

# Smart and Integrated Ticketing Strategy



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ISBN 978-1-84864-059-7

For a fuller listing of DfT publications, see [www.dft.gov.uk/about/dftpubdatabase/](http://www.dft.gov.uk/about/dftpubdatabase/)

Printed in Great Britain December 2009 on paper containing at least 75% recycled fibre.

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# Foreword

It is clear that smart and integrated ticketing can deliver huge benefits to passengers - London's Oyster card has proved both popular and extremely successful. It has speeded up access to public transport in the capital and provided the passengers with a hassle-free way of paying for, and using public transport that they really like. I believe that people in other areas of England should also be able to enjoy the benefits of similar schemes.



Around the world there are examples of innovative new ticketing solutions improving the passenger experience and encouraging more sustainable travel patterns. The right ticketing 'offer' can help deliver a move away from private cars towards public transport combating both congestion and climate change. I am passionate about improving public transport in this country and ticketing can play a huge part in that improvement. It is clear to me there is a unique opportunity at the moment to shape the delivery of smart integrated ticketing systems across England over the next five to ten years. These systems can allow for fast, convenient and seamless travel - which is what people want.

I want to see ticketing arrangements that put the passenger first and harness technology. Smart ticketing is already established, while new developments in bank cards and mobile technology could remove the need to queue to buy a ticket ever again. These will need to be backed up with integrated tickets which allow passengers the freedom and flexibility to travel how they want, rather than how a limited range of tickets dictate.

This strategy sets out how the Government intends to deliver this vision. It includes a number of clear Government commitments, sets a stretching but realistic timetable, and also makes clear what we expect from our delivery partners. I look forward to working with the ITSO organisation, transport operators and Local Authorities to make it happen as soon as possible.

A handwritten signature in blue ink that reads "Andrew Adonis". The signature is fluid and cursive, with a long horizontal flourish underneath.

**Lord Andrew Adonis**

# Executive Summary

1. There is a unique opportunity to shape the delivery of integrated smart ticketing in this country over the next five years. Smart ticketing is currently not widespread outside of London, but there are a number of schemes about to begin roll out or in development. The prize here is significant - the opportunity to revolutionise ticketing arrangements for the public and allow seamless travel around the country.
2. This strategy was informed by a public consultation<sup>1</sup>, which contained a compelling vision for future ticketing. 92% of consultation responses agreed with the Government's vision, but 77% thought that more needed to be done to get there. This strategy sets out what the Government will commit to do to realise the vision.

## Our Vision for the Future

3. Ticketing should be focused on the passenger, encourage use of public transport and be integrated across transport networks. It should not be fragmented and complicated - the right balance needs to be struck between choice and complexity. There is a clear desire from the public for greater integration of tickets, particularly across local networks, and for better use of technology<sup>2</sup>.
4. When developing this strategy, the Government has looked at successful examples of integrated ticketing, both at home and abroad. Four case studies are considered to highlight the benefits of smart, integrated ticketing. The London Oyster scheme has been an extremely successful integrated scheme valid on public transport across London. It has delivered significant benefits to both passengers and the operator - Transport for London. This strategy seeks to unlock the route to similar benefits for other parts of the country.
5. Internationally, there are a number of examples of how smart technology can encourage wider integration. In Hong Kong the same card can be

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<sup>1</sup> <http://www.dft.gov.uk/consultations/closed/smartticketing/>

<sup>2</sup> The Government commissioned market research by Ipsos MORI into passenger perceptions of ticketing and how the offer to the passenger can be improved. The final report will be published shortly.

used for travel and to pay for goods and services. Chicago has a scheme where the same card can be used for both public transport and low emission car hire; while in Lyon cycle hire is part of the city's integrated smart ticketing scheme. These demonstrate what can be achieved through a combination of integration and technology.

6. The Government's vision is for smart and integrated ticketing across public transport in England, with the ITSO specification allowing for seamless travel, potentially across the country, using the same smartcard. As technology develops, it may be possible to use mobile phones instead of smartcards, while contactless bank cards may remove the need for a ticket for some journeys. Local schemes will be able to tailor their offer to the passenger, encouraging sustainable travel patterns and offering the sort of wide integration available in Lyon, Hong Kong and Chicago.
7. To deliver this vision will take time. An immediate goal is to see integrated, multi-modal smart ticketing schemes in the major urban areas in England by 2015. The expectation is that these schemes can form the base for further expansion with the majority, if not all of the country similarly covered by 2020.

## Delivering the Vision

8. This vision cannot be delivered alone and requires considerable partnership working between the public sector and transport operators. The second part of the strategy considers the key components for delivery of the vision and sets out clearly both what the Government will do and the envisioned role of other key stakeholders.

### **Strategic Leadership from the Department for Transport**

9. A primary role of Government is not to deliver the infrastructure or develop ticket types, but to provide strategic leadership to deliver the vision, liaising with key stakeholders and looking to unblock barriers to delivery. To increase its strategic capabilities, the Department for Transport will establish a dedicated smart ticketing team. They will have responsibility for delivering the strategy set out in this document.
10. The team will consider the key strategic issue of whether to introduce a National Pre-Pay scheme. They will also provide ongoing support to new and existing schemes, facilitating the sharing of best practice and engaging with new technologies and other Government Departments.

## ITSO & New Technologies

11. The ITSO specification is key to the vision. It provides for interoperability between schemes and can provide a technical toolkit to allow operators and authorities to deliver the vision.

12. The Department has conducted a review of ITSO Ltd and committed to a short term increase in resourcing and strategic input into the organisation. We will also work with the ITSO Executive and Board to develop a long term business plan to support delivery of the vision.

Figure 1: ITSO card



© Elena Artemova

13. Looking forward, mobile telephones and contactless payments are both likely to be of increased importance and need to be accommodated within the ITSO environment. Both the Department for Transport and ITSO Ltd will engage with the phone and banking sectors to ensure full use can be made of new technologies by transport operators.

## Delivery of Infrastructure

14. To deliver the smart ticketing infrastructure necessary for the vision requires partnership working between Local Transport Authorities and operators. The role of the Government is to provide appropriate incentives to stimulate further public and private investment and delivery of ITSO smart ticketing infrastructure.

15. The Government has already done a considerable amount to promote smart ticketing, such as requiring all concessionary passes to be ITSO smartcards and including smart ticketing requirements in all recently let rail franchises. The strategy seeks to build on this.

16. To address concerns raised in the consultation about the need for up-front investment, the Government will provide £20m of funding to the nine largest urban areas in England (outside London). This is to deliver smart ticketing infrastructure which can then be used as the base for wider rollout and possibly regional schemes. The Department will also put in place framework agreements to make it easier for Local Authorities and other partners to procure the necessary infrastructure.

17. To incentivise operators to invest, from April 2010 there will be an additional payment of 8% Bus Services Operator Grant for buses equipped with ITSO smart ticketing infrastructure, which could be worth around £800 per year per bus. Smart ticketing requirements will also continue to be included in all newly let National Rail franchise agreements.
18. The expectation is that Local Transport Authorities will be best placed to lead integration between operators (e.g. through offering shared back office services), though the buy-in and support of operators is vital.

### **Integrated Tickets**

19. Just as Local Authorities and operators will deliver smart infrastructure, so they are best placed to develop integrated tickets. The role of the Government is to ensure that the right tools are available and to encourage their use, not to set terms and conditions for individual tickets.
20. The Local Transport Act 2008 has strengthened the tools available to Local Transport Authorities to promote local integration. The Department will produce an integrated ticketing best practice guide in 2010 to ensure that these tools are fully utilised and address issues raised in the consultation.
21. The Government will also seek to encourage better integration between national rail and local ticketing schemes through the franchise agreements and the work on end-to-end journeys, which has already delivered the integrated PlusBus product.
22. Current tools allow integrated tickets to be introduced through partnership working between operators. The Government fully expects to see greater integration and engagement led by operators and authorities, particularly in the major urban areas. This will create the sort of seamless travel Londoners can already enjoy. Some consultation responses suggested further steps may be required and the Government will therefore monitor the situation closely. Should there be no significant progress on integration it will consider further action, which could include legislation.

## **London**

23. London is an integral part of the UK transport network and it is essential that it is fully integrated with the rest of the country. At the same time, innovation in London, such as trials with contactless payments, could benefit the rest of the country and is to be welcomed, so long as it does not detract from integration with the wider transport network.
24. To achieve this, the Government is sponsoring the £60m ITSO on Prestige (IOP) project which will enable the entire Oyster 'estate' to read ITSO smart tickets. The Government has also required that from April 2010 London Freedom Passes should be re-issued as dual Oyster-ITSO passes, providing £5m to cover the additional costs.

## **Information & Privacy**

25. Smart ticketing can provide significantly improved data which, particularly when combined with real time information equipment, can deliver better information to passengers. The Department for Transport and Transport Direct will explore opportunities to improve the provision of local ticketing and fare information to the public.
26. At the same time it is very important to guarantee security of data, privacy and ensure customers' peace of mind. To support this, the Government will produce a Privacy Impact Assessment and guidance to assist current and future smart schemes.

## **Devolved Administrations**

27. Although transport is a devolved policy area, the vision is for seamless cross-border travel using the ITSO specification. Both Scotland and Wales have their own ITSO rollout plans and presence on the ITSO Board. Government will continue to work with Devolved Administrations to deliver seamless cross border travel.

## **Roadmap for Delivery**

28. The message from the consultation was that a clear roadmap for delivery is essential. The final part of the strategy therefore sets out how the Government envisions the rollout of smart and integrated ticketing taking place.
29. The expectation is that smart ticketing will be first established in the urban areas where the overall business case is stronger. These schemes can then form the basis for wider coverage.

30. As rail franchises are re-let they will include smart ticketing requirements and over time local schemes and rail franchises will integrate allowing for seamless intercity travel. As the infrastructure spreads, new smart ticket products will develop and become more prevalent.
31. While smart ticketing infrastructure and products may take time to develop, there is nothing to prevent greater integration using non-smart media now. The expectation is that there will be a clear increase in the provision of competitively priced integrated ticketing products in the near future.

## Conclusions

32. There is a transparent desire for more integrated ticketing from the travelling public and a significant opportunity to influence the rollout of smart ticketing to facilitate seamless travel across the country. The Government is determined to take this opportunity and this strategy sets out how, working with key stakeholders, our vision of the future can be achieved.

