



ITSO

An Introduction





ITSO

- History of ITSO
- ITSO the Specification
- ITSO the Environment
- ITSO the Organisation





What is ITSO?

Started in 1998 as a membership organisation, the
Integrated Transport Smartcard Organisation

ITSO has set about creating a common specification at
both the card and application level, to enable the use
of interoperable smart cards in transport.





Who is ITSO?

ITSO is a:

- non-profit sharing organisation
- owned by its members including
 - bus operators,
 - train companies,
 - suppliers to the industry,
 - regional and local authorities,
- supported by the **UK Department for Transport.**

Department for
Transport





ITSO – its aims

ITSO is there to:

- enable the use of smart cards
- allow transport operators to ‘mix and match’ smart cards,
- use a range of point of sale and back office systems
- hold Entitlement, Value and Tickets securely
- encourage genuine interoperability.

But ITSO is wider than just transport – it will enable Citizen Cards





What Does ITSO Do?

ITSO's *objective* is:

- to facilitate the development of an interoperable smart environment by developing, and then operating and managing a specification for an interoperable smart media environment.



What Does ITSO Do?

The ITSO specification covers:

- cards
- points-of-sale/service
- back office systems
- data formats and transfer protocols,

as well as an end-to-end security architecture ...





What Does ITSO Do?

ITSO :

- provides the environment/infrastructure that enables the deployment of ITSO-compliant schemes, by its members.
- encourages the use of these specifications throughout the UK and internationally, both for transport and related applications.





The ITSO Environment

The environment consists of;

- The Specification
- The Security or Trust Device
- The Security Domain
- The method for showing compliance
- The 'Business Rules' and Registrar



ISAM

Security
Management

The
'CLUB'

