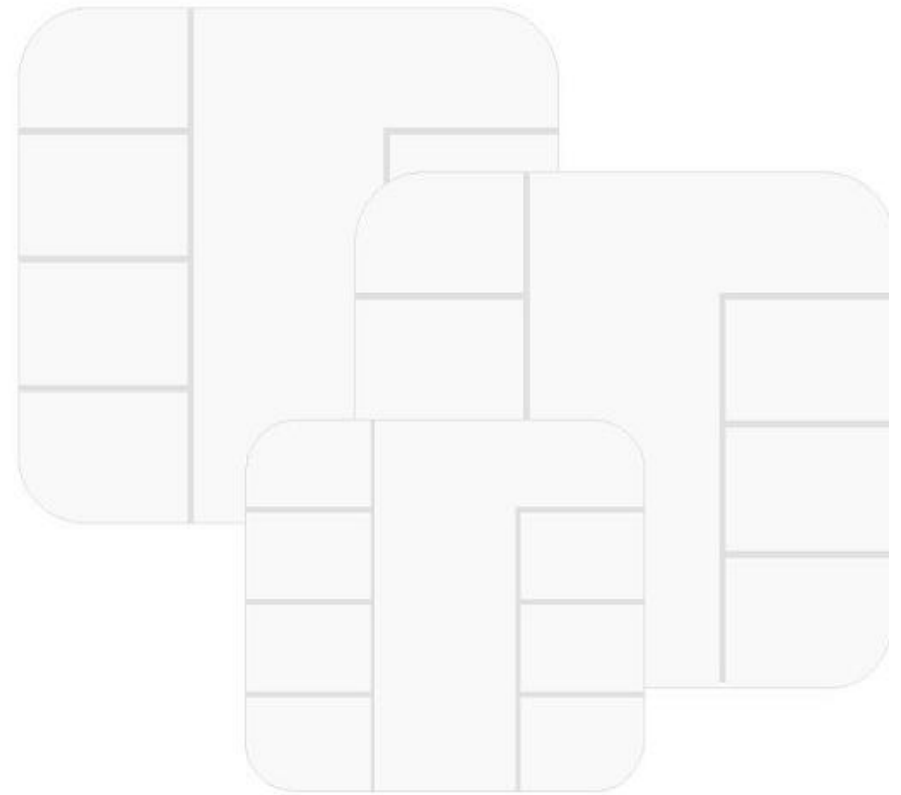


ITSO Customer Media Alternatives Conference

- Ecebs
- Background
- CMD2 definition
- Myths versus reality
- Multiple Applications
- Summary



Ecebs- who are we?

- Experts in Smartcard based projects
- Advanced technology company- 7 patents, HCC
- Founded 2000, profitable by 2003, Public Floatation in 2005
- Acquired by The Trainline.com Summer 2007
- ITSO supplier since 2001



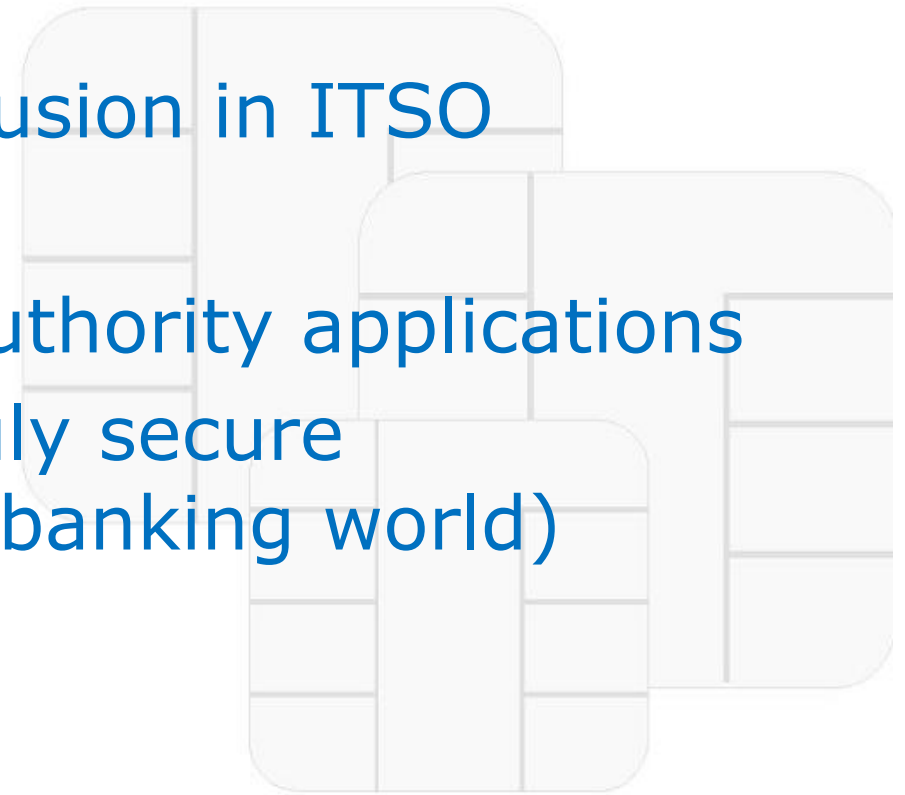
Ecebs and ITS0



- **ITS0 SAM**
- **ITS0 SMS**
- **ITS0 AMS HOPS**
- **ITS0 Consultancy**
- **ITS0 Cards**
- **Most ITS0 certificates**