## Summary of Government Commitments

### Strategic Leadership

- To establish a dedicated smart and integrated ticketing team
- To conduct a detailed assessment of a national Pre-Pay scheme
- To support existing schemes and facilitate the sharing of best practice
- To engage with key stakeholders, including new technologies like EMV and NFC
- To support the Department for Work and Pensions in considering smart cards for providing access to entitlements

### ITSO & New Technologies

- To provide ITSO Ltd with more resources and strategic planning in the short term
- To work with ITSO Ltd to develop a long term business plan
- To input into ISO proposed work item 14806
- To ensure that NFC mobile phones can be fully utilised in an ITSO environment

### Delivery of Infrastructure

- To provide up to £20m of additional funding to large urban areas to speed up the development of smart ticketing schemes
- To continue to allow the use of Regional Funding Allocations (which includes Major Schemes and IT Block funding) for smart ticketing schemes, and to assist interested Local Authorities with developing business cases.
- To pay a BSOG differential of 8% for bus operations with ITSO smart ticketing systems and providing data as requested from April 2010
- To put framework agreements in place for smart ticketing services and equipment
- To include smart ticketing requirements in all newly let rail franchises

### Integrated Tickets

- To encourage the full use of existing tools to deliver integrated ticketing
- To engage with the OFT about competition law and the block exemption
- To engage with the possible referral of bus operators to the Competition Commission
- To produce best practice guidance for introducing smart and integrated products
- To engage with the FSA over the relaxation of e-money rules
- To encourage more integration between local schemes and National Rail
- To continue with end-to-end journeys workstreams such as PlusBus
- To closely monitor progress and determine whether legislation may be necessary

### London

- To sponsor the £60m ITSO on Prestige (IOP) project

### Other Workstreams

- To work with Transport Direct and scheme operators to improve provision of local ticketing and fare information
- To incentivise the provision of real time information provision through BSOG
- To produce a Privacy Impact Assessment and related guidance for schemes
- To work with the Devolved Administrations to deliver seamless cross border travel

# 1. Introduction

- 1.1 This document sets out the Government's strategy for encouraging smart and integrated ticketing. A consultation paper on this subject was published on 20 August this year to inform this strategy. There was a very positive response with 122 replies received. A summary of consultation responses is included at Annex B.
- 1.2 Many of the issues covered in this strategy document are dealt with in depth in the consultation document, which also provides useful background reading for those less familiar with the subject matter. The consultation can be found on our website:  
<http://www.dft.gov.uk/consultations/closed/smartticketing>

## What are Smart and Integrated Ticketing?

- 1.3 Smart ticketing and integrated ticketing are two separate concepts. **Smart ticketing** is where the ticket is stored electronically on a microchip, commonly contained in a plastic smartcard. Tickets are checked by presenting the smartcard to a smart reader.
- 1.4 **Integrated tickets** are valid on more than one operator and/or mode of transport. They do not have to be smart tickets - there are a number of current examples of integrated paper tickets.
- 1.5 Smart ticketing infrastructure can facilitate better integration, but does not guarantee it. However, to install smart infrastructure without further integration would not realise all of the potential benefits on offer.

## Aim of the Strategy

- 1.6 The aim of this strategy is to increase both the coverage of smart ticketing infrastructure and the integration of ticketing on public transport in England.
- 1.7 The Government believes that smart and integrated ticketing can:
- Make ticketing arrangements better for passengers, encouraging modal shift away from private vehicles towards public transport;
  - Make more efficient use of existing transport networks and infrastructure.

- 1.8 Both can contribute towards the Department for Transport's overarching aim of transport that works for everyone, and the five strategic goals which support this aim.

### **Department for Transport Aims and Objectives**

The Department for Transport's aim is transport that works for everyone. This means a transport system that balances the needs of the economy, the environment and society. In support of this aim the Department has five strategic objectives which focus on the core areas of our business:

- To support national economic competitiveness and growth, by delivering reliable and efficient transport networks.
- To reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of avoiding dangerous climate change.
- To contribute to better safety, security and health and longer life-expectancy through reducing the risk of death, injury or illness arising from transport, and promoting travel modes that are beneficial to health.
- To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society.
- To improve quality of life for transport users and non-transport users, and to promote a healthy natural environment.

- 1.9 Research commissioned by the Government suggested that there are likely to be net annual benefits of over £1bn per year to passengers, operators and others in England. A revised national business case is included here at Annex C.

- 1.10 The Government's long term vision for ticketing in England is set out in Section 3. A key target is to see smart integrated ticketing schemes, similar to the London Oyster scheme but using the ITSO specification, in England's major conurbations by 2015.

## **Scope of the Strategy**

- 1.11 The strategy includes all modes of public transport in England, with the exception of aviation. It is focused on smart and integrated tickets rather than fares.

- 1.12 Transport is a devolved policy area and the Devolved Administrations<sup>3</sup> have responsibility for setting and delivering their own policy. However,

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<sup>3</sup> The Scottish Executive, the Welsh Assembly Government and the Northern Ireland Assembly

the intention is for the strategic approach in England to be consistent with policy in the Devolved Administrations wherever possible.

### Local and National Networks - an explanation of terms

1.13 The strategy looks at transport across networks rather than by mode, as this better reflects people's travel plans. Local networks are those which people use every day to get to work, the shops and other local services. The primary mode of local public transport is the bus, but local rail, demand responsive services, ferries, light rail and other modes can also play a part. Journeys are generally short, low cost and more frequent.

**Figure 2: Sign pointing to Rail, Bus and Metro**



Source: PTEG Media Centre Image Library

- 1.14 National networks are those which are used to travel greater distances across the country. The principle modes of national public transport are rail and coach. Journeys are generally longer, less frequent and of higher cost.
- 1.15 The consultation included a detailed description and analysis of the current situation with respect to ticketing on both types of network. Consultation responses provided useful additional information that was taken into account when developing this strategy and underlined the importance of commercial arrangements for integrated ticketing. Many responses also mentioned the regulatory framework for local ticketing and a more detailed overview is included here at Annex A.

### Wider Policy Context

- 1.16 In challenging economic times there is a need to look at new and better ways of achieving value for money and to make the most effective use of infrastructure. Smart and integrated ticketing can help achieve this.
- 1.17 For example, concessionary travel is an important issue for local transport. Smart technology can help to make reimbursement significantly more efficient in the future and reduce administration costs for both operators and authorities.

- 1.18 Smart ticketing can also support wider policy initiatives. The Smarter Choices workstream encourages Local Authorities to promote more sustainable travel patterns, moving people away from private cars to lower carbon alternatives. Smart ticketing can support this and ticketing schemes can be extended to include things like parking, car clubs and cycle hire.

## This Strategy Document

- 1.19 This document effectively has two parts. The first sets out where the Government would like to be and the second how we intend to get there.
- 1.20 The Government's vision of the future is set out in section 3. This builds on the vision set out in the consultation document and also draws on existing best practice from around the world. The four case studies included in the next section demonstrate what is possible to achieve with the necessary partnership and commitment.
- 1.21 To deliver the vision, the Government has identified seven key components of its strategy:
- Leadership
  - ITSO and new technology
  - Smart ticketing infrastructure
  - Integrated tickets
  - London
  - Information and privacy, and
  - The Devolved Administrations.
- 1.22 Sections 4 to 10 look at each component in turn, what the Government has already done in this area and what more will be done to ensure delivery. Section 11 then sets out a roadmap for delivery which includes a timeline and maps showing the anticipated rollout of smart ticketing. Section 12 draws together the conclusions from the strategy, lists the Government's commitments and summarises the anticipated roles of other key stakeholders.
- 1.23 The Annexes contain supporting information that is referenced through the document. Annex A contains a summary of the regulatory framework for local ticketing schemes, Annex B a summary of the consultation responses and Annex C a national business case for smart ticketing and a consideration of the business case for bus operators.

## 2. Case studies

- 2.1 There are a number of existing schemes in operation around the world which demonstrate how integrated ticketing and technology can significantly improve the proposition to the customer. These have helped to inform the development of this strategy and our aspiration is to see the best practice from such schemes replicated throughout England.

### Oyster – London, UK

- 2.2 The Oyster scheme came into operation in 2003 and extends across the London Underground network, London buses, several boats and light rail services and some National Rail services that start or terminate in the city.
- 2.3 Oyster cards can store pre-purchased tickets (such as weekly or monthly travelcards) and “Pay As You Go” credit. An online “auto top-up” option is also available which ensures that credit never drops below a specified amount (e.g. £5), eliminating the need to top up at machines and ensuring there is always credit on the card.
- 2.4 In February 2005, Oyster introduced a daily price cap which ensures that passengers never pay more than the best combination of single tickets, return tickets and travelcards. This has proved extremely popular and resulted in a dramatic increase in Pay As You Go uptake, with sales rising almost 300% between February 2005 and February 2006. There was a corresponding sharp drop over the same period in the sales of singles/returns and carnet paper tickets, resulting in a decline in overall ticket sales.
- 2.5 The Oyster scheme has delivered very significant benefits since its introduction, some of these are highlighted below.
- 2.6 **Reduction in the number of tickets sold:** Reducing the total number of tickets sold for the same journeys can lead to cost savings for operators and time savings for passengers. Between 2003 and 2009 the number of tickets sold per day dropped from 1.8m to 600,000, a

Figure 3: Oyster card



©Transport for London

reduction of 66%. The biggest drop was seen on buses: 10 years ago, 30% of bus journeys in London involved cash transactions. That number had dropped to approximately 19% just before Oyster was introduced as a result of measures to get people to buy tickets before boarding, such as bus stop ticket machines. After the introduction of Oyster, the number of cash transactions on buses fell to just 1.4%.

- 2.7 **Reducing Queuing at Underground Stations:** Oyster has contributed to a significant reduction in queue times at ticket machines: the average ticket office queue time has gone down from 129 seconds pre-Oyster to 78 seconds post Oyster, a reduction of 40%, this is in spite of a reduction in the number of ticket offices in operation.
- 2.8 **Improving the throughput at ticket gates:** Before the introduction of Oyster, approximately 15 people per minute were able to pass at a sustained rate through an individual ticket gate at peak times. This number has risen to 35 people during peak times since Oyster was introduced. This has not only improved the passenger experience for London transport users, it has also allowed the existing ticketing infrastructure to accommodate the 20% increase in traffic seen in the past decade.
- 2.9 **Reduced boarding time for buses:** The move from cash to smartcard transactions has saved approximately 2-3 seconds per boarding. This is significant considering that London already offered only flat cash fares and had moved to an off bus ticket purchasing.
- 2.10 **Fraud Reduction:** Incidences of fraud were substantially reduced after gating was introduced at tube stations in 2001. However Oyster has resulted in a further reduction in irregular travel (journeys made with either no ticket or the wrong ticket). Since the introduction of Oyster, the percentage of journeys made up by irregular travel has fallen by approximately 2.5% to 1.5% of total journeys made. This reduction in fraud represents cost savings of up to £40m per year.
- 2.11 After Oyster was rolled out 97-98% of passengers rated it as “like” or “strongly like” in monthly passenger surveys for 12 consecutive months. Marketing and public education programmes have ensured that Oyster is a very strong and well recognised brand which is internationally acclaimed.
- 2.12 London continues to innovate in ticketing. TfL and O2 ran a trial with Oyster products stored on NFC-enabled mobile telephones in 2007-

2008. This proved very popular: 89% of trialists said they would be interested to have Oyster on their mobile phones after the trial, and 22% of trialists said they increased their public transport usage as a result.

