

Public transport in the UK: who is responsible for what?

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***** Important: please see the update in the Appendix *****

This is the third in a series of now 6 short papers.

This note is about possibly using a UK bank debit or credit card (or perhaps a foreign issued credit card) as 'authority to travel' (Card As Authority To Travel – CAATT) on the UK heavy rail network, with financial settlement for the journey happening later. Thus the passenger will not have a ticket as such. Importantly, this is not a recommendation for rolling out Jeremy Acklam's Multipass all across the network – but that method may well have a significant place in the constellation of ticketing and journey management methods for passengers on UK heavy rail.

This note has been produced because there has been recent publicity, including the 12th January speech by Transport Minister Andrew Jones MP¹, for a programme for all passenger journeys by bus and rail in the UK to be 'smart enabled' by 2022. While it is well known that the use of smart media for payment for travel on buses and trams – pay at start of journey or beforehand – is already established in many areas of the UK, smart ticketing for journeys on the UK's heavy rail passenger network is a rarity.

From recent publicity, and from information received from correspondents, it became understood that a comprehensive smart ticketing and journey management method for rail services is being jointly developed by public transport operators and the UKCards Association². That association describes itself as the '*Trade association for the cards industry in the UK*' – a better description would be:

The trade association for the bank payment cards industry in the UK³

One correspondent reports that there are 3 payment and travel Models for public transport in that joint work by rail operators and the UKCards Association. In that UKCards' classification, this note is about Model 3:

¹ **Roll-out of smart ticketing will improve bus, rail and tram journeys for millions**
<https://www.gov.uk/government/news/roll-out-of-smart-ticketing-will-improve-bus-rail-and-tram-journeys-for-millions>

² <http://www.theukcardsassociation.org.uk/>

³ The author worked on the Mondex smart card based electronic money project, not part of the debit/credit card collaboration between the major UK banks.

Card as Authority to Travel (CAATT)

When the first version of this note was being prepared in early January, the detail of 'Model 3' was not yet known and indeed may not have been fully developed, but the basic principles appear to be clear:

- the would-be passenger turns up at the start of journey rail station, presents a valid bank *contactless interface* payment card at a platform gate and/or upon request, and takes the desired journey;
- when requested by the Train Manager, or by another authorised person, during the journey, the passenger presents the same card;
- at the end of the journey, the passenger uses the same card to leave the destination station via the platform gates;
- payment for the journey will be collected later from the passenger's nominated bank or credit card account.

That sounds like the method that we can now use for London Underground 'tube' services and a few London area heavy rail services: contactless bank debit card methodology used instead of Oyster cards.

The concept used throughout this note is that:

bankers do money

rail operators operate railways

and (of course) people travel

At this point the reader is referred to the earlier 2 papers in this series:

Public transport in the UK: almost always connected?

Public transport in the UK: *why not "always connected" ?*

Those 2 papers suggest a methodology that may help with implementation of Cards as Authority to Travel (CAATT) if and only if CAATT proves to be the way to go – here I remind the reader that public transport is multi-modal and needs to evolve to be seamless across travel modes.

If we are to have an effective and efficient implementation of the CAATT model on UK heavy rail, there have to be defined *clean* and *easy to use* interfaces between the three classes of 'persons' involved⁴:

the passenger

the heavy rail operator

⁴ I remember being told, a long time ago, that a business is a 'person' in law.

the banker

Those interfaces have to satisfy the passenger (including being efficient in operation) and be trusted by all three parties.

(‘clean’ in this context includes legally easy to understand and work with, and effective in use)

More generally, this note also attempts to support seamless *multi-modal* travel. Here is the example multi-modal journey used in the second paper in this series (‘Why not always connected’):

To get to ITSO’s OAG meetings⁵ I travel as follows:

Walk to a bus stop

Bus to Bristol Parkway rail station (that journey leg starts before 0900, so I have to pay because it is too early for ENCTS bus passes to be used in Bristol)

Train to Swindon (reserved seat)

Train to Didcot Parkway (reserved seat)

Train to Oxford

X5 Express bus to Milton Keynes (it is by then 0930 or later, so the ENCTS pass can be used)

The operating companies used during those journeys (identified by their trading names) are:

Bus: First Bristol (one of the group’s bus operating companies)

Train: First’s Great Western Trains

Express bus⁶ Stagecoach

For the writer on an OAG day, the journey to Milton Keynes involves:

a paid for ticket on the first (sic) bus (pay cash on boarding)⁷,

a paid for ticket on rail (bought online, collected at a rail station, used at the gates at both departure and arrival stations),

my ENCTS pass on the Express bus (present the pass to the ticket machine (ETM) on the bus).

The journey *home* at the end of the day uses the same route in reverse, but the detail is different:

(a) usually only two train journeys required,

(b) a train seat reservation is not needed, and

⁵ Operational Advisory Group, held monthly 11 times a year at ITSO Ltd’s offices in Milton Keynes.

