Transport ticketing enters the modern age

Passengers will soon benefit from greater convenience, security and value as Transport for London (TfL) prepares to launch contactless bank card ticketing, says John Elliott, Head of Public Sector Practice at Consult Hyperion

Transport for London (TfL), the local government body responsible for most aspects of the transport system in Greater London, is currently preparing to launch contactless bank card ticketing. The first phase of the project will begin with bus passengers, who will have the option of paying their single bus fares using a contactless debit or credit card on London's buses beginning in early 2012. This payment option will then be rolled out to the rest of the transport network, including the Tube, Docklands Light Railway (DLR), Tram and London Overground Network.

This widespread acceptance of contactless debit and credit cards is a leading-edge development, and will be a world first when London begins accepting them next year in anticipation of the 2012 Olympic Games. Not only that, but TfL will also become one of the world's largest single merchants accepting contactless debit and credit cards when the scheme goes live.

TfL is already in the process of upgrading its Oyster card readers across the network and discussions are progressing with the Train Operating Companies about accepting contactless debit and credit cards on National Rail services where Oyster is currently accepted. Once this upgrade is completed, the Oyster smart card system will be able to recognise contactless debit and credit cards issued by Visa, MasterCard and American Express – as well as Oyster cards – wherever Oyster is currently accepted on TfL and National Rail services.

The new Oyster smartcard system will also be able to recognise ITSO cards, which is the transit smart card standard backed by the Department for Transport (DfT). TfL has agreed to include the acceptance of ITSO cards in its readers in order to accommodate customers travelling from outside of (and needing to cross) London.

The opportunity to use contactless debit and credit cards will offer much greater convenience for passengers who travel in London, since they'll be able to use a card

that they already have, instead of having to carry and top-up an Oyster card, and will not need to take any action before they travel.

As such, most experts expect TfL to gradually shift passengers from Oyster cards to contactless payment cards (CPCs), since CPCs will almost certainly replace Oyster cards completely at some point in the future. At that stage, travellers would either use their bank-issued CPC, or if they do not have bank accounts or do not wish to use their bank card, could perhaps buy a pre-paid CPC that is specifically aimed at transit use.

This upgrade will offer a number of major benefits. For example, once contactless debit and credit cards are accepted on all TfL services, online customer accounts will be introduced to make it possible for passengers to see information about their travel history, their account and also query and make payments to TfL. Certain features of contactless payments will also be adapted to suit the public transport environment. For example, customers will never need to enter a PIN at the gate line or bus reader.

In addition, the new system will make London's public transport far more accessible for international visitors, since most visitors currently arrive in London without any kind of public transport ticket and therefore have to spend their time buying one. This new system, however, will mean that any visitor with a contactless debit or credit card will be able to enter the transport network as soon as they arrive simply by “touching in” with their bank card. In addition, visitors will also have confidence that they are automatically getting the best value possible, without having to understand local fare structures.

Security will also be improved. The software upgrade has been approved by all the major payment schemes and will make full use of the payments industry's most up-to-date security systems, since it needs to meet not only TfL’s own internal requirements, but also the security requirements of the global financial services industry.

In addition to these positive developments for passengers, there are of course benefits for TfL as well. The ability to accept contactless debit and credit cards will reduce commissions and processing costs for TfL, as well as enabling a reduction in the number of Oyster cards produced and issued.

Unsurprisingly, given the scope of the project, TfL also had to overcome a number of challenges, including the transaction speed that contactless debit and credit cards could accommodate. TfL conducted a number of studies that show the importance of transaction time in avoiding overcrowding, since even very small delays can quickly cause congestion.

Oyster cards helped TfL to address this issue when they were first launched in 2003, and again when they were upgraded to the (more secure) Mifare DESFire chip in 2009. Oyster transactions can now be completed in 300 to 350 milliseconds, which is very fast compared to swiping a paper ticket with a magnetic stripe on the back, which has a benchmark of 750ms.

TfL has always been very keen to maintain this minimum speed requirement of 350ms for high volume use, and yet most of today's contactless debit and credit card technology typically transacts at around 500ms, largely because of the added security features that these cards have.

As such, Consult Hyperion worked very closely with TfL, as well as with some of the major chip manufacturers and card-reader vendors, to ensure that the next generation of contactless debit and credit cards will be able to achieve speeds of less than 500ms. In particular, Consult Hyperion helped TfL to conduct prototyping work to address this challenge, and to architect the card readers' software so that the fastest response can be achieved without impacting on the level of security that is required. In the meantime, both TfL and Consult Hyperion are confident that the current speed of 500ms will be fast enough for the scheme's 2012 launch.

This exciting project was a natural progression from our work with TfL and these latest developments will mark a whole new chapter for both companies, as we continue to work with TfL to make the purchasing process more convenient for passengers, and also less costly for operators.