

Play Your Cards Right: Progress towards a choice of smart cards for concessions and commercial tickets in the 'live' environment on bus

ITSO Card Alternatives Conference

Jeremy Meal | 12 March 2009



Agenda

MVA Consultancy

- Track Record (Projects and sample of clients)
- Typical Project Contents

ITSO Progress Highlights

- NoWcard – illustrates the ITSO incremental steps forward
- Other schemes
- Configurability

ITSO Smart Cards

- Concession Entitlements, STR, Period Passes, Carnets
- The Card types – normal cards (and additional 'low-cost' for commercial tickets)
- Interoperability – the 'Martini' principle

Demos – over lunch

MVA Consultancy - Track Record

World Class Fares & Ticketing Design/Implementation

- Singapore, Melbourne, DfT CPICC/OID structure & ENCTS ITSO TNs

Concessions (Reimbursement/Payments) Advice

- PTEs, Scotland Regional, Scotland National, Wales, Operators

Specifications/Migrations

- ITSO, London Routemap, CEN – IOPTA (EN1545 & EN15320)

ITSO Projects (and Legacy)

- NoWcard, Southampton, Yorcard, Centro, GMPTE, Nexus, Scotland, Wales, DfT ENCTS, Cambridge, TfL, (Northern Ireland, Republic of Ireland)

Rail Advice – ATOC, Chiltern, First TPE, First ScotRail

Conferences – Regular updates on our *implementation* experience

MVA Consultancy - Typical Project Contents

Concessions Advice

- reimbursement & delivery via smart

Fares & Ticketing Advice

- Fares policy and structures
- (not just smart cards)



"Beginning to End" Smart Projects

- Policy setting
- Business case
- Funding
- Governance
- Specification
- Procurement
- Implementation
- Testing
- Critical friend

Other Activities

- Technical specifications
- Testing – cards, ETM software, Card POSTs
- Data – analysis from first principles

ITSO Progress Highlights

MVA Value Add

- Understand link between fares/ticketing and smart cards
- Delivered schemes on the ground
- Configurability!



NoWcard Pilots/Pioneering ITSO

- 2004 Blazefield - CMD1 & CMD2 in 2 overlapping schemes (NoWcard/GMPTE rules)
- 2006 Blackpool smart live
- 2007 Rossendale smart live with configuration editor (Editor used for DfT ENCTS card tests)
- 2008 ENCTS cards and STR tests CMD3
- 2008 NFC ITSO phone trial
- 2008 Blackpool ENCTS smart live

Currently live (MVA assisted)

- NoWcard 1,700 buses smart live
- Scotland 2,850 buses smart live
- Wales – South Wales small operators [IBT, Harris, SEWTA] 100+ buses live
- GMPTE – Arriva Bolton
- Others during 2009 (eg Centro)

Configurability, configurability, configurability

Stating the obvious 'ingredients' but.....

- If smart isn't as easy to use as paper, operators won't go smart!
- Linked to secure-enablement of products – local validity (time & geography)
- Supports operational variations – ticket/no-ticket, auto-transact or driver intervention, data-quality trade-offs versus operational issues (boarding times)

History of the Workbench testing

- Parkeon ETM - DfT English National Concessions testing
- MVA trailblazing additional 'commercial' product-type proving
- NoWcard, Scotland, Wales, GMPTE, Cambridge (& Centro next generation) – allows change of configuration within 20 minutes
- Also working with other suppliers on Configuration software – eg Almex, ERG

Tests have majored on 'Bread and Butter' UK ticketing

- Concession 'Identity' and Entitlement (personalised cards)
- Stored Travel Rights (STR) – ITSO Stored Value
- Period Passes – 'Travelcards'
- Multi-journey - Carnets (area/zonal, free-transfers, coupons)

Example ITSO Smart Card Product 'tests'

Concessions

- CMD1 (pre-ENCTS, some ENCTS), CMD2 (Aberdeen, Bolton), CMD3 (ENCTS) – for existing rolled out schemes
- CMD7 MIFARE® DESfire, CMD8 Calypso – DfT ENCTS tests

Stored Travel Rights

- ITSO 'stored value' on CMD3
- Specification being updated to support longer period 'fares capping' [week, month etc]

Period Passes and Carnets

- Standard cards [as concessions]
- MIFARE® Ultralite and Innovision Jewel – small memory model or low-cost cards
- New products – carnet of day tickets, 'coupon-denominated' carnets
- Carnets - *a new dawn?*

Interoperability

- 'Martini' principle (anytime, anywhere, any place)

CMD2 – Generic Microprocessor

Legacy ITSO cards used in Aberdeen and Bolton projects

Awaits 'faster' CMD2 implementations to satisfy ITSO speed requirements

A potential natural choice for schemes interoperating with non-transport applications evidenced by real examples