- 2.13 TfL also worked with Barclaycard to develop the Barclaycard OnePulse card, which contains an EMV payment facility and an Oyster smartcard as well as the regular chip and pin functionality. Work is also under way looking at using EMV contactless payment cards to pay for travel.

## Octopus – Hong Kong

- 2.14 Octopus is the name of the smart ticketing card used in Hong Kong. It is the result of a joint venture, now called Octopus Holdings Ltd, between the 5 major public transport operators in the city. The operators paid for the systems out of their own funds and for the back office systems with loan capital. After 3 years of system development and trialling systems, Octopus Holdings Ltd launched the Octopus card in 1997.

**Figure 4: Octopus card**



© Octopus

- 2.15 A feature of Octopus is its electronic purse which can be used to purchase goods and services as well as travel. Over 2000 service providers accept the Octopus card, including all public transport systems in Hong Kong, car parks, parking meters, stores, vending machines, cinemas, schools and public payphones. A rewards system was also launched in November 2005 which gives customers access to discounts and special offers from over 20 participating merchants. Over 2.2m customers have signed up to the programme.
- 2.16 Each time a customer uses the card for a service, the transaction data is sent back to a central computer maintained by Octopus Holdings Ltd for clearing and settlement. The central clearing house then authorises the transactions and deposits the correct amount in each account within 24 hours.
- 2.17 Octopus has been hugely successful. At least one Octopus card is now owned by over 95% of the economically active population in Hong Kong and there are 19 million cards in circulation in a city with a population of

only 7 million. A 1998 TNS independent survey recorded satisfaction levels of 97% with the card. The company has also now established an international branch, Octopus International Projects, to provide smartcard services in countries such as The Netherlands and Dubai.

## Chicago Card Plus/I-Go card – Chicago, USA

2.18 The Chicago CCP/I-Go card is the result of a partnership between the Chicago Transit Authority (CTA), which runs the public transport in Chicago, and I-Go, a not-for-profit car sharing company. Since December 2008, passengers have been able to use the same card to travel across the CTA public transport network, and to rent one of I-Go's 200+ low emission cars, many of which are located at stations or near bus and train routes.

2.19 Cards are tapped against readers located on the cars' windscreens to open a car. Customers are charged at an hourly rate, which includes parking, fuel and insurance and cars can be picked up from any I-Go point in the city and returned to the same point. I-Go's membership has been steadily increasing since its inception and was estimated to be at 10,000 in October 2008.

Figure 5: CTA/I-Go card



Reproduced with permission of I-Go Cars

2.20 According to research conducted by the company, on average one I-Go car replaces seventeen cars on the road and 17.6% of its members have increased their public transport usage since joining up. They have also found that 54% of their members who did not own a car before joining the scheme have either postponed plans to buy a car or decided not to buy one.

## Técély card and Velo'v – Lyon, France

2.21 The Técély card is an integrated smartcard which allows passengers the use of buses, trams and Metros in the city of Lyon and its suburbs. The same card can also be used to rent bikes through the Velo'v scheme, introduced into Lyon in May 2005.

2.22 Velo'v was designed, funded and delivered by J C Decaux in exchange for advertising space on bus shelters and billboards and was set up in an effort to reduce congestion and pollution throughout the city.

## 2. Case Studies

Passengers tap their Técély card against a reader to unlock a bike from its rack. Credit is deducted from the card according to the length of the journey. The standard velo-v package offers the first half hour free and accumulating costs thereafter. Técély card holders are entitled to a full hour of free use, and costs are reduced thereafter.

- 2.23 The Velo-v scheme has proved very popular. There are now over 3,000 bikes available, over 22,000 rentals per day, and bike stations within 300 metres of most points in the city.

## 3. Our vision of the Future

- 3.1 The Government wants to see ticketing arrangements that work for the passenger and the case studies above show what is already possible. The vision of the future included in the consultation document was supported by 92% of responses and the vision set out below is therefore largely consistent with it.
- 3.2 The Department has also conducted its own customer research into what the travelling public would like to see from future ticketing arrangements. The clear message from this is that passengers want a simplified, more integrated approach to ticketing with 57% of those interviewed showing interest in integrated, pay as you go style ticketing. The greater use of technology in general and smart ticketing in particular has strong support. The final report will be published shortly.

### **Smart Integrated Schemes**

- 3.3 The Government wants to see multi-modal integrated smart ticketing schemes, similar to Oyster but using the ITSO specification, in all England's major conurbations by 2015.
- 3.4 This means smart ticketing infrastructure on all public transport, commercial ticketing available on smart media and competitively priced integrated tickets that are valid across operators and modes. This will be supported by increasing smart ticketing coverage on the National Rail network facilitating seamless door to door travel using smart tickets.
- 3.5 Our longer term aim is to have universal coverage of smart ticketing infrastructure on public transport in England. Customers will ultimately have a choice of ticketing media – such as smartcards, bank cards or mobile phones. This choice will ensure that no user group is penalised; for example there will always be a paper ticket or alternative option for the unbanked. The ITSO specification will enable seamless travel across the country using the same card or phone. Greater ticketing integration and improved links between ticketing and information provision will make public transport use easier, more flexible, and more attractive for passengers.

### **Wider Integration**

- 3.6 Ticketing can also go beyond just buses and trains, and even trams and ferries. Our aspiration is that other transport services such as cycle hire, car parking, taxis, demand responsive services and car clubs can be included within the same integrated schemes. In rural areas, where there is a lower density of public transport infrastructure, including demand responsive services or taxi credits in a ticketing scheme will become increasingly important in delivering benefits to the passenger.

### **New Products and Incentives**

- 3.7 We want to see smart ticketing deliver new ticketing 'products' to passengers. Pre-pay with capping has proven extremely popular in London, but other innovative ticket products can also be implemented. Carnets can be updated and made more secure, days of travel credit can be stored and activated when needed, while “shoulder pricing” may smooth demand during the peak hours, helping to manage capacity.
- 3.8 There is also scope for incentive schemes around public transport use such as a low-carbon travel reward scheme and there is similar scope for innovative delivery of current benefits by public authorities through smart card use.

### **Easier Sales Channels and Better Information**

- 3.9 Queuing is disliked by passengers. Because of this, we want to see operators introducing new technology allowing the buying and receiving of ITSO tickets on a mobile phone, removing the need for queuing at stations or on buses. We also want operators to consider the option of allowing payment directly with bank cards without the need to purchase a ticket in advance. But we also want them to go further and really innovate around: how the public find out information about tickets in advance, how they purchase them, and how this is linked to real-time information about journeys.

### **National Integration and the Devolved Administrations**

- 3.10 People’s travel patterns do not fit neatly into a single network and crossing boundaries (between authorities, operators or modes) seamlessly can be a challenge. The Government’s vision is one of interoperability of ticketing infrastructure and technology and of ticket integration at the point of sale providing for seamless travel across the country.

- 3.11 At the heart of this vision is a mature and accepted ITSO specification and a responsive and inclusive ITSO Ltd organisation. Ultimately this will deliver seamless travel across borders, including between England, Wales and Scotland.

## Summary

- 3.12 There is not a one size fits all solution to ticketing. Different areas have different networks, while different passengers have different requirements. However, there is a clear and consistent message from passengers that more integrated tickets and technology can make public transport a more attractive choice.
- 3.13 Our vision of the future is therefore one where ticketing arrangements put the customer first, supporting and encouraging modal shift and more sustainable travel patterns and make the most efficient use of existing networks.
- 3.14 Delivering the vision set out above will take time. The following sections (4 to 10) consider the Government's strategic approach to delivery in more detail setting out exactly what the Government will do to deliver each component, and what we expect of other stakeholders.

# 4. Strategic Leadership from the Department for Transport

## Overview

- 4.1 The responses to the consultation made clear the need for national leadership and strategic direction from the Government. This strategy document is an important step towards addressing that need, but it is just the start of an ongoing process.
- 4.2 This section sets out how the Department for Transport will increase its strategic capabilities, address some key issues on ticketing and provide leadership on delivering the key components of the vision as set out in the following sections.

## Smart Ticketing Team

- 4.3 The Department for Transport will establish a dedicated Smart and Integrated Ticketing team which will have ownership of the strategy and be responsible for taking forward the measures contained in this document.
- 4.4 The team will be responsible for co-ordinating smart ticketing policy across the Department and act as a single point of contact for smart ticketing issues. There is now a dedicated email address for all smart ticketing enquiries: [smartticketing@dft.gsi.gov.uk](mailto:smartticketing@dft.gsi.gov.uk).

Commitment 1: To establish a dedicated smart and integrated ticketing team

## Evaluation of National Pre-Pay

- 4.5 The proposition of a national pre-pay product, similar to the Oyster Pay As You Go system, which can be used on all public transport in England, is on the face of it a very attractive concept. However, there would be considerable technical and commercial challenges to introducing such a system, and existing e-money arrangements, or EMV contactless payments, may be better placed to deliver similar functionality.
- 4.6 There is a clear benefit from taking a decision on whether or not to pursue this option sooner rather than later. 63% of responses to the

consultation believed that a full evaluation of national pre-pay would be of assistance. This will remove uncertainty and allow local schemes to plan their own delivery considering their options.

**Commitment 2:** To conduct a detailed assessment of a national Pre-Pay scheme

### **Supporting Schemes and Sharing Best Practice**

4.7 There is a considerable amount of knowledge amongst Local Authorities and operators in England and the UK which can be of huge benefit to other schemes. 76% of responses agreed that the Department could add value in this area by helping to spread best practice.

**Commitment 3:** To support existing schemes and facilitate the sharing of best practice

### **Engagement with Stakeholders**

4.8 A number of stakeholders are involved in delivering the vision. As well as Local Authorities and transport operators there are key suppliers, ITSO, the payments sector, mobile phone network operators and handset manufacturers to name but a few. The input of all of these stakeholders is important. The consultation responses agreed that engagement with new technologies would help deliver the vision. The Government will seek to address some of the potential barriers to adoption of EMV and NFC highlighted by the responses.

