

## **Working together for public transport in the UK**

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The entire series is available at [www.iosis.co.uk](http://www.iosis.co.uk).

This is the 9<sup>th</sup> paper in the 'Almost Always Connected' Series.

All of the papers in this series may be found at [www.iosis.co.uk](http://www.iosis.co.uk)

### **Introduction**

The 8<sup>th</sup> paper in the 'Almost Always Connected' Series ('The higher plane', dated 16/4/16) proposed an industry centred pathway for the next stage of development and operation of smart ticketing and journey management for the core of UK surface and sub-surface public transport. This 9<sup>th</sup> paper expands on that concept, and suggests that discussions between the parties involved should start as soon as possible, and do so in a neutral but well informed environment. The paper does not attempt to prescribe or even suggest any particular outcome to the discussions. It does, however, assume that, over the next few years, there will be the following enabling developments, some of which have already started:

- internet access from public transport vehicles and stations will become highly reliable and have adequate capacity to support the needs of passengers, and of those others involved in operating, monitoring, and wishing to find out about the services;
- a very significant proportion of the public who travel by public transport, and the large majority of operating staff on or associated with public transport, will have and carry with them a smart device: a smartphone, tablet, etc;
- those smart devices will be complemented by comprehensive, highly reliable, and personalised online customer service for passengers and for others with interests in the services;
- the present uncomfortable relationship between elected government and those involved in delivering surface and subsurface public transport services will change to being one of partnership for the benefit of the whole country;
- devolution of power and of funding to the regions will encourage and enable local government to promote, and have a significant role in, the development and delivery of improved surface and sub-surface public transport.

Also the author reminds the reader that ITSO Ltd ([itso.org.uk](http://itso.org.uk)), a Membership organisation, is responsible for the current Crown Copyright specification for smart ticketing for UK public transport, for its further development, and for provision of associated technical services. The smooth operation of the ITSO compliant English National Concessionary Travel scheme (ENCTS) for the elderly and

disabled living in England and using bus services, and of the equivalent schemes in Scotland and Wales, is a tribute to the work done by ITSO Ltd and by its Members (many contributing at no cost to the Company or to the public purse) [2]. Those schemes provide conditional but much appreciated free travel on stage carriage bus services for elderly and disabled pass holders and, in some cases, for a companion.

ITSO Ltd is indeed actively engaged in some of the areas covered by this 9<sup>th</sup> paper, and is expected to be willing (subject to availability of resources) to consider becoming further involved.

Before going any further, here is a clarification ('for the avoidance of doubt' as the lawyers say):

The 'core of UK public transport' addressed in this series of 'Almost Always Connected' (AAC) papers includes:

- most of surface and sub-surface paid-for public transport in at least England, Wales and Scotland,
- free at the point of use concessionary travel schemes on those same services in the same jurisdictions.

But the caveat behind the use of 'most of' above is there because this paper acknowledges the special status of the London Underground and perhaps of certain other metro-style services that have independent status. However, across the services considered here, the major public transport travel modes are and will continue to be:

- stage carriage bus services, largely commercially provided but with some services financially supported from the public purse;
- local government controlled metro tram and light rail passenger services,
- franchised heavy rail passenger services.

And a new public transport travel mode may be emerging:

- shared minibuses operated under appropriate regulation.

(In early August 2016, the French operator RATP launched a minibus operated fixed fare shared service for commuters in Bristol, with brand name 'Slide' [5]. The service is targeted at commuters in part of the Greater Bristol area<sup>1</sup> and currently operates under a private hire licence. Also of note is that, across the UK, certain large employers provide contract coach services to ferry their employees between their homes or gathering points and their workplaces.)

## **The current and emerging landscape**

The 8<sup>th</sup> paper in this series (The higher plane) was published in April 2016, 2 weeks after the Westminster government's Department for Transport closed its smart ticketing section. That action by DfT was taken without any clear indication of what was expected to happen next. April was the time when we were just beginning to understand that DfT really had walked away, and had left behind only a single new style ticketing scheme<sup>2</sup> and an exhortation to all of the operators of heavy rail public transport to go smart for tickets [1]. It was also the time when we had not sufficiently realised that the surface and sub-surface public transport industry was expected by some then in

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<sup>1</sup> Bristol, Bath and North Somerset have decided to form the West of England Mayoral Combined Authority; South Glos demurred.

<sup>2</sup> South East Flexible Ticketing on heavy rail

government (but not necessarily today in positions of power) to deliver a better passenger experience ***as its contribution to a successful outcome for devolution of powers to the English regions***. Such a better environment for passengers should therefore be capable of being rolled out across the entire UK, as, of course, is the ITSO methodology that, for example, is used in the ENCTS bus passes introduced above.