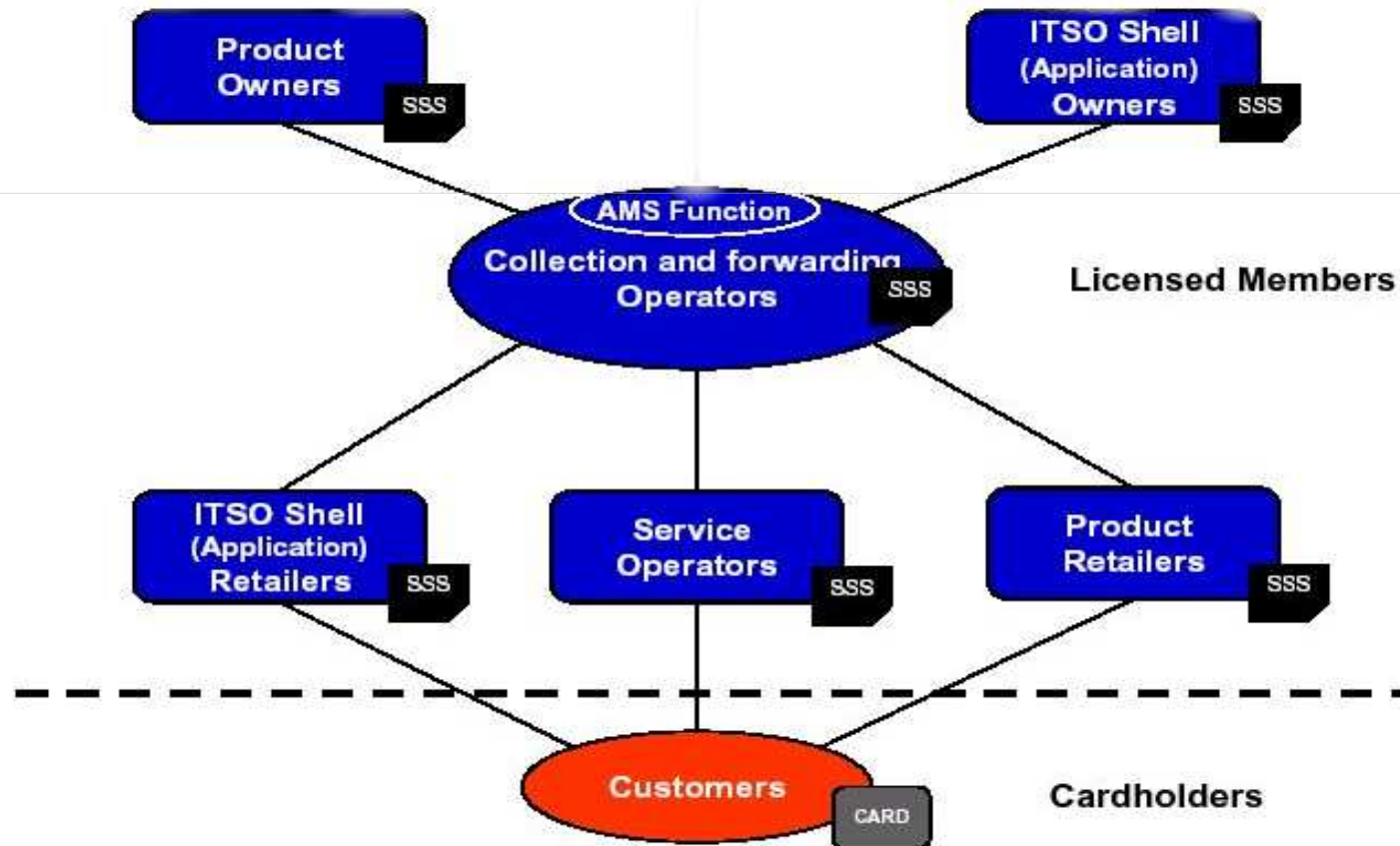
ITSOTM

Certification

Specification



The ITSO Environment





ITSO Standards

ITSO supports the following Standards:

- Media: ISO/IEC 7816 and 14443
- Architecture: ISO/DIS 24014-1 IFM
- Data Elements: EN 1545 IOPTA





The ITSO Specification

The ITSO Specification has the following parts:

- Part 0: General Introduction
- Part 1: Terminology, References
- Part 2: Customer Media (CM)
- Part 3: Point of Service Terminals (POSTs)
- Part 4: Host Operator or Processing Systems (HOPS) and Asset Management (AMS)
- Part 5: Data Record Definitions on Customer Media
- Part 6: Message Data
- Part 7: Security Sub-system
- Part 8: Security Management System
- Part 9: Communications
- Part 10: Customer Media Types

