

Coping with Ticketing and Payment Artefact Proliferation

Abstract

The evolution of technologies and artefacts that allow people to carry and present value in the form of money or tickets has been accelerating since the end of trade by barter. No sooner had the contactless smartcard become commercially viable than other forms of ticket and money conveyance appeared on the scene. Some observers see the newer technologies and methods as competitors to smartcards but history suggests otherwise.

Successful technologies, rather than displacing existing methods, have typically been added to what went before. Whilst a few may have fallen by the wayside and more are likely to do so in the future, the majority continue to be used. It is reasonable therefore to predict that rather than displace smartcards, new methods using mobile phones, devices with Near Field Communication capability and Radio Frequency ID devices will supplement existing payment methods and technologies. The challenge is to integrate the methods from the outset so as to maximise the probability of commercial success for those which find wide user acceptance and to recognise the strengths and weaknesses of each method.

The work of standards bodies includes the extension of ISO14443 to encompass devices other than cards and moves by the mobile phone industry to facilitate interoperability through the Near Field Communications Forum of the NFC standard ISO 18902.

No method and its enabling technology will succeed without user acceptance and that includes customers, service operators, ticket retailers, settling and clearing agencies, and not forgetting the FSA when it comes to electronic money and other financial services.

The needs of transport businesses and authorities should inform the detailed objectives of scheme implementation projects and should therefore be considered first.

Operations with multiple artefact types

Customers need information about how to identify where tickets and stored value may be loaded and used as well as understanding costs, what happens when things go wrong and how and where to get help. This information needs to be presented in jargon that becomes consistently familiar wherever travelling by public transport takes place.

Service operators should be able to configure products and equipment using a common format. Transaction data needs to be recorded to provide for cash reconciliation, ticket and stored value usage data analysis and for clearing and settlement in a way that does not over complicate the job.

The service operator must have confidence in the maintenance of system security and sufficient understanding of it to be able to carry out revenue protection activities.

Rules for dealing with exceptional circumstances like equipment and artefact failure could be the source of unnecessary friction with customers if they are different from place to place and from operator to operator.

Retailers have a need for comprehensive and comprehensible product information including the delivery media for each product type and sales data for reconciliation purposes.

Use of a common jargon would help understanding between retailer and customer and could remove obstacles to sales by electronic medium.

Settlers and clearers would be able to operate most efficiently through a common back office methodology and data dictionary.

Implementation Projects

Waiting for the publication of standards may be the safe way to approach multi-artefact systems but the wait could be a long one. On the other hand biting the bullet without due consideration could result in business case estimates being wide of the mark and ultimately prove to be very costly.

New ticketing and payment technologies are much more likely to find acceptance and be successful where informed steps have been taken to minimise the need for future re-engineering. Detailed requirements that allow for the introduction of new ticketing and e-money artefacts and methods, for innovative ticket products and fare payment schemes and that foresee the evolution of stored value and e-money can inform technical requirement specifications and operating procedures.

Technical requirement specifications can include facilities to introduce additional artefacts, methods, ticket types, fare payment and e-money schemes where they are built upon wide ranging consideration and knowledge of emerging technologies, together with a detailed knowledge of the technical and human fare payment and ticketing needs.

Future non-recurring and operating costs will more likely be minimised by ensuring that what can be common between technologies and methods is common, and that the scope of what needs to be different is fully understood so that complexity is, as far as possible, obviated.

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