Background - Mifare

- Is a 'memory card'
- Initial debate over inclusion in ITSO
- Pragmatism triumphed
- Used for other Local Authority applications
- Never been used in truly secure environment (e.g. the banking world)
- Publicly hacked 2008



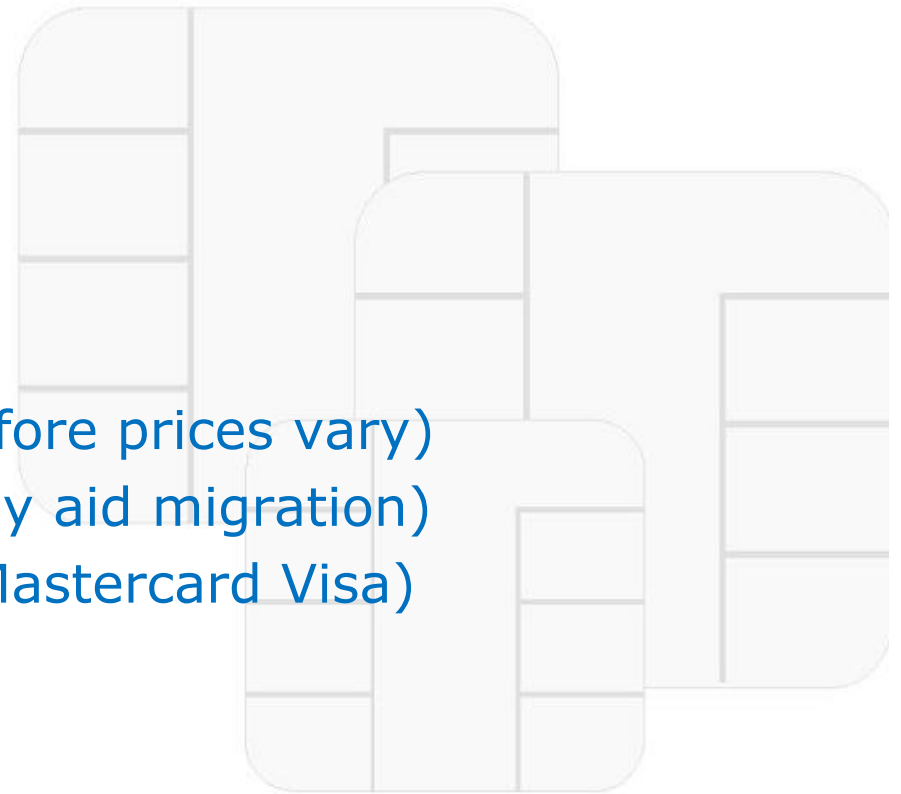
CMD2 – generic microprocessor

- Is a 'microprocessor card'
- 'generic' means just that – any ISO standard card with a microprocessor that can perform the functions required to meet the ITSO specification for CMD2
- Has an 'operating system'
- Typical examples
 - Javacard
 - Multos
 - Proprietary



CMD2 – generic microprocessor

- Javacard buzzwords
 - Global Platform (VISA)
 - JCOP
 - JCOP 31
 - JCOP 41 (USB)
 - Memory sizes vary (therefore prices vary)
 - Has Mifare emulation (may aid migration)
 - Includes EMV (Europay Mastercard Visa)