Since the April publication of that 8<sup>th</sup> paper, something else has also become clear: the supporting technology required to enable cost effective delivery of the quantity and quality of smart ticketing and customer and operator support service that is assumed in the title of this series 'Almost Always Connected', has been developing rapidly. There are now competing market players who offer key enablers: methods to deliver high capacity, high quality and highly reliable internet access across the entire public transport estate. For bus and metro services, delivering that quality of service on the vehicle is now within reach in many areas of the country, although there will for some time be small blackspots, typically in town and city centre 'canyons' or in remote places and through the occasional road tunnel. For deployment across heavy rail services, there are however still significant financial and logistical hurdles to overcome: installing and maintaining appropriate WiFi service equipment within railway tunnels, under bridges, and at all stations, is expected to be the largest problem area, both logistically and financially. And another technology area requiring significant development effort is the provision of local information systems at all major stations, hosting local and regional databases of live service information and thereby providing support to staff and customers – those systems will be recipients of data via the 'data push' method introduced in the first paper of this series<sup>3</sup>.

How we may take advantage of upgraded and new communications infrastructure is the key theme in this 9<sup>th</sup> paper.

An essential feature of the current landscape is of course ITSO Ltd, a non profit distributing membership company ([www.itso.org.uk](http://www.itso.org.uk)) that is:

- the Crown's developer and publisher of the ITSO Specification for smart ticketing on public transport,
- the further developer of the same,
- the operator and maintainer of the associated information security scheme,
- the provider of technical support services such as equipment test and certification.

## **Hurdles to overcome**

### **1. Delivering a key technology requirement: information security**

Not yet available, either within the public transport industry or in the market, is a common customer facing information security methodology, applicable across many types of user controlled smart device and multiple service operators. ITSO has been looking and learning in that area for some time, and is believed to have now decided on a strategy for secure use of ITSO methods in a wide variety of devices. ITSO's intention is to provide methods for the security of transactions and of data

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<sup>3</sup> 'Tickets (1) Almost always connected

transfer across many types of smart device *with or without using a phone-network-operator-owned section of secure memory in the user device*. Once that hurdle is overcome, a new generation of customer service functions can be developed and rolled out. Indeed the ITS architecture can support a wide spectrum of delivery platforms from barcode on paper or display, through smart media such as smart cards, to NFC phones with or without Secure Elements.

## **2. Customer service provision via smart devices**

The basic service level functions required are:

Common, secure and highly resilient online customer service transaction and service level methods applicable across multiple journey legs using multiple operators and multiple travel modes – such service may use both voice methods and digital messaging, perhaps even developing and deploying the concept of an avatar (an online digital assistant that looks and behaves like a skilled customer service representative).

And:

Fallback provision when there is disruption of one or both of public transport and the online customer support service – suggested is that the ‘data push’ methodology featured in the first paper of this series<sup>4</sup> should be used to push data about the customer’s journey to nodes close to the places where the customer will be; that data will then be hosted on local servers in the vehicles, at bus and rail stations, and at appropriate other locations.

## **3. Working together for the mutual benefit of all of the parties involved**

The much enhanced and universal ticketing and journey management service involves, but is not limited to, active participation by: elected central government, elected regional and local government, central and local civil service, oversight and regulatory bodies, trade associations (in which is included the Rail Delivery Group), employees and their representatives, passengers (and passenger and business representatives), public transport operators across multiple delivery modes, payment services providers (and their trade body UKCards), equipment and technical service providers, and more...

### **On the wider stage...**

Prior to DfT in early spring of this year pulling away from the frontline of smart ticketing and associated journey management, there had already been one government exhortation to the industry: the then Transport Minister Claire Perry MP challenged the heavy rail passenger sector to deliver universal smart ticketing. First came a speech on 26<sup>th</sup> January this year, and then on 2nd February a letter to the Rail Delivery Group (the development and trade association for franchised heavy rail operators). Links to Ms Perry’s initiative are found at [1].

Initially Ms Perry set a deadline of 2022 for 100% rollout of smart ticketing across heavy rail services, but that was clearly nonsense in a political environment with 5 year electoral cycles, so it had to be

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<sup>4</sup> Almost always connected

assumed that Ms Perry's actions were just the starting point of something much bigger. It soon became apparent that improvement in ticketing and journey management for public transport is linked to devolution of powers and of funding to the English regions - but we had to wait until May 2016 for confirmation: the Bus Services Bill was introduced in parliament [4]; it had, by the 2016 summer parliamentary recess, passed its initial stages in the Commons and the Lords; it will return to the Commons in the autumn.