**Commitment 4:** To engage with key stakeholders, including new technologies like EMV and NFC

### **Working with Other Government Departments**

4.9 One of the benefits of smart card technology is that it has the potential to integrate many different services and a number of Government Departments and related agencies are already undertaking work in this area. For example, the Department for Children, Schools and Families has an interest in smart ticketing as it is already being used in schools for both travel and payments. The Department of Communities and Local Government already has an interest in looking at the potential benefits of citizens cards; multifunction cards that can be used for a variety of purposes including library and sports centre membership.

*4. Strategic Leadership from the Department for Transport*

- 4.10 The Financial Services Authority (FSA) and the Office of Fair Trading (OFT), have a clear interest in e-money and integrated ticketing, which may play an important part in the delivery of the vision.
- 4.11 The Department of Work and Pensions is actively investigating using smart card technology as an access point for entitlements and building on the fact that all concessionary bus passes are smartcards. The strategy document Building a Strategy for All Ages<sup>4</sup> set out their plans to work with Local Authorities to test an all-in-one smart card that provides both Central and Local Government entitlements.

Commitment 5: To support the Department for Work and Pensions in considering smart cards for providing access to entitlements

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<sup>4</sup> <http://www.hmg.gov.uk/buildingasocietyforallages.aspx>

# 5. ITSO and New Technologies

## Government Actions to Date

- The Government was instrumental in the creation of ITSO Ltd in 1998.
- It has sponsored the development of the ITSO specification, providing around £5m of funding to date.
- The Government recently conducted a commercial review of ITSO Ltd which has, with the support of the membership and the board, resulted in changes to ITSO Ltd Governance structures and increased the level of input from the Department for Transport.

## Strategic Approach

### Overview

- 5.1 Technology is a key part of delivering the vision and ITSO is central to the Government's strategy as it provides technical interoperability and can facilitate seamless travel across modes, operators and boundaries. New technologies such as EMV contactless payments and mobile phones are also likely to play a large role in the future. The Government sees these as complementary technologies that have the potential to further enhance the customer proposition.
- 5.2 Our aim is to encourage innovation whilst maintaining interoperability. Integrating new technology with the ITSO environment is a way to achieve this. Integrated ticketing infrastructure that supports a number of different customer media (e.g. cards, phones, bank cards) can improve the customer proposition by providing passengers with flexibility over how they pay for travel. Utilising existing standards and infrastructure from other sectors could also help reduce rollout costs.

### Short Term increase in resourcing and strategic input into ITSO Ltd

- 5.3 The recent ITSO Ltd review has led to the Department taking a more direct involvement in the strategic planning of ITSO Ltd. The Department has also committed to providing ITSO Ltd with additional resources in the short term.
- 5.4 Key priorities for ITSO Ltd for the next year to 18 months include:
- Developing the capability of the ITSO Secure Messaging System, which underpins security in the ITSO environment;

- Supplying the necessary modules (ISAMs<sup>5</sup>) to support the rapid roll out of ITSO smart ticketing;
- Introducing version 2.1.4 of the ITSO specification as a consensual change, followed by a period of stability for the specification.

Commitment 6: To provide ITSO Ltd with more resources and strategic planning in the short term

### **Develop a Long Term Business Plan with ITSO Ltd**

5.5 While meeting immediate challenges must be a priority, long term planning is essential. While such long term planning is for ITSO Ltd to develop in detail, there are some principles that the Government believes should form the foundations of ITSO Ltd's business plan:

- The specification must be flexible and scalable so that it can be adapted to meet the needs of different stakeholders, including smaller operators, with implementation of ITSO smart ticketing made as straightforward as possible;
- Early engagement with new technologies and incorporating them into the ITSO environment is essential;
- Minimising barriers to entry for potential suppliers and streamlining certification is important for product development and competition;
- Where possible existing standards and infrastructure should be utilised moving forward to minimise rollout costs.

Commitment 7: To work with ITSO Ltd to develop a long term business plan

### **ISO Proposed Work Item 14806**

5.6 The consultation identified a number of barriers to the introduction of contactless payments being used for transport, such as the lack of existing business models and 'ecosystems' and the £10 limit on transactions<sup>6</sup>. The Government will engage with the payments industry to address these issues where appropriate.

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<sup>5</sup> ISAM - ITSO Secure Application Module, which are included in readers and used in encoding customer media

<sup>6</sup> There are suggestions this may be raised by APACS (Association for Payment Clearing Services) to £15

- 5.7 The International Standards Organisation (ISO) has recently proposed a work item to set standards for providing space for transit applications to reside on EMV bank cards. The Department and ITSO are both involved in the UK mirror group which will provide input into ISO should the work item go ahead as is expected.

Commitment 8: To input into ISO proposed work item 14806

### NFC in the ITSO Environment

- 5.8 There are encouraging signs that NFC handsets are about to enter the mobile phone market and it is important that they can be integrated into the ITSO environment. Research<sup>7</sup> carried out by the Department has demonstrated that NFC phones can be used as customer media, but some development of the ITSO specification is necessary to ensure that all applications of NFC can be fully utilised in the ITSO environment. An amendment to the ITSO specification is in progress which will open the way for tickets to be sold over the air and mobile phones to be used as validation devices. It is important to complete this before NFC handsets are widely available.

Figure 6: Mobile phone placed against a reader



Source: Telefonica O2 UK Limited

Commitment 9: To ensure that NFC mobile phones can be fully utilised in an ITSO environment

## Role of Other Stakeholders

### ITSO Ltd

- 5.9 The ITSO Ltd organisation is crucial to delivering the vision. Its role is to provide the technical solutions that support the delivery of smart and integrated ticketing whilst also supporting and encouraging the widespread adoption of the ITSO specification. There is also a role for

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<sup>7</sup> The use of Near Field Communication (NFC) technology in mobile phones for public transport ticketing (December 2008)

ITSO in championing its specification and engaging fully with European and international standards. ITSO therefore needs to develop a detailed business plan to support delivery of the Government's strategy.

- 5.10 The commercial review of ITSO Ltd has resulted in some changes to the organisation. A new CEO will be appointed to provide greater strategic direction and the board composition has been altered, with the Department, the GB Devolved Administrations and TfL taking seats for the first time. These changes will help to enable ITSO to deliver the vision and ensure ongoing input from key stakeholders.

### Suppliers

- 5.11 Smart ticketing and related technology suppliers are critical to this strategy. The Government's expectation is that suppliers will continue to develop ITSO compliant equipment and support development of new technologies within the ITSO environment. It is also expected that suppliers will respond to the individual needs of different operators and authorities with innovative offerings. These could be managed services for smaller operators and authorities, or standardised reader and back office packages for those seeking low-cost implementations.

### Other Sectors

- 5.12 The banking and mobile phone sectors in particular could have a large part to play in future ticketing. We hope to see them continue to engage with the transport sector to develop equipment, standards and the commercial ecosystems necessary to underpin delivery of ticketing and transport payment schemes.

**Figure 7: EMV card presented to a reader**



Reproduced with permission of Visa

**Figure 8: Mobile phone presented to a reader**



Source: Telefonica O2 UK Ltd

# 6. Smart Ticketing Infrastructure

## Government Actions to Date

- Specified in regulations that all concessionary passes must be ITSO smartcards, with over 8 million issued to date.
- Paid a grant of £31m to Local Authorities to cover the costs associated with re-issuing all concessionary passes as smartcards.
- Established ITSO Services Ltd to enable Authorities to issue smartcard passes and offer support to those who wish to introduce smart ticketing.
- Included smart ticketing requirements in all recently let rail franchises.

## Strategic Approach

### Overview

- 6.1 The Government envisions partnership working between operators and Local Authorities to deliver the necessary infrastructure. This section sets out in more detail how the strategy will facilitate this and support a roadmap for delivery.
- 6.2 A key issue highlighted by the consultation is that, although there is a strong overall business case nationally for smart ticketing, the need for up front investment and partnership working to realise the full benefits can make it challenging for individual organisations to make a stand alone business case.
- 6.3 The Government intends to address this by targeting the up front costs for Authorities, improving the commercial business case for operators and making procurement easier through the provision of Department for Transport framework agreements.

### Targeted Funding for Major Urban areas

- 6.4 To speed up delivery of smart ticketing infrastructure the Department for Transport is making a one-off fund of up to £20m available to the nine largest urban areas in England (outside of London) for implementing smart ticketing.
- 6.5 The consultation had suggested a smart ticketing competition could be run, but responses were not wholly supportive on the grounds that it could result in further pilots, whereas investment in ongoing

infrastructure was required. By targeting funding specifically at the major urban areas the intention is to ensure funding is used to provide infrastructure that can deliver the most benefit as quickly as possible. It will also form the starting point of a national rollout as detailed in the roadmap in section 11.

- 6.6 The funding will be spread over financial years 2009-10 and 2010-11 and the areas that could benefit are:
- West Midlands
  - Tyne & Wear
  - Greater Manchester
  - West Yorkshire
  - South Yorkshire
  - Merseyside
  - Bristol (with Bath & North East Somerset, North Somerset, South Gloucestershire)
  - Nottingham (with Nottinghamshire)
  - Leicester (with Leicestershire)
- 6.7 These are nine of the Government's ten congestion PSA target areas and between them account for over 50% of the bus journeys made outside London. The tenth, London, will not receive funding as the Department is already sponsoring the ITSO on Prestige project to make the Oyster estate compatible with ITSO (section 7.25) and provides TfL grant.

**Commitment 10:** To provide up to £20m of additional funding to large urban areas to speed up the development of smart ticketing schemes

### **Major Schemes and Integrated Transport Block Funding**

- 6.8 Funding is very important to delivering smart ticketing. There are no plans to make additional funding streams available to Local Transport Authorities specifically for smart ticketing on an ongoing basis, but this does not mean that there is no Government funding available for smart ticketing schemes.
- 6.9 The Government's policy for Local Authority funding is to allow freedom and flexibility for Local Authorities and regions to prioritise. The Department for Transport provides capital funding to Local Authorities through the Integrated Transport Block and separately for Major

Schemes, both of which are included within Regional Funding Allocations.

- 6.10 Regions have the flexibility to provide advice both on the balance of funding between Block and Majors and on the specific Major Schemes to be taken forward. This provides Local Authorities with a considerable income with which to take forward smart ticketing schemes that have the potential to add significant value as part of a wider package of measures to improve local transport.

**Commitment 11:** To continue to allow the use of Regional Funding Allocations (which includes Major Schemes and IT Block funding) for smart ticketing schemes, and to assist interested Local Authorities with developing business cases.