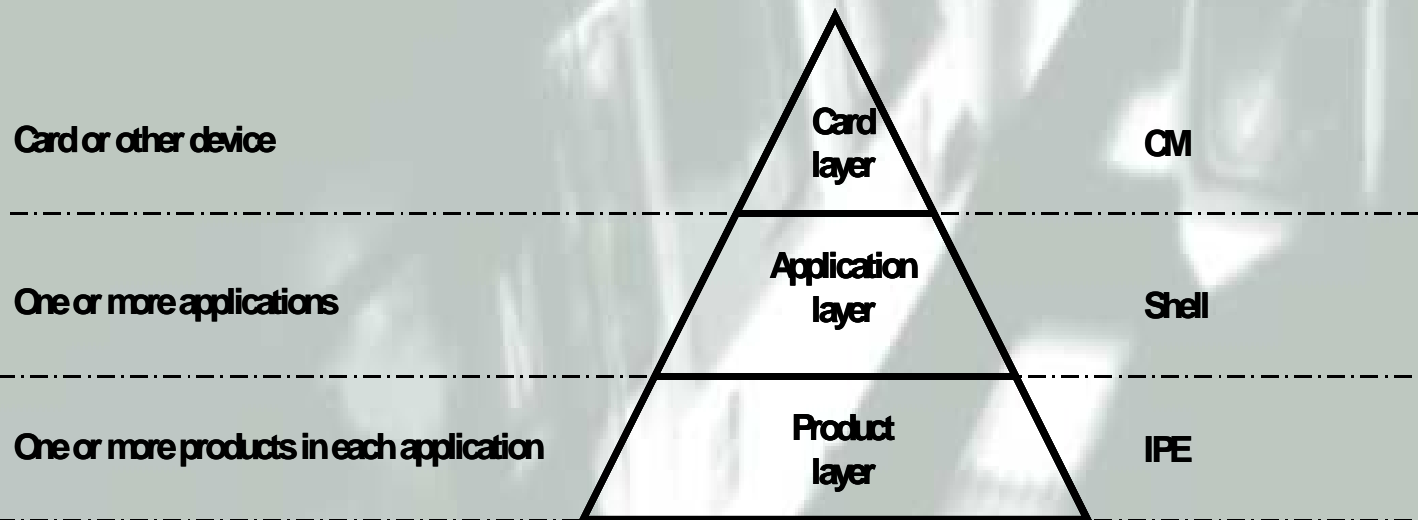


ITSO Data Structures

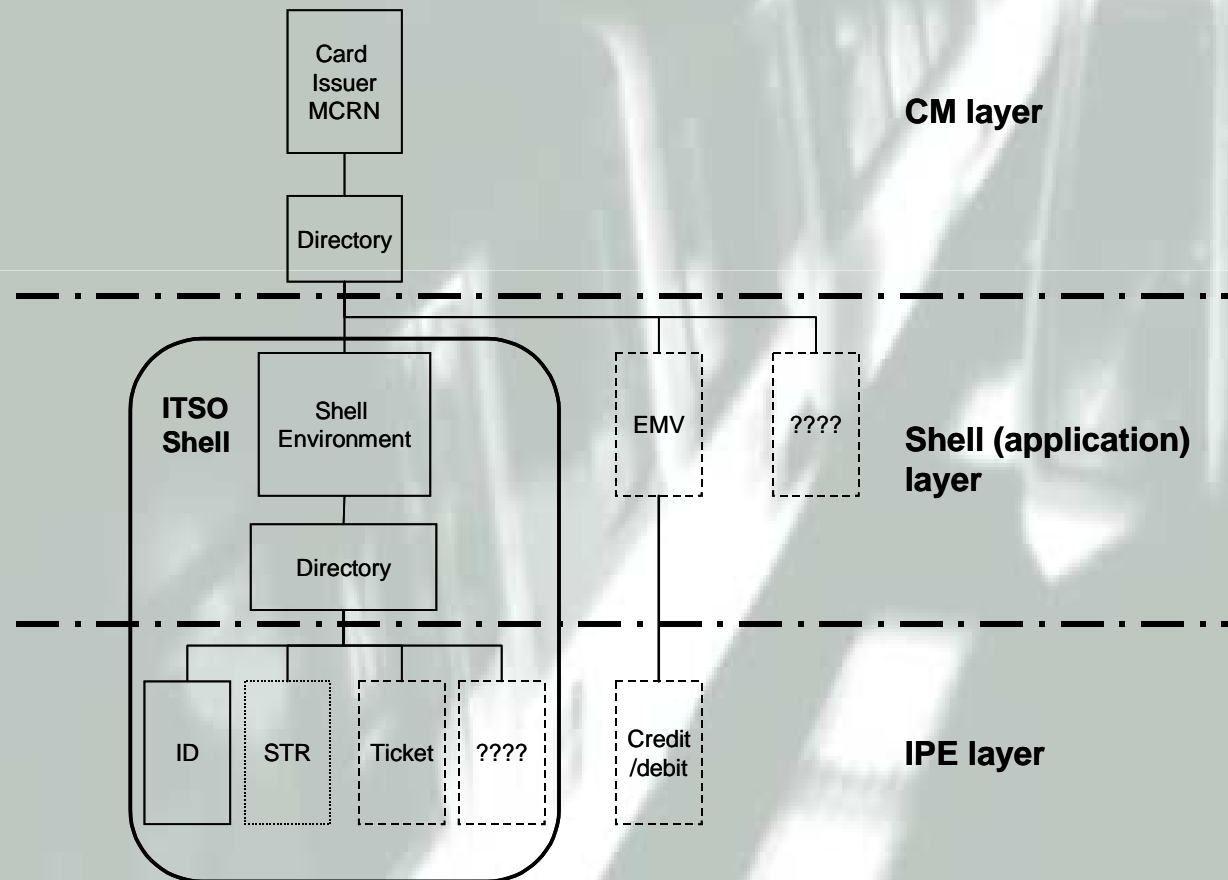
The ITSO relationship between media, shell, application and product instance:

Generic description

ITSO equivalent



ITSO Data Structures (2)

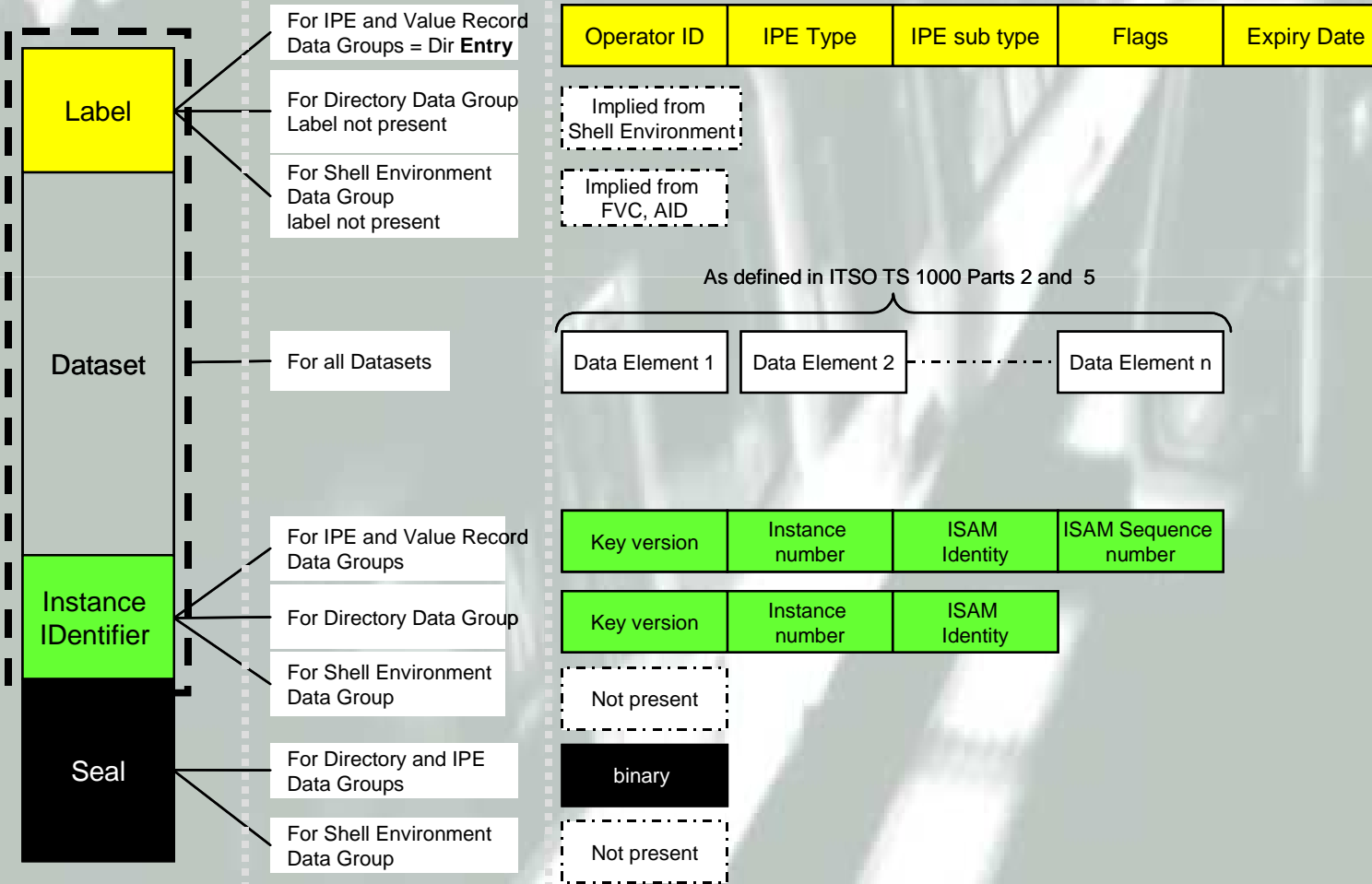




Data Structures

Data Groups

Data Elements





The ITSO Customer Media

ITSO supports the following Customer Media:

- CMD1: Mifare® standard 1K
- CMD2: Generic Micro-processor
- CMD3: Mifare® standard 4K
- CMD4: Mifare® ultra light
- CMD5: Innovision Jewel – 0301/70
- CMD6: T1L /Transys Oyster®
- CMD7: Mifare® DESfire
- CMD8: Calypso





The ITSO SAM (ISAM)

ITSO has an ITSO Secure Application Module (ISAM), which resides in all ITSO-compliant point-of-sale equipment and back offices.



ISAM





ISAM Functionality

The ITSO Secure Application Module:

- Provides secure key distribution and storage for product management and usage
- Allows operators to issue/accept products from a multitude of providers and retailers.
- Certifies and validates card & transaction data using 1536 bit encryption.
- Provides 4MB of secure data storage.
- Provides an environment where all data transactions reach the intended recipient without being 'lost' or tampered.





The ITSO Products

ITSO supports the following Product Types:

- TYP0: Private Application
- TYP2: Stored Value
- TYP3,17: Loyalty
- TYP4,5: Charge to Account
- TYP14,16: Entitlement and ID
- TYP22,23,24: Pre-defined Tickets
- TYP25: Voucher
- TYP26: Tolling
- TYP27,28,29: Space-saving Tickets
- TYP34: Transient Ticket





The Principle of ITSO Interoperability

Any ITSO compliant media (contactless smart card or other) can be used in any participating sales location to “load” ITSO products available from that sales location, for use in the product’s (product owner’s) acceptance network.

- Transparency for the user
- Users can use their “media” anywhere in the environment



The Principles of ITSO Interoperability (2)

- ITSO Products are still usable only where they are sold and accepted. (The Product “Owner” decides.)