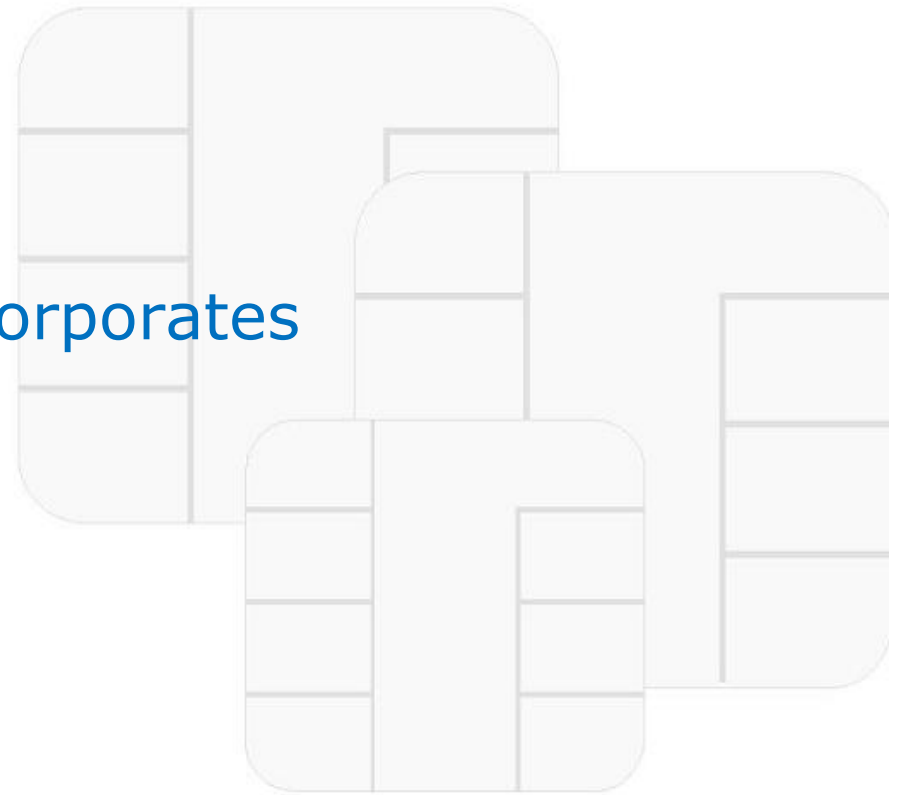


CMD2 – generic microprocessor

PERCEPTIONS	REALITY
Being phased out of ITSO (new CMD to replace it)	No plans to replace – only slow ones not allowed in future
Too expensive	Can be cost-effective - (a) sharing costs (b) new value ones on the way
Too slow	New certification criteria include performance

CMD2 – generic microprocessor

- The beauty of ITS0
- Open system
- Multiple suppliers
 - E.g. Ecebs approach incorporates
 - Desfire
 - Calypso
 - JCOP
 - Proprietary



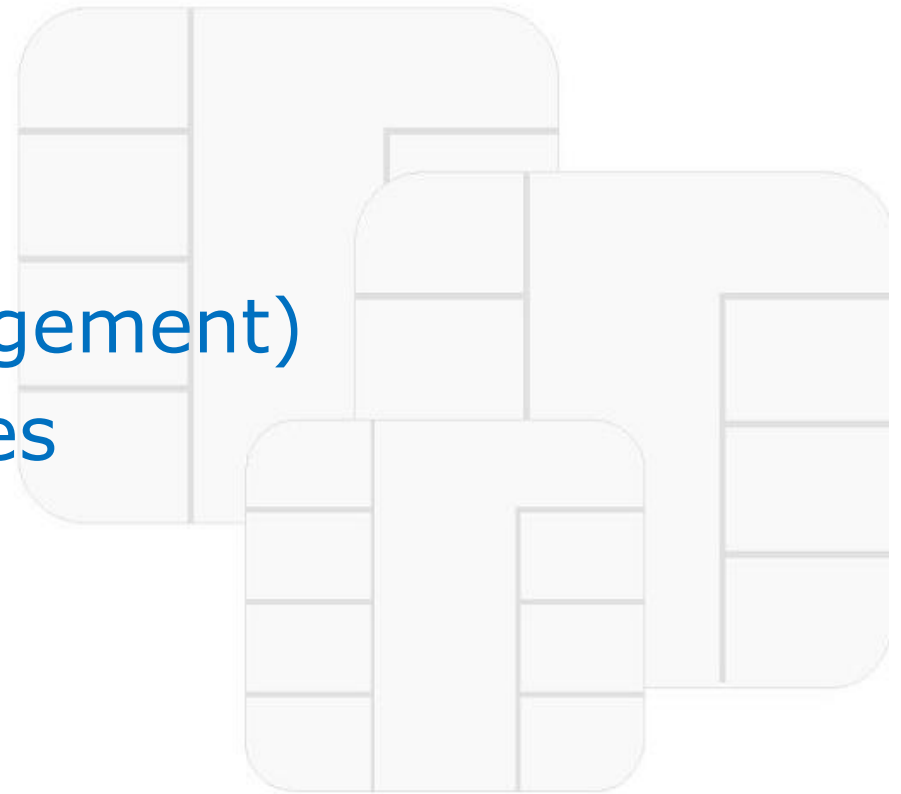
English National Concessionary Travel Scheme – opportunity

- Why a concessionary travel pass when you could deliver a citizen card?
 - Deliver entitlements securely
 - Processor cards
 - Deliver tickets / entitlements remotely
 - ID management
 - Shared services



Opportunities

- ID management
- Citizen Accounts
- Health
- Ticketing (token management)
- NFC phones and devices
- Multi-application cards



CMD2 – Summary

- ITSO - Open system
- Highly secure
- Multiple suppliers – price competition
- Multiple Applications – future proofing
- 'horses for courses'
- Low cost versions becoming available
- Check the exhibition