Rossendale
 Drv 800 Route 9
 Bus 0 Jrny 1234

 TICKET NOT VALID FOR ANY TRAVEL

 Card Status
 Tue, 10 Mar 09 14:24
 Card: 6336899999999128
 Card Exp: 01 Dec 16
 Product 1 of 2
 NATIONAL STR
 Balance: £0.00
 TYP: 2 PTYP: 0
 OID: 8000 CPICC:n/a
 ENT: n/a IC1ss:n/a
 RND F:n/a RND V: n/a
 Product 2 of 2
 No Product Name
 Balance: £35.10
 TYP: 2 PTYP: 0
 OID: 125 CPICC:n/a
 ENT: n/a IC1ss:n/a
 RND F:n/a RND V: n/a

 TICKET NOT VALID FOR ANY TRAVEL

 E1143 M1620254 T10

OneScotland
 Test Card MVA
 Over60 Travel
 6335 6000 4301 0801
 Valid to - 30 JUN 2011
 ABERDEEN CITY COUNCIL
 Rossendale
 Drv 800 Route 9
 Bus 0 Jrny 1234

 TICKET NOT VALID FOR ANY TRAVEL

 Card Status
 Tue, 10 Mar 09 14:24
 Card: 6335600043010801
 Card Exp: 01 Dec 16
 Product 1 of 2
 NATIONAL STR
 Balance: £0.00
 TYP: 2 PTYP: 0
 OID: 8000 CPICC:n/a
 ENT: n/a IC1ss:n/a
 RND F:n/a RND V: n/a
 Product 2 of 2
 No Product Name
 Expiry: 30 Jun 11
 TYP: 16 PTYP: 0
 OID: 130 CPICC:512
 ENT: 14 IC1ss:4
 RND F:0 RND V: 0

 TICKET NOT VALID FOR ANY TRAVEL

 E1143 M1620254 T10

BSmart!
 Test Card 3
 633689 99999999 12
 210 TEST
 BSmart! GMPTE sQuid
 Rossendale
 Drv 800 Route 9
 Bus 0 Jrny 1234

 TICKET NOT VALID FOR ANY TRAVEL

 Card Status
 Tue, 10 Mar 09 14:24
 Card: 6336899999999128
 Card Exp: 01 Dec 16
 Product 1 of 2
 NATIONAL STR
 Balance: £0.00
 TYP: 2 PTYP: 0
 OID: 8000 CPICC:n/a
 ENT: n/a IC1ss:n/a
 RND F:n/a RND V: n/a
 Product 2 of 2
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 Expiry: 30 Jun 11
 TYP: 16 PTYP: 0
 OID: 130 CPICC:512
 ENT: 14 IC1ss:4
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 TICKET NOT VALID FOR ANY TRAVEL

 E1143 M1620254 T10

CMD7 - MIFARE® DESfire & CMD8 - Calypso



Tested as part of the DfT ENCTS preparations

Desfire (CMD7) used for ISL test cards via ESP/Systex, since also coded on Unicard equipment and tested with Parkeon ETM with 'live coding'

Calypso (CMD8) – tested with live NoWcard product after issue sorting out Calypso 'keys'

Sources of bulk supply of Calypso cards with usable keys needs resolving (so that no Calypso license is needed for ITSO use)

New products – ITSO Stored travel rights

A transport stored-value payment card

- Prototyped pre-ITSO by Cheshire CC
- Trialled and due to go live in NoWcard in Autumn 2009
- Allows local authorities to offer a joined-up inter-available card, but Operators retain commercial freedom to control and set fares
- Shows how STR could be added to a concession when not valid for peak fare payment
- Top-up and usage on bus
- Auto-top up after web payment probably to be trialled next
- Needs FSA approval if interoperable [rather than a closed scheme like TfL Oyster]



New Products – ITSO Period Pass

3 forms of period pass for different combinations of days e.g. 1, 3, 7, 28 or up to 365 [or more!]:

- on a re-usable card, which can be topped up with added days
- for a single entity use on a cheaper low-cost card [e.g. for tourists; ie NO top-up of days]
- as above, but as a 'carnet of stored passes' – e.g. 3 days from 5, or 5 from 7 for tourists or shift workers and occasional travellers