### **Bus Services Operator Grant (BSOG)**

- 6.11 The Government had already announced its intention to pay a higher rate of BSOG to buses equipped with ITSO smart ticketing equipment from April 2010. The additional amount has now been confirmed as 8% per bus. This could be worth around £800 per year for each bus equipped with smart ticketing.
- 6.12 To qualify, smart ticketing equipment will need to accept all English concessionary travel passes and the incentive is also likely to be linked to accepting integrated ticket products. Bus operators would need to provide specific data to Local Authorities and the Department. Buses equipped with GPS real time information equipment will receive an additional 2% per year.
- 6.13 BSOG will change further in future years eventually taking the form of a per passenger payment (subject to the necessary approvals). The new incentive per passenger arrangements will rely on accurate recording of passenger numbers. This will require audited data of the sort that can be best provided through the use of ITSO smart ticketing equipment. The move to per passenger payments will therefore be underpinned by the delivery of this strategy.

**Commitment 12:** To pay a BSOG differential of 8% for bus operations with ITSO smart ticketing systems and providing data as requested from April 2010

### Smart Ticketing Framework Agreements

- 6.14 Procuring smart ticketing equipment can be a challenge. To assist Local Authorities the Department for Transport will put in place framework agreements that can be used to procure smart ticketing equipment and infrastructure.
- 6.15 The expectation is that the frameworks could include back office provision, card issuing equipment and ticketing equipment, but the Department will liaise with Local Authorities to assess the scope for the agreements.
- 6.16 Local Authorities will not be required to use the frameworks, but will be free to do so should they wish.

Commitment 13: To put framework agreements in place for smart ticketing services and equipment

### National Rail Franchise Agreements

- 6.17 The franchise arrangement on National Rail allows Central Government greater direct influence on delivering smart ticketing on the railways. All newly let rail franchises will include smart ticketing requirements that in time will deliver a smart enabled network. Suburban rail can also play an important part in local schemes and the franchise agreements will also seek to ensure that franchises use their best endeavours to cooperate with local smart schemes.

Commitment 14: To include smart ticketing requirements in all newly let rail franchises

### Local Transport Authorities

- 6.18 Local Transport Authorities have an important role in partnership working to deliver infrastructure and are likely to have a role in leading the development of integrated tickets. The consultation demonstrated a clear willingness on the part of Local Government to lead delivery and the strategy seeks to facilitate this.
- 6.19 The roadmap in section 11 sets out how it is envisioned that urban areas, particularly Integrated Transport Authorities, will have a key role in establishing back office infrastructure that can support concessionary travel and multi-operator ticketing across an area and even a region.

## **Local Transport Act 2008**

- 6.20 The Local Transport Act 2008 contained measures to strengthen Local Authorities' powers to work with operators to improve local transport. It provided them with a toolkit to work with operators to improve the bus services ranging from Voluntary Partnership Arrangements to Quality Contract Schemes. Using these tools can provide an effective framework for clear leadership at a local level.

## **Contract Services**

- 6.21 Local Transport Authorities also let contracts for socially necessary services which are not commercially viable on a stand alone basis. Many also provide school services under contract. There is the opportunity to specify smart ticketing for these services. Authorities can offer a managed service to ensure smaller operators can still bid for these contracts.

## **Rural Authorities**

- 6.22 The focus of the strategy in the near term is on introducing smart ticketing infrastructure in the major urban areas. However, once infrastructure has been delivered in these areas the marginal costs of extending the scheme into rural areas are significantly reduced. The aim of the strategy is to ensure that this happens as soon as possible.

## **Operators**

- 6.23 Transport operators have an important role to play in delivering infrastructure on vehicles, at depots and at stations. The Government has incentivised the investment on buses and requires investment through rail franchise agreements, but ultimately operators will need to fully buy into the benefits of the vision and invest their own funds if it is to be fully delivered. They also need to cooperate locally with other operators and Local Authorities to deliver integrated schemes.
- 6.24 It is important that smaller operators are not disadvantaged in the market place by smart ticketing. The Department will continue to monitor the development of the market to ensure that smaller operators are not disadvantaged and are able to implement smart ticketing.

# 7. Integrated Ticketing

## Government Actions to Date

- Through The Transport Act 2000 and The Local Transport Act 2008 the Government has put in place a regulatory framework that allows for the creation of integrated tickets.
- The OFT have put in place a specific block exemption that can be used for multi-operator transport ticketing schemes.
- The rail franchise agreements require integrated tickets on the rail network to be made available, enabling travel from one station to another regardless of which TOCs operate the service(s).
- Franchise agreements also require TOCs to continue to participate in existing multi-modal schemes, as long as they are not financially disadvantaged by changes to the scheme.

## Strategic Approach

### Overview

- 7.1 There is a strong desire amongst passengers for more integrated ticketing and simplification of current ticketing arrangements, particularly for local networks. The research undertaken by the Department and others shows that people expect better integration and are not satisfied with current arrangements<sup>8</sup>.
- 7.2 The role of the Government is to ensure that the tools are in place with which Local Authorities and operators can develop integrated local ticket products. The Government will seek to ensure these tools are used to the fullest extent, while also encouraging TOCs to develop innovative tickets and integrate with local schemes through franchise agreements.

### Encourage Full Use of Existing Tools

- 7.3 Many respondents to the consultation thought that the existing tools could be sufficient to enable the development of integrated tickets. The

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<sup>8</sup> In Qualitative sessions run by IPSOS Mori on behalf of the Department for Transport there was clear dissatisfaction with current arrangements and strong support for integrated smart ticketing. In Quantitative research over half were interested in smart ticketing.

enhanced powers in the Local Transport Act 2008 are still relatively new and the Department for Transport will continue to engage with Local Authorities to ensure that they are fully utilised to benefit the passenger. These are explored further in Annex A.

**Commitment 15:** To encourage the full use of existing tools to deliver integrated ticketing

### **Office of Fair Trading, Competition Law and the Block Exemption**

- 7.4 Consultation responses suggested that concerns about contravening competition law can act as a barrier to integrated ticketing. The Department will engage with the OFT, operators and Local Authorities to tackle concerns and reduce uncertainty to help encourage the establishment of integrated schemes.
- 7.5 The current block exemption for ticketing schemes expires in 2011. Before the exemption expires the OFT will be consulting to establish whether the exemption should be renewed, revised or allowed to expire. The Department for Transport will input into that process and encourage other stakeholders to contribute.

**Commitment 16:** To engage with the OFT about competition law and the block exemption review

### **Possible Referral to Competition Commission**

- 7.6 The OFT has recently published "Local bus services - Report on the market study and proposed decision to make a market investigation reference"<sup>9</sup>. One of several concerns raised in the report was that incumbent bus operators with well developed networks were not entering into multi-ticketing arrangements with smaller rivals and that this could prevent, restrict, or distort competition.
- 7.7 The OFT is currently consulting on whether to refer the bus industry to the Competition Commission. The Department will continue to engage with this process. If the case is referred to the Commission, the Department will cooperate fully with that process.

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<sup>9</sup> [http://www.offt.gov.uk/shared\\_offt/consultations/oft1112con.pdf](http://www.offt.gov.uk/shared_offt/consultations/oft1112con.pdf)

Commitment 17: To engage with the possible referral of bus operators to the Competition Commission

### **Produce a Ticketing Best Practice Guide**

7.8 The Department has already produced exemplars for using the block exemption to deliver integrated ticketing schemes. Building on this the Department will produce best practice guidance for introducing smart and integrated ticket products. This will seek to tackle concerns about competition law and also consider how to implement smart products such as pre-pay, e-money and capping.

Commitment 18: To produce best practice guidance for introducing smart and integrated products

### **Relaxation of E-Money Rules**

7.9 A number of consultation responses also raised concerns that the regulation of e-money products may restrict the development of innovative products. The FSA has already announced that EU rules governing e-money are to be relaxed to encourage the development of more e-money schemes. This could help the development of integrated products such as pre-pay. The Department for Transport will engage with the FSA through this process and the work will feed in to the best practice guidance on smart and integrated tickets.

Commitment 19: To engage with the FSA over the relaxation of e-money rules

### **National Rail Franchise Agreements**

7.10 The important challenges in the rail sector are to maintain the existing levels of integration during the transition to smart ticketing and then to integrate National Rail ticketing better with local transport networks. Franchise agreements will also seek to ensure best endeavours to join local smart ticketing schemes also provide for more integration and better interchange between modes and networks.

Commitment 20: To encourage more integration between local schemes and National Rail

## End-to-end journeys

- 7.11 There has been a considerable amount of work done in improving integration between buses and rail through the end-to-end journeys work stream. The benefits of greater integration can be seen with the continuing growth of the PlusBus ticket, which allows rail passengers to purchase a reduced price bus (and now tram) add-on with their rail ticket. This work will continue and the potential to use this to develop smart ticketing integration between modes will be explored.

Commitment 21: To continue with end-to-end journeys workstreams such as PlusBus

Figure 9: Interchange between bus and train



Source: PTEG Media Centre Image Library

## Possible Future Legislation

- 7.12 The Government wants to see far wider provision of competitively priced and clearly marketed integrated tickets which allow seamless travel across a local area. There is a strong demand from the public for more reasonably priced, integrated tickets. More integrated tickets can also encourage greater use of public transport and modal shift away from cars, contributing to greater patronage.
- 7.13 The tools already exist to create integrated ticketing schemes through partnership working. The Government's expectation is that operators will work with Local Authorities to deliver more integrated tickets.
- 7.14 However, many consultation responses suggested more integrated ticketing would only be delivered with legislation to allow Local Authorities greater scope to compel participation in integrated ticket schemes or set the prices of tickets.

- 7.15 If there is not clear progress on the availability of competitively priced integrated tickets over the next year the Government will consider what further action, including possible legislation, is required.

Commitment 22: To closely monitor progress and determine whether legislation may be necessary

## Role of Other Stakeholders

- 7.16 For local networks the Government will not design ticketing products, set fares or make commercial agreements. This is for Local Transport Authorities and operators to deliver. The commercial arrangements which underpin these tickets are vital however and are the most challenging aspect of introducing them. Nevertheless, the Government firmly believes that by encouraging modal shift, more integrated ticketing can have a long term positive business case.