- ITSO interoperability *does not* mean that all products must be sold everywhere.
- ITSO interoperability *does not* mean that all products must be accepted everywhere.
- ITSO Interoperability *does* mean that all products that are interoperable are accepted interoperably.



The Requirements for an ITSO Scheme

- An ITSO License (and membership)
- ITSO Customer Media (1 or more)
- ITSO POSTs (including Personalisation)
- ITSO Security - ISAMs for each device
- Back Office (ITSO HOPS)
- Access to an ITSO AMS (to manage ISAMs)

...and ITSO provides the Security Management



Who will benefit from ITSO?





Who will benefit from ITSO?

Public Transport Operators will get the same benefits while:

- reducing the need to handle cash,
- lowering the potential for fraud,
- participating in interoperable ticketing schemes,
- using the user data to market more specifically
- developing their own smart card tickets

And will no longer be tied to a particular supplier.

They will be able to “mix and match” elements- cards, software and equipment from different suppliers.





Who else could benefit from ITSO?

The ITSO 'industry standard' will make it easy for local government to introduce:

- Citizen cards for entitlement: libraries, leisure, mobility and social inclusion
- electronic purses (i.e. electronic 'tokens') to pay for fares, parking and other services,
- loyalty and reward schemes for regular users and to encourage green policies, or cap expenditure



The ITSO Organisation

- A Board made up of member representatives
- An independently chaired Security Committee
- An Executive:
 - General Manager
 - Operations Manager
 - Technical Manager
 - Registrar
 - Security Manager
 - Compliance Manager
 - Marketing Manager



For More Information

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or visit **www.itso.org.uk**

