provides the glue and focus that will enable schemes to have continuity over time and allow the demonstration of the business value not just once but hopefully over a continued period of years.

A look into the future

Dr. Andreas Schauer, Geisecke & Devrient

The future of contactless cards is looking very bright. Overview of the market shows that there will be a complete aggregate compound rate (CAGR) of 40% over the next couple of years (Frost&Sullivan, 2006). Today the main driver for the employment of contactless cards is the public transport sector. This is true mainly in Asia, but also in Europe and the US. In total public transport makes up to 75% of all contactless cards sold worldwide.

But this will change, especially if government applications will come up and catch about 50% marketshare in 2010. The use of contactless cards in transport will go down to one third of the total available market.

One of the reasons might be the emergence of new technologies, especially the NFC technology. Developed by Philips and Sony, NFC can emulate a card or a reader and also supports a peer-to-peer mode. It can be used in the communication of electronic devices, like TVs and set top boxes, but also in mobile phones. This could be of special interest for transport operators, because they do not have to buy contactless cards any longer. Instead the mobile phone of their customers (equipped with NFC) can be used. There are many big advantages for all involved parties: convenience, ease of use, less money handling, etc.

The first pilots started in 2005 and the results are very promising.

Calypso & ITSO, the winning combination

Francis Sykes, RATP, CNA

Are ITSO and Calypso friends or foes, competitors or complementary? These questions are often brought up during conferences. This paper will explain what Calypso covers, how it relates to ITSO and how, far from being a threat to ITSO, Calypso provides the perfect match, addressing the needs of authorities and transport operators, including multi-application.

A brief history

Back in the 1990s, some transport operators felt that the time was ripe to move to new ticketing systems. Fraud and forgery were costing a lot, even though few operators were prepared to admit it. Magnetic or paper-based systems were too limited and costly. Microprocessor-based contactless ticketing emerged as the choice solution.

Calypso started as a EU-funded project. Transport operators from 5 countries (Belgium, France, Germany, Italy and Portugal) got together to design an open standard that would meet their requirements. The standard needed indeed to be open and versatile, as the needs and the environments differed tremendously from one operator to another, from a small network operating buses to interoperable multimodal systems using buses, metros, trains, trams, boats... Another requirement was to ensure the durability of ticketing systems. To achieve this, the members of the Calypso project defined specifications that could be implemented by suppliers. By ensuring that suppliers implemented products according to the specifications, transport operators could choose from a variety of suppliers and did not need to contract with one single supplier. It also meant that extensions to their system were opened to competition.

Calypso deliberately focused on the card to terminal interface. It allowed operators to choose the rest, namely the computer systems.

Calypso is ITSO-compliant

Back in 2003, talks started between Calypso Networks Association and ITSO. The compatibility between the two standards (Calypso cards and ITSO system) was established that year, and it was decided to collaborate to open the choice of ITSO-compatible cards to Calypso. A contract was signed in 2004, and the ISAM specifications were updated to support Calypso cards. Calypso cards are supported by all commercially available and installed ISAMs. In 2005, tests successfully took place to guarantee the compatibility based on actual cards. As this article is being written, Calypso cards are being formally certified by ITSO. This is the final step before the use of Calypso cards in actual ITSO implementations.

Calypso is proven

As stated previously, Calypso started as an EU-funded project back in the mid to late 1990s. This gave rise to the implementation of Calypso cards based on a mask known as CD97. The number of companies providing cards and terminals increases all the time. Currently this represents more than 30 companies from over 10 countries. For authorities and operators, Calypso means choice and an end to supplier monopolies. More than 40 cities or regions from over 11 different countries have implemented Calypso on their networks. These are found mostly in Europe but also in the Americas. The state of Israel chose Calypso as THE national standard for ticketing. The number of Calypso microprocessor cards currently deployed is well in excess of 15 million. Some cards are based on masks that were funded by operators, others are based on masks belonging to suppliers.

Calypso standards-based

Back in the early days of "inventing Calypso" to suit their needs, operators were actually instrumental in designing the technology; including defining what became ISO 14443 type B. This is clear sign that, from the beginning, Calypso has been committed to



standards. Now that the type of contactless transmission no longer has a strong technological impact on the complexity of microprocessor cards, the next Calypso specifications will support type A as well as type B. Calypso also refers to ISO 7816 and EN 1545.

Calypso supports multi-application

The EU-funded Calypso project was visionary when it put multi-application at the heart of the project. Many Calypso cards support multi-application. Those cards implement an architecture that defines "water-tight" zones, each controlled by a different set of keys. This means that one same card can be used by several "operators" (transport, car park, sports facilities, libraries, schools etc.) that do not need to share keys. Current implementations include combined park&ride + cards + museum cards in Portugal.

Calypso is open

Calypso is not the property of one single supplier. Actually, Calypso is available to all suppliers on a non-discriminatory basis. Calypso is about interface specifications. By specifying this interface, Calypso makes it possible to change cards without redefining the system. The evolutions of those specifications are controlled by its users through CNA. Recent evolutions include the support for Java, openness to support remote downloads on Calypso-enabled mobile phones...

So, Calypso is ITSO-compliant, Calypso is proven, Calypso is real, Calypso is designed by operators for operators, Calypso is standards-based, Calypso is future-proof, Calypso supports multi-application and finally Calypso is open. Try it now!



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