### Local Transport Authorities

- 7.17 Local Transport Authorities are anticipated to be the most likely to lead local integration and the responses from the consultation suggested that there is a clear desire from Local Authorities to take on this role.
- 7.18 The expectation is that full use will be made of the extended powers in the Local Transport Act 2008. Quality Contracts Schemes are now a real possibility that could be used to deliver a London-style ticketing system. As smart ticketing infrastructure becomes more prevalent, we would expect Local Authorities to lead the development of integrated ticket products that are not available on paper tickets such as pre-pay and e-money.
- 7.19 These will take time to deliver. The London Oyster Scheme took two years from first going live to introducing Pay As You Go with full capping. However, there should be a clear goal of increased integration and new products when developing schemes with an agreed plan for delivery.
- 7.20 The expectation is that Local Transport Authorities will be most likely to drive the development of integrated ticket products as they have a whole network perspective, but we would expect operators to engage with the development of these products.
- 7.21 Again the evidence of existing schemes supports this approach. NoWcard rolled out concessionary travel first and is now looking to roll

out a commercial stored value product for young people. Bolton has built on successful trials to roll out ITSO ticketing with a sQuid<sup>10</sup> e-money product which can be used in local shops.

- 7.22 Similarly, the Yorcard pilot project successfully trialled pre-pay with capping in an ITSO environment. Two bus companies were included in the pre-pay scheme. Credit could be used on either operator's buses and the customer's expenditure was capped at the rate of the operator's day ticket.
- 7.23 There is considerable evidence of further integrated products being developed. In Manchester the Integrated Digital Ticketing project is looking to integrate transport and event ticketing. For example Manchester City football club already has contactless ticketing for home games and is looking at links with the new Metrolink services.

### **Local Transport Operators**

- 7.24 The Government expects operators to engage with the development of reasonably priced ticketing products. There is a tension here with an operator's understandable desire to protect market share through single operator tickets, but the clear evidence from both customer insight and wider research is that passengers want greater integration. 98% of responses to the consultation agreed that integrated ticketing can encourage modal shift, while a number of research papers<sup>11</sup> suggest that more integrated ticketing leads to more passenger journeys.

### **Train Operating Companies**

- 7.25 While ticketing is generally more regulated and more integrated on National Rail, there is an opportunity for greater integration with local networks to facilitate door-to-door integration and more innovative ticketing, such as "shoulder pricing" to manage demand and more flexible season tickets.

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<sup>10</sup> sQuidcard is a subsidiary of Nucleus Limited, a leading brand, internet and venturing business. More information can be found here: <http://www.squidcard.com/about.html>

<sup>11</sup> Public Transport: Its planning, management and operation, P White, 5<sup>th</sup> Edition (2008); London Transport Research Report R273, 1993

# 8. London

## Government Actions to Date

- The Department for Transport has facilitated a deal to extend Oyster Pay As You Go to London overland rail at a cost of approximately £6m to Government.
- The Department has agreed with the Mayor's Office to put in place a solution to make the Oyster estate able to read ITSO smartcards.

## Strategic Approach

### Overview

- 8.1 London is a key part of the transport network in England. A well developed, integrated smart transport system is already in place in London. However, from a national perspective it is important that London is fully integrated with the rest of the country. Around two-thirds of all rail journeys either start or end in London, while there are 6.3 million bus journeys per day in the capital.
- 8.2 The Government's strategic approach is to ensure that London is integrated with the rest of the country (including making the Oyster estate compatible with ITSO), whilst also allowing London the space to continue to innovate around ticketing to deliver benefits for London passengers.
- 8.3 The strategy seeks to ensure both that such innovation does not result in a lack of integration between London and the rest of the country and that, where possible, such development work in London can be utilised by other areas of the country.

### Sponsor ITSO on Prestige (IOP)

- 8.4 The ITSO on Prestige project will enable the TfL Oyster network to read ITSO smart cards. The Department has committed around £60m to this project which is extremely important to establishing ITSO as a national specification.

**Commitment 23:** To sponsor the £60m ITSO on Prestige (IOP) project

## Role of Other Stakeholders

### **Transport for London (TfL)**

- 8.5 TfL will lead delivery of both IOP and the extension of Pay As You Go on overland rail. New hardware and software is being developed to deliver IOP, and this infrastructure will also be rolled out to overland stations. TfL has also taken up a seat on the ITSO board and has an important role to play going forward.
- 8.6 TfL has made no secret of the fact that it is looking at using contactless EMV cards as an alternative to Oyster cards for London travel. It sees considerable advantages in not having to issue bespoke cards and being able to move away from pre-loading credit. This work being undertaken in London could potentially provide the groundwork for other schemes.

### **London Councils**

- 8.7 The Freedom Pass is the name given to the London Concessionary Travel Pass. Because of the added complexity of integrating ITSO and Oyster, London was given an extension until 2010 before their passes had to be issued as an ITSO smartcard. From April 2010 all Freedom Passes will be re-issued as dual ITSO / Oyster smartcards. The Department has provided £5m in funding to cover the cost of London Councils to achieve this.

### **London Train Operating Companies (TOCs)**

- 8.8 Those TOCs with London services are required to participate with the London Travelcard as part of their franchise agreements. They have also agreed to participate in PAYG to benefit the millions of passengers who regularly use the services. The IOP project will provide acceptance of ITSO smartcards in London, allowing passengers from other parts of the country to travel into and across London with one smartcard.

### **Crossrail**

- 8.9 Crossrail will run through the centre of London from Shenfield in the East to Maidenhead in the West and will add 10% to London's overall transport capacity. The full service is scheduled to start operation in 2017, but the project will be implemented in stages from 2014. The

## *8. London*

expectation is that ticketing will be fully integrated and compatible with both national and London smart ticketing arrangements.

# 9. Information and Privacy

## Information for Passengers

- 9.1 Information provision is very important for passengers. Even the best infrastructure and ticketing products are of little use unless passengers are aware of them and know how to use them. There are two areas in particular that could benefit passengers - provision of local ticketing information and real time information.

**Figure 10: Mobile phone displaying Tube Map**



© Transport for London

## Ticketing and Fare Information

- 9.2 New technology provides more opportunities to provide better information to customers. It is already possible to provide real time information and departure boards to mobile telephones. The Government is keen for this work to continue and for it to become the norm across the country.
- 9.3 At present the internet is an important journey planning tool. Transport Direct provides a single point of access for door-to-door transport information. National Rail Enquiries also has a website, as do most TOCs, bus operators and many Local Authority websites also carry travel information. However, the complexity of local transport ticketing means that even with all of these channels it can be challenging for passengers to find out what they really want to know, especially if they are travelling in an area that is new to them.
- 9.4 Integration can make fare structures simpler and easier to display online and the introduction of smart ticketing may also bring about common fare data structures and the ability to exchange fares data between schemes and regions that could be used to underpin transactions and to provide more online information. The Department for Transport will work with schemes, Transport Direct and ITSO Ltd to explore how an increase in smart ticketing may lead to developments which would in turn enable an improvement in the level of information that is available to customers.

**Commitment 24:** To work with Transport Direct and scheme operators to improve provision of local ticketing and fare information

### **Real Time Information**

- 9.5 As well as smart ticketing, from April 2010 operators will also receive a higher rate of BSOG for buses equipped with GPS equipment as part of a real-time information scheme, on condition that they make available the resulting data. This equipment and data can be used to deliver real time information to passengers.
- 9.6 Real time information is already of considerable benefit to passengers, but when combined with smart ticketing, particularly on a mobile telephone, it offers the prospect of real time information being delivered directly to the passenger on the move or immediately in advance of travel.

**Commitment 25:** To incentivise the provision of real time information provision through BSOG

### **Data Protection and Privacy**

- 9.7 Many of the benefits from smartcards derive from the better data they can provide. However, there is absolutely no reason that a smart ticketing scheme should contravene data protection legislation or personal privacy in any way. There is no need from a purely transport perspective to encode personal data on smartcards. Schemes should also always provide the option for customers to not register a smart card if they do not want to.

### **Privacy Impact Assessment & Guidance**

- 9.8 To demonstrate this, the Department for Transport will complete a Privacy Impact Assessment (PIA), which will be published on our website. The Department will also look to produce further guidance on Data Protection and Privacy issues, as recommended by the Information Commissioner's Office. 65% of consultation responses believed this would help deliver the vision.

**Commitment 26:** To produce a Privacy Impact Assessment and related guidance for schemes

# 10. Devolved Administrations

- 10.1 Passengers do not expect transport to stop and end at a border within the United Kingdom and quite rightly expect to be able travel freely between England, Scotland and Wales in particular as well as Northern Ireland.
- 10.2 Ensuring seamless travel with Scotland and Wales is very important as there are areas where the closest local public services may be the other side of a border. There are already good working arrangements on the ground in border areas, with transport authorities working with the devolved administrations to deliver cross-border travel. In Chester, the smart ticketing scheme crosses the border into Wales.
- 10.3 Scotland and Wales both have ITSO smart ticketing rollouts in progress and now have seats on the ITSO board. The Department for Transport will continue to collaborate closely with both on ITSO issues.
- 10.4 Northern Ireland has a different regulatory system to England and does not share a land border. However, there is regular contact between Department for Transport officials and their Northern Ireland counterparts to ensure policies are broadly aligned and to share best practice.

Commitment 27: To work with the Devolved Administrations to deliver seamless cross border travel

# 11. Roadmap to the vision

- 11.1 Sections 4 to 10 set out the specific commitments the Government is making to deliver the vision set out in section 3. This section considers how the map of smart and integrated ticketing might change over the next two, five and ten years as a result.

## Geographic Spread

- 11.2 Smart ticketing delivers the greatest total benefits in urban areas with a high density of public transport, significant interchange and large numbers of journeys being made. This is where the greatest decongestion benefits can be delivered for example. Benefits can be realised in non-urban areas, but they are smaller and so it is more difficult to make a stand alone business case.
- 11.3 That said, economies of scale from shared infrastructure can reduce the marginal costs of introducing smart ticketing. This will eventually make it cost-effective to introduce smart ticketing in rural areas once schemes are established in urban areas.
- 11.4 This 'urban first' model fits with the pattern of current scheme rollout plans. Most existing schemes, such as Nottingham, Reading and Cheshire are centred in urban areas. The NoWcard scheme is an example of a partnership between Local Authorities and operators to deliver the infrastructure and share costs to deliver smart ticketing to both urban and non-urban areas. The scheme covers all of Lancashire, Cumbria plus Blackburn & Darwent and Blackpool. Cambridgeshire and Northamptonshire are sharing back office provision to spread costs.
- 11.5 All ITAs have aspirations to roll out smart ticketing infrastructure, which will deliver smart ticketing to the largest urban areas outside London. South and West Yorkshire PTEs have a clear goal of a smart ticketing scheme that covers the Yorkshire and Humber region. Under the NESTI project, which includes Nexus (the Tyne & Wear PTE), Northern Way, and other Local Authorities and operators, the intention is to provide a North East scheme. Both the Yorkshire and NESTI schemes are anticipated to begin in urban areas and roll out in time to rural areas.
- 11.6 On the National Rail network, all new franchises will include smart ticketing requirements. Over time this will deliver a National Rail network with smart ticketing infrastructure. As franchises deliver smart ticketing, they will link with

adjacent local schemes to facilitate seamless, smart end-to-end intercity travel. The map of expected rollout shows how these could develop over the coming years.