⁶ Used to be called a Limited Stop bus service.

⁷ Can also purchase in advance with the rail ticket a same day ticket for the local Bristol bus network (PlusBus), but in that case I have to collect the coupon (a rail style mag stripe coupon) at a rail station before boarding the bus. Or could have all of the coupons delivered by Royal Mail. The PlusBus day ticket is a ‘flash pass’ (show it to the bus driver).

(c) in Bristol my ENCTS bus pass is used.

A reminder of something stated above: the bank issued EMV method payment card used for CAATT may be a debit card or a credit card.

Here I start with the potential customer who is:

Either using a standard UK issued debit card to purchase rail journeys.

Such a card indicates that value to fund a purchase may be available in a bank account; the intended passenger can use that method online, or at a rail ticket office, or at other authorised (and suitably equipped) rail ticket sellers,

Or using a UK issued or internationally issued credit card.

Such a card indicates that value may be available from the card holder's credit card account, again value to fund a purchase.

The UK issued debit card process is the simpler one, so I continue with that.

I assume that the customer intends to use the CAATT method. In the general case, the customer will not be certain about the cost of the intended journey, may indeed not have any idea of the amount to be charged. If, at this point in the journey, the implementation is intended to be modelled (sic) on TfL's implementation of contactless bank card payment, i.e. having the customer present the bank card at a gate to obtain permission to travel and thus pass through the gate, the customer will not know for certain in advance the amount that will be billed to the bank card account. Importantly, neither will the operator of the gate (the transport operator whose station is being used by the customer) know what amount will be billed to the bank card account.

Note that the ticket seller may decide to take a risk by accepting that the customer is good for the (perhaps estimated) amount of the transaction (a.k.a. price to be paid for the journey), or may decide to go online to the customer's bank for authorisation of the transaction (which, at a rail station gateline, may well take a relatively long time). That referral will result in allocation of a maximum amount permitted to be taken from the account. By contrast, an important point with current rail ticketing methods is that the value of the transaction is known at the time of purchase, whereas with CAATT the value of the transaction (price of the ticket in 'legacy' terminology) is not known until the journey is complete. Indeed, when the intended passenger simply presents a bank payment card, the entirety of information about the intended journey that the passenger intends to take is not known, particularly if the journey starts at an unstaffed station, or if the passenger intends to take another train from the first destination station. However, if the intended passenger starts the journey at a gated station (and passes through a gate to get to the train), at least the intended starting point of the journey is known, and also known is that the time of the train taken will be after the time at which the passenger passes through the gate.

Then, in order to compute the fare to be paid by the passenger, either the passenger's bank card is again read sometime later (typically of course when passing through a gate at the destination station) or, if the card is not read (as can happen at an ungated destination station, or if the gates at the destination station are open), a default fare will be automatically charged (expected to happen within 24 hours; not pleasant for the customer).

Of course the basic design of SEFT⁸ had a related problem with ungated stations or stations at which gates are left open, and thus relied on:

passengers using validators at open stations,

ticket inspections on the train, and

interactions at the destination between passengers and station staff if the passenger joined the train without validating the ticket.

Now it may be that the basic process within the proposed new heavy rail method (Card as Authority to Travel: CAATT) is initially targeted at its use by regular travellers who are season ticket holders. If so, it should be able to usefully embrace a category of passenger that SEFT was expected to cover by adding a 'flexible season ticket' method to the choices available to the passenger. That is a method intended to be cost effective for those who do not always make the same number of identical journeys each week – but SEFT required passengers to sign up for a specific SEFT card. That is fair enough, but it does seem that the intention with CAATT is to design a new and efficient method for all passengers.

Does all of this make the proposed use of bank payment cards rather too complex? It certainly violates the 'Keep it simple, stupid' dictum.

Or is it that we must look to finding and deploying 'Horses for Courses'? That is the title of the next paper in this series.

Appendix

Update 7/2/16 following study of newly released material about using bank payment cards as:

'Card As Authority To Travel' (CAATT)

It is now clear that there is no model of a methodology for using a bank (EMV) payment card *on its own* as a travel token *across the entire UK heavy rail network*. Although not specifically stated in the material seen, the proposed CAATT method requires that the public transport network be operated by an organisation similar to TfL. In other words, an organisation that is not constrained by the legal framework under which UK Joint Stock Companies (colloquially 'limited companies') exist. TfL's primary purpose is to move people. UK train operating companies in general operate under a very different framework in which they have to balance the interests of the traveller and the constraints of both the UK registered company legal framework and the franchise agreements under which such operators of public transport work.

That is not to say that CAATT cannot be deployed in limited circumstances, either outside or inside Greater London (including for journeys that cross the border of Greater London). There is further discussion in the 4th paper in this series: Horses for Courses V3.

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⁸ For which the author did some work on Use Cases in the early stages of the project.

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