By end January this year the route forward was emerging from the fog, so that by mid summer we clearly understood:

Provision and operation of ticketing and associated journey management for surface and sub-surface public transport across the UK, and operation of related customer and operator support, should in future be in the hands of the public transport industry.

That industry has to work in close co-operation with the public sector.

Over the next 10 years, it is expected that a growing proportion of that co-operation will be with devolved local government.

The reader may well shout at this point:

What about Transport for London (TfL), which directly controls so much of public transport in London?

Importantly, Transport for London's current special status has to be respected, and thus its ticketing and journey management arrangements do not feature in this paper. There is already, however, collaboration between TfL and some operators of classic heavy rail services, with dual ticketing as a result: Oyster cards and classic rail tickets are accepted on some services. The obvious long term end result could well be TfL being transferred to the private sector, but with the public sector continuing to have significant influence over its operation...

Central government will of course continue to impinge generally on arrangements operated by the public transport industry, doing so through existing and perhaps evolving monitoring and oversight organisations and procedures, and through legislation. It is now clear that part of that involvement will be via the powers delegated to devolved local government administrations, coupled with use of such powers as will continue to be available to Whitehall. The Bus Services Bill mentioned above is one new factor here, with its linkage to the more general agenda of devolution to the English Regions.

But there has to be a note of caution: local government has prescribed geographical boundaries, whereas private operators of public transport will always wish to themselves define routes and thus, when it suits them, will operate across local government boundaries. How this will sit alongside new powers over public transport set out in the eventual Bus Services Act of Parliament remains to be seen.

Quite separately from technical methodology for ticketing and journey management in the surface and sub-surface passenger transport industries, the new Prime Minister and her Cabinet and departmental Ministers have been getting up to speed. In particular, Minister of State Paul Maynard MP (Transport Minister) is reported to have spoken out thus on 20/7/16 at the Transport Select Committee:

The train ticket buying system for passengers needs to be made fairer and more transparent.

And:

...improving the ticketing system was “a circle that we need to square”, because dealing with the capacity demand on the network requires more tickets, but introducing them makes the ticketing system more complex.

He said that lack of public trust in ticket machines was also making the system of different tickets harder to navigate, saying: “I note myself at Preston station that people much prefer queueing up at the kiosk, where there is a human being to interact with, to utilising the automated ticket machines, because that level of public confidence is simply not there.”

(source <http://www.railtechnologymagazine.com/Rail-News/improvements-to-ticketing-system-much-needed-maynard> 26/7/16)

And, more recently Secretary of State for Transport Chris Grayling MP has been speaking out about public transport, although not on ticketing per se...

The difficulty that of course Government Ministers have in this area of activity is that (with a very few exceptions) they are not directly controlling public transport of the types being considered here. Stage carriage bus operators have various relationships with the public sector when it comes to operating services, but mainly themselves control where and when their services operate. Heavy rail operators mainly work according to very detailed franchise agreements, and light rail service providers have a variety of contractual arrangements and ownership. To work towards a much more customer oriented public transport environment, this paper suggests that it is now time to bring the parties together.

**Who, therefore, should be working together for a step up in the experience of public transport? And how?**

***First something about the ‘How’...***

Here working together really does mean working together – existing barriers have to be surmounted, and *discussion* needs to be free of entrenched positions. Clearly new collaborations will have to be forged – a further note on that is appended below.

The current legislative environment of pending and actual devolution of powers and finance to various geographical regions should be a help in gathering support for those new collaborations, but the new powers are not likely to bring forward significant resources in the short term – and we do need to get a move on if we are to satisfy the expectation of the passenger that there will be significant improvements in quality of service, including the ‘Almost always connected’ environment. One activity stream should follow and seek to influence the progress of devolution to the regions, particularly this year by following the progress of the Bus Services Bill that is currently working its way through the parliamentary process, and by commenting on the bill’s provisions.

There is of course one existing model and organisation, in the development of which there was a great deal of collaboration among persons and organisations that had not done anything quite like this before. It is the ITSO organisation itself, its Members and supporters, and the working ITSO environment. In the development of that, different people and organisations brought their expertise to the table. Several variously brought funding, expertise, influence, personnel resources, organisational interest on the part of their employers and/or organisations, and more. The ‘more’

included Merseytravel's project to make their PTE's concessionary travel passes smart – that largely created the model from which the ENCTS set of locally delivered schemes with national interoperability of the cards was developed. The author's contribution included in depth knowledge of another smart card technology and scheme: the Mondex banking cash card scheme – but it was long term expertise in the application of microcontrollers, and earlier in the deterministic development of mainframes<sup>5</sup>, that were the author's main contributions, with, even further back, a scientific training.