- 11.7 We expect that as the benefits of smart ticketing are enjoyed by more customers, and the introduction of NFC mobile phones improves the passenger offer, there will be customer pressure for franchises to implement smart ticketing as soon as possible.

### **Case Study - Centro**

The West Midlands PTE, Centro, covers the largest metropolitan area outside London. The region's Smartcard programme will include all of the 2,500 buses that are in operation across Birmingham, Coventry, Dudley, Sandwell, Solihull, Walsall and Wolverhampton with the first of these being deployed in 2010.

The project also has a multi-modal focus. As well as Midland Metro trams, synergies with London Midland trains will be explored and developed. These could include the sharing of infrastructure and communication links, development of combined communications message, common ticketing products and joined up approach to hotlisting.

Centro is working with its district councils on other potential applications for smartcard and continues to hold discussions with neighbouring Authorities concerning possible extensions to the Centro scheme.

### **Case Study - Oxfordshire**

In Oxfordshire, Stagecoach and Oxford Bus Company are working together to deliver a zonal integrated ticketing scheme. A passenger can buy a product on an ITSO smartcard and use this on both operators' services within a series of zones which covers the county. Both companies will use back office functionality from their parent groups' rail operations to achieve economies of scale

### **Possible System Architecture**

- 11.8 The consultation responses clearly suggested that the Government should have some input into overall system architecture. The Government is keen to see economies of scale where possible and has a high level vision of shared functionality, particularly with back offices, to lower costs and deliver savings. However, the precise detail of a scheme's architecture needs to be decided locally and innovative solutions are already being developed.

## *11. Roadmap to the Vision*

- 11.9 Overall the expected architecture is that Authorities will work in partnership to develop shared, possibly regional, back offices which facilitate concessionary travel and multi-operator local tickets. These can also provide a commercial managed service to smaller operators to facilitate commercial ticketing.
- 11.10 Bigger bus operators could implement their own back offices, possibly on a national scale, to support their operator-specific commercial tickets.
- 11.11 Rail franchises will require their own back office functionality and this will most likely result in the franchisee owning a back office. This could conceivably be used across an operating group, including buses and coaches, for commercial ticketing.
- 11.12 Another possibility is that commercial suppliers may seek to provide a managed service at commercial rates. This could include back office functionality and even media encoding. It would allow smaller operators and Local Authorities to introduce smart ticketing without up-front investment

## Indicative Timeline

### 2012

- Existing proprietary schemes such as Nottingham, Nottinghamshire and Reading migrated to ITSO
- Commercial ticketing well established in existing ITSO schemes such as Cheshire and Nowcard
- West Midlands PTE scheme live
- Yorkshire & Humber and North East schemes progressed in roll-out
- London Oyster network able to accept ITSO smartcards
- Better integration of ticketing in non-smart areas

### 2015

- Smart and integrated ticketing schemes established in all major urban areas
- Smart ticketing established on several rail franchises
- Linkages being made between local smart ticketing schemes and rail franchises, such as in the West Midlands and Brighton
- Continued integration of ticketing in non-smart areas
- Dual EMV / ITSO readers widely available
- NFC mobile phones established as a ticketing media

### 2020

- Close to, if not universal coverage of smart ticketing infrastructure on public transport
- Wide penetration of new, innovative smart ticketing products
- Smart ticketing schemes include parking, car clubs, cycling and possibly products such as green travel points or targeted delivery of benefits
- Widespread sharing of smart ticketing back office infrastructure by Local Authorities to deliver economies of scale
- Smart ticketing implemented on most rail franchises
- Widespread integration of ticketing
- Ticketing on Crossrail is integrated with both the National Rail and London network