<p>NOT VALID FOR TRAVEL !!TRAINING SYSTEM!! Drv 123 Route A35 Bus 0 Jrny 1234 Ticket No 75 Centro Period Pass Conc Sgl Zero Fare Mon, 12 Jan 09 11:07 Card:633597010799991324 Expiry: 26 Sep 09 !! TRAINING SYSTEM !! TICKET NOT VALID FOR ANY TRAVEL !! TRAINING SYSTEM !! E:143 M:633528 T:0</p>	<p>HARRY-O-TRANSPORT Drv 123 Route A35 Bus 0 Jrny 1234 Ticket No 76 ***** TICKET NOT VALID FOR ANY TRAVEL ***** Period Pass Recharge £15.00 Mon, 12 Jan 09 11:07 Card:633597010799991324 Org Expiry : 26 Sep 09 New Expiry : 03 Oct 09 Balance: £1.55 ***** TICKET NOT VALID FOR ANY TRAVEL ***** E:143 M:633528 T:0</p>	<p>HARRY-O-TRANSPORT Drv 123 Route A35 Bus 0 Jrny 1234 ***** TICKET NOT VALID FOR ANY TRAVEL ***** Card Status Mon, 12 Jan 09 11:07 Card:633597010799991324 Card Exp: 12 Dec 09 Product 1 of 3 West Midland STR Balance: £1.55 TYP: 2 PTYP: 1 OID: 107 CPICC:n/a ENT: n/a IC1ss:n/a RND Fin/a RND V: n/a Product 2 of 3 CENTRO Pensioner Expiry: 31 Dec 09 TYP: 16 PTYP: 30 OID: 107 CPICC:29120 ENT: 2 IC1ss:4 RND F:0 RND V: 0 Product 3 of 3 Centro Period Pass Expiry: 03 Oct 09 TYP: 22 PTYP: 3 OID: 107 CPICC:29120 ENT: n/a IC1ss:n/a RND Fin/a RND V: n/a ***** TICKET NOT VALID FOR ANY TRAVEL</p>
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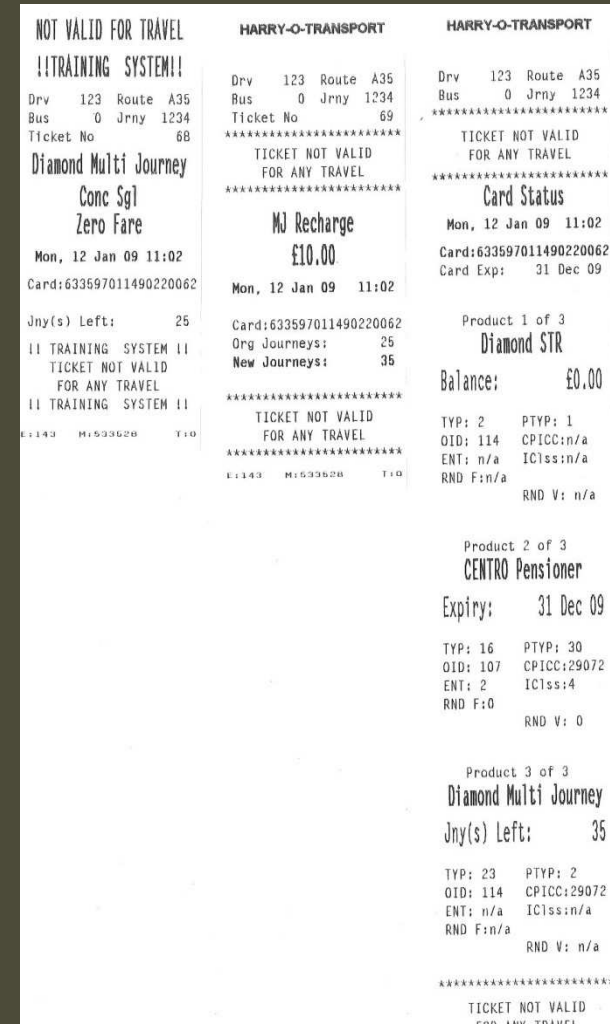
New Products – ITSO Carnets

3 Forms of carnet tickets for ride-based journeys

- On a re-usable card, which can be topped up with added journeys of a prescribed area-validity or journey-length
- On a single entity use on a cheaper low-cost card [e.g. for tourists]
- As above, but as a carnet denominated in 'coupons', which allows a single carnet to be used for journeys of variable length

Lesson from history:-

- Bus Commercial carnets withdrawn nationally in 1986 due to fraud [re-use of stamped/validated tickets]
- *smart carnets overcome these issues*



Interoperability – ITSO ‘Martini’ principle!

Smart card benefits of interoperability

- examples of shared infrastructure reducing costs
- Seamless ticketing – e.g. addition of a peak entitlement to an existing off-peak concessionary card
- Common and extendable on-bus configuration in the hands of the bus operator
- Reserved for future use – e.g. National STR scheme and the remaining card space still available for use
- Card potentially partitioned for transport and non-transport use (eg ENCTS 4k cards split 2k/2k - DfT’s recommendation)

Physical Card Data:
 HARRY-O-TRANSPORT
 Drv 123 Route A35
 Bus 0 Jrny 1234
 Expiry date: 31 MAR 2013
 Matthew
 633597 0100 9999 0117
 Concessionary travel funded by HM Government with your local authority

Data Structure:

Product	Card Status	Balance	Expiry	Other Data
Product 1 of 3	TICKET NOT VALID FOR ANY TRAVEL	£0.00	31 Mar 13	TYP: 2, PTPY: 0, OID: 8000, CPICC: n/a, ENT: n/a, IC1ss: n/a, RND F: n/a, RND V: n/a
Product 2 of 3	Period Pass Recharge	£5.00	26 Sep 09	TYP: 16, PTPY: 29, OID: 8220, CPICC: 12624, ENT: 2, IC1ss: 15, RND F: 0, RND V: 0
Product 3 of 3	nNetwork Age/Disabled	£0.00	26 Sep 09	TYP: 22, PTPY: 1, OID: 107, CPICC: 1100, ENT: n/a, IC1ss: n/a, RND F: n/a, RND V: n/a

Visit us on our stand!

See ITSO cards working on an ETM – concessions and commercial smart cards (courtesy of the NoWcard project on a Parkeon Wayfarer TGX 150 ETM configured by MVA)

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