Importantly in the development of ITSO, nobody tried to force the adoption of any existing model, or indeed of any particular new model. We should maintain that sense of independence from dominance by any person or organisation.

However, this paper is not intending to propose any specific organisational model for 'working together' – but a group of people, clustered around Smartex, have made such a suggestion, so we must consider that: Smartex created their Working Group 26 to study the problem of gaining sufficient momentum to show, to the various organisations that could join in, that there is a common way to organise a development program and then develop operational methodology.

The primary recommendation of the Smartex WG26 was that the interested parties should find some single person to lead the initiative. The author of this paper rejects that solution because it would be more likely to engender division rather than organic growth – but we do need to learn from the Smartex WG26 report – readers can request a copy from Smartex Ltd by emailing:

Richard Poynder [richard@smartex.com](mailto:richard@smartex.com)

And of course ITSO Ltd and its Members are expected to be very significant contributors to the next generation of ticketing and journey management methods for surface and sub-surface public transport in the UK.

The immediate recommendation is therefore:

***ITSO should consider hosting a preliminary meeting on the topic of a collaborative method of working on a new generation of smart ticketing and journey management for public transport. ITSO Members should be particularly invited to attend, and ITSO Ltd should provide a secretarial service.***

Should ITSO agree to be the initial convener, the following draft terms of engagement are offered.

It is recommended that the organisations and individuals taking part from the start accept that they are forming a team of equals, and that their own and their organisations' existing positions and methods may need to adapt in the new environment of working together. The 'working together' methodology is to be promoted at the highest level available in the land (including to government ministers and parliamentary committee members), and done so from the lowest level (individual practitioners) to the highest, and by all of the persons and organisations in between and around them.

In that context, recent exchanges between DfT and the Rail Development Group (RDG), including those with individual Government Ministers, have unfortunately been counter-productive. In particular: it is necessary to understand that RDG members are bound by franchise agreements – and so are govt Ministers – the two groups have to be encouraged to work together to set out and

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<sup>5</sup> Modelling the design in great detail before building the prototype

agree methods of constructive working together. To facilitate that, small experienced teams from both sides need to plan together.

### **The ‘Who’**

It would be presumptuous for the author of this paper to list the ‘Who’ (the people to be asked to become members of a task force) because so many organisations, each with their own sovereignty, are or will be involved. If ITS0 agrees to host a meeting on the topic of this paper, one task at that preliminary meeting should be to decide how to proceed with recruiting participants and asking them to think about what they can bring to the table.

It is, however, suggested that the first stage of collaboration is for bus and heavy rail to start working together on a seamless (*and therefore multi-modal*) travel experience. Given the presence of large organisations that often have operations in both bus and rail sectors, that may seem to be very obvious – but doing it requires a change of mindset and possibly some serious legal work.

### **End Notes**

Opening one’s eyes to look for commercially available tools that can assist in upgrading an operator’s ticketing and journey management capability shows that the supply chain is in fact global. In particular, there is a growing supply chain for realising the vision from the start of this series of papers: being able to be ‘almost always connected’ to the internet, and via that to support services, before, during, and after a journey by public transport.

And:

The author well remembers the time when the management personnel of two bus operators who ran services in the same urban area were unwilling to be seen in the same building together, lest they be accused of illegal practices. Some very sensible lawyers challenged that and won – thus route sharing started to appear, initially in Oxford.

[1] 26/1/16 Speech by Claire Perry MP to Transport Ticketing and Passenger Information Conference

[https://www.gov.uk/government/speeches/the-death-of-the-tangerine-ticket?dm\\_t=0,0,0,0,0](https://www.gov.uk/government/speeches/the-death-of-the-tangerine-ticket?dm_t=0,0,0,0,0)

[2] Merseytravel’s work in being a very early adopter of ITS0 methodology as a key part of a major upgrade to its concessionary travel scheme is also acknowledged here, as the Liverpool work became the precursor of ENCTS.

[3] Written question and answer in Parliament 1/2/16, ref 35119

<http://www.parliament.uk/business/publications/written-questions-answers-statements/written-question/Commons/2016-02-01/25119/>

[4] Bus Services Bill

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/524712/the-bus-services-bill-an-overview.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/524712/the-bus-services-bill-an-overview.pdf)

[5] [http://www.route-one.net/articles/RATP\\_takes\\_on\\_Bristol\\_s\\_buses](http://www.route-one.net/articles/RATP_takes_on_Bristol_s_buses)



Slide is the brand name for a premium, on-demand, shared ride-to-work service in Bristol, which RATP describes as an alternative to “delayed buses, lack of parking and general gridlock horror.”