## Anticipated Rollout of Smart Ticketing (areas with some access)

Figure 11: Map to show smart ticketing in 2009

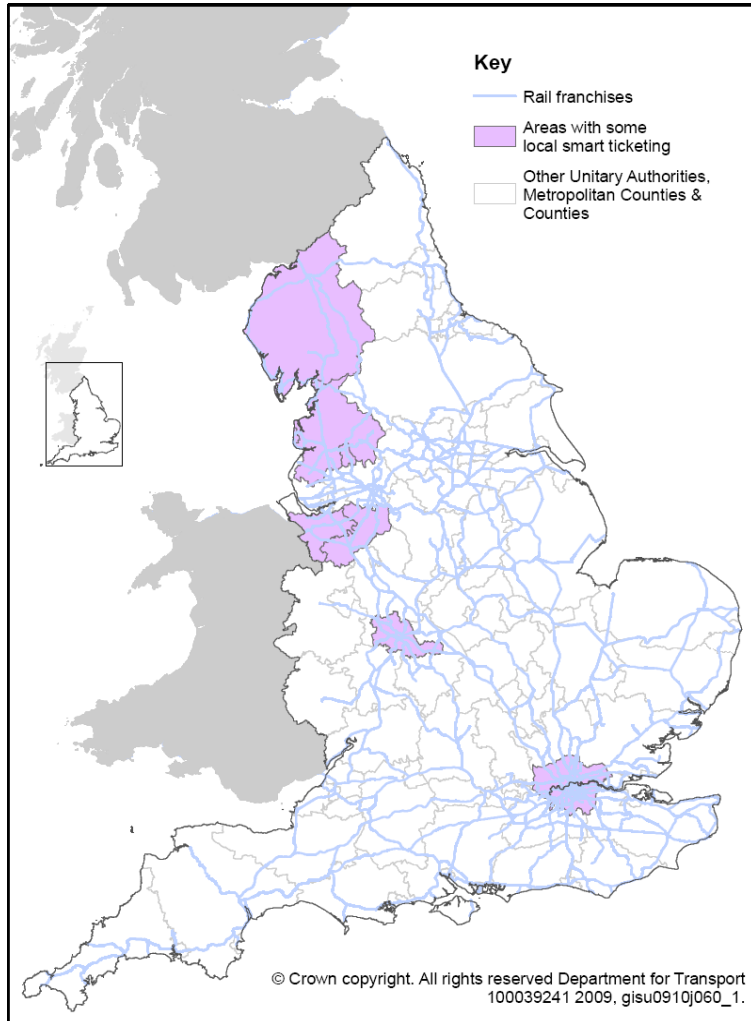


Figure 12: Map to show smart ticketing in 2012

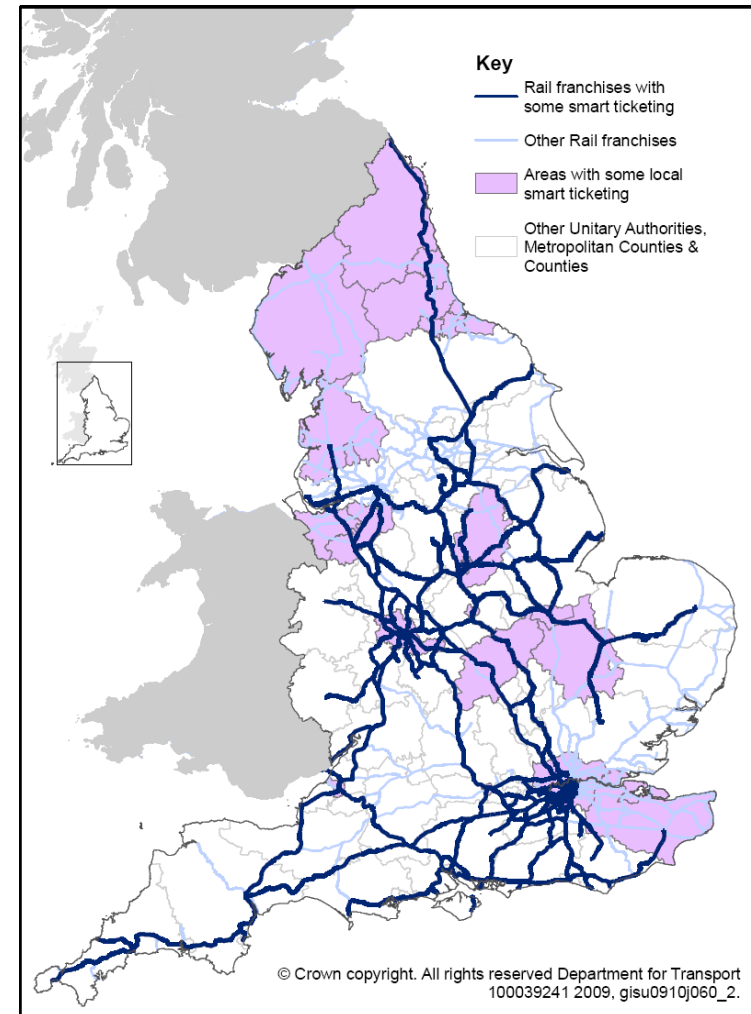


Figure 13: Map to show smart ticketing in 2015

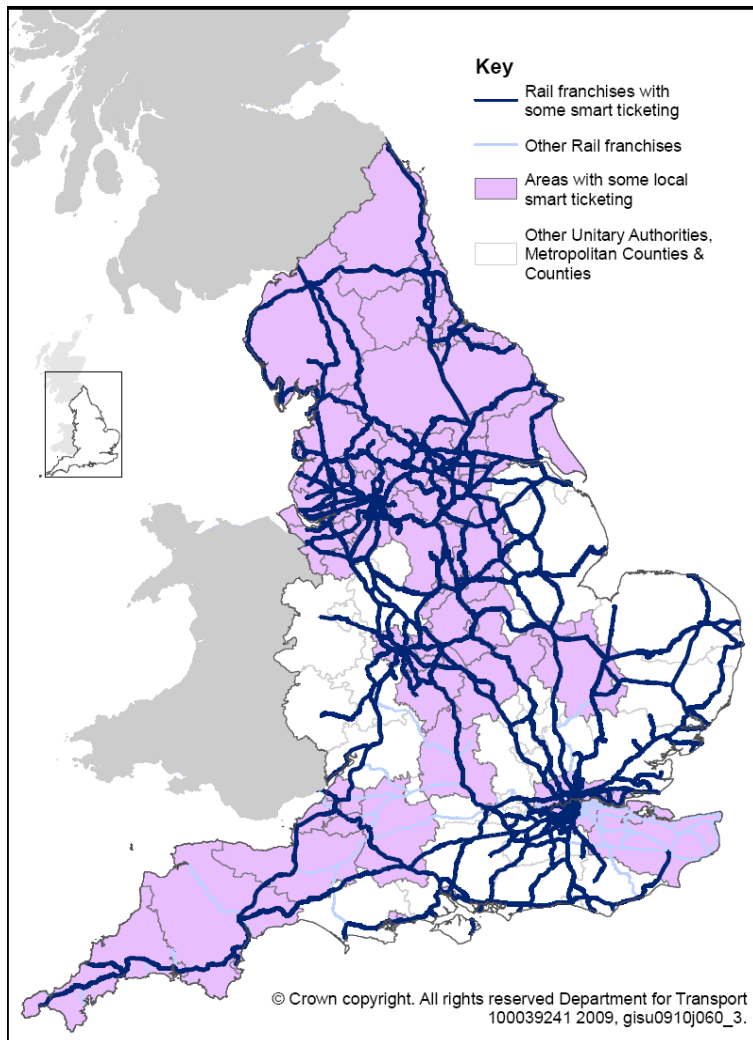
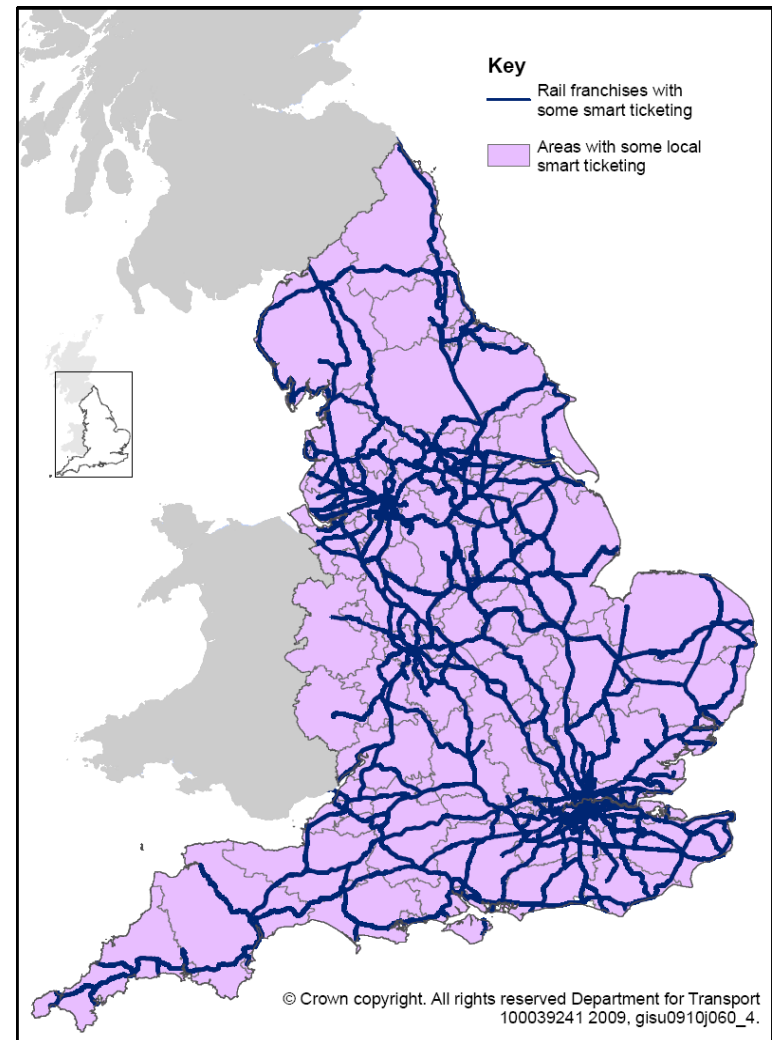


Figure 14: Map to show smart ticketing in 2020



# 12. Conclusions

- 12.1 There is a unique opportunity to shape the delivery of integrated smart ticketing in this country over the next five years. The technology is available and the current lack of widespread smart ticketing means that there is still significant scope to shape the ticketing landscape. The prize is significant - the opportunity to revolutionise ticketing arrangements for passengers and allow seamless travel around the country. 92% of consultation responses agreed with the Government's vision, but 77% thought that more needed to be done to get there. This strategy sets out what more the Government will do and how the vision can be realised.
- 12.2 To deliver this strategy and realise the vision set out in section 3 requires partnership working. The benefits realised by any one party are magnified by wider take up and integration, which in turn strengthens the business case for each party. This can be challenging, but the benefits on offer are considerable and well worth striving for.
- 12.3 The strategy seeks to address the issues identified by the Department and raised in the consultation as potentially holding back smart, integrated ticketing. The Government's aim is to ensure that rollout happens as speedily as possible, maximising the benefits.

## **The Government's Strategy**

- Set a clear vision for the future, a roadmap for delivery and provide strategic leadership;
- Ensure that ITSO provides a high quality technical solution for interoperability that encompasses new technologies as they develop;
- Improve the business case for Local Authorities and operators to invest in and deliver ITSO smart ticketing;
- Facilitate the development of integrated tickets using existing tools with the possibility of further legislation if there is no progress;
- Ensure London is fully integrated with ITSO and wider networks whilst allowing TfL to continue to innovate;
- Work with the Devolved Administrations, particularly Wales and Scotland, to deliver seamless cross-border travel;
- Explore options to improve information to the passenger whilst maintaining privacy and complying with data protection requirements.

## Role of Other Stakeholders

- 12.4 The Government cannot deliver the vision alone. Buy-in from other stakeholders and partnership working between them is essential to successfully delivering the vision. However, it is the Government's firm belief that there is a positive business case for all parties involved.
- 12.5 The benefits to the passenger are clear and these are what should ultimately drive the policy of an authority or operator. Delivering these benefits to the passenger can encourage them to move from private cars and use more public transport.
- 12.6 Increasing use of public transport can in turn help public authorities meet their transport, environmental and wider objectives while also increasing operator revenue. Smart ticketing in particular can also bring direct efficiency and planning benefits.
- 12.7 As the strategy makes clear, ITSO Ltd is vital to the delivery of the vision. Its role in maintaining and supporting the ITSO specification underpins the aims of widespread adoption and interoperability. Seamless travel is simply not possible without ITSO.
- 12.8 Partnership working can be a challenge, but the Government is confident that by working together, the key stakeholders can deliver a ticketing system that can deliver benefits for all including, most importantly, for the passenger.

Stakeholder	Envisioned Role
ITSO Ltd	<ul style="list-style-type: none"> <li>• Provide a robust specification, and maintain the ITSO environment</li> <li>• Incorporate new technologies within the ITSO environment</li> <li>• Act as champion for the ITSO specification</li> <li>• Engage with European and ISO standards work</li> </ul>
PTE / Large Urban Transport Authorities	<ul style="list-style-type: none"> <li>• Work in partnership with operators to develop urban integrated smart schemes</li> <li>• Deliver back offices capable of wider expansion for economies of scale</li> <li>• Lead on integrated ticketing development</li> <li>• Administer concessionary travel</li> </ul>

## 12. Conclusions

Smaller and Rural Transport Authorities	<ul style="list-style-type: none"><li>• Seek partnership working with larger authorities for economies of scale</li><li>• Lead on local integrated ticketing development</li><li>• Administer concessionary travel</li></ul>
Local Transport Operators	<ul style="list-style-type: none"><li>• Invest in smart infrastructure</li><li>• Engage with integrated ticketing schemes</li><li>• Develop new, innovative ticketing products</li></ul>
Train Operating Companies	<ul style="list-style-type: none"><li>• Deliver franchise agreements around infrastructure and smart ticketing usage</li><li>• Better integration with local ticketing and smart schemes</li></ul>
Suppliers	<ul style="list-style-type: none"><li>• Continue to develop smart equipment</li><li>• Develop integrated infrastructure</li><li>• Possible role of delivering a managed service to smaller operators or even some Local Authorities</li></ul>
Banking / mobile phone sectors	<ul style="list-style-type: none"><li>• Engage with transport providers and the Department for Transport to develop products and eco-systems for the transport ticketing market</li></ul>
Department for Transport	<ul style="list-style-type: none"><li>• Provide strategic leadership and deliver the commitments outlined above</li></ul>

## Summary of Government Commitments

12.9 To deliver the strategy outlined above, the Department will take forward the following commitments:

### Strategic Leadership

Commitment 1: To establish a dedicated smart and integrated ticketing team

Commitment 2: To conduct a detailed assessment of a national Pre-Pay scheme

Commitment 3: To support existing schemes and facilitate the sharing of best practice

Commitment 4: To engage with key stakeholders, including new technologies like EMV and NFC

Commitment 5: To support the Department for Work and Pensions in considering smart cards for providing access to entitlements

### **ITSO & New Technologies**

Commitment 6: To provide ITSO Ltd with more resources and strategic planning in the short term

Commitment 7: To work with ITSO Ltd to develop a long term business plan

Commitment 8: To input into ISO proposed work item 14806

Commitment 9: To ensure that NFC mobile phones can be fully utilised in an ITSO environment

### **Delivery of Infrastructure**

Commitment 10: To provide up to £20m of additional funding to large urban areas to speed up the development of smart ticketing schemes

Commitment 11: To continue to allow the use of Regional Funding Allocations (which includes Major Schemes and IT Block funding) for smart ticketing schemes, and to assist interested Local Authorities with developing business cases.

Commitment 12: To pay a BSOG differential of 8% for bus operations with ITSO smart ticketing systems and providing data as requested from April 2010

Commitment 13: To put framework agreements in place for smart ticketing services and equipment

Commitment 14: To include smart ticketing requirements in all newly let rail franchises

### **Integrated Tickets**

Commitment 15: To encourage the full use of existing tools to deliver integrated ticketing

## 12. Conclusions

- Commitment 16: To engage with the OFT about competition law and the block exemption
- Commitment 17: To engage with the possible referral of bus operators to the Competition Commission
- Commitment 18: To produce best practice guidance for introducing smart and integrated products
- Commitment 19: To engage with the FSA over the relaxation of e-money rules
- Commitment 20: To encourage more integration between local schemes and National Rail
- Commitment 21: To continue with end-to-end journeys workstreams such as PlusBus
- Commitment 22: To closely monitor progress and determine whether further legislation may be necessary

### **London**

- Commitment 23: To sponsor the £60m ITSO on Prestige (IOP) project

### **Other Workstreams**

- Commitment 24: To work with Transport Direct and scheme operators to improve provision of local ticketing and fare information
- Commitment 25: To incentivise the provision of real time information provision through BSOG
- Commitment 26: To produce a Privacy Impact Assessment and related guidance for schemes
- Commitment 27: To work with the Devolved Administrations to deliver seamless cross border travel

# 13. Annex A - Local Ticketing Regulatory Framework

- 13.1 This section sets out briefly the main aspects of the regulatory framework for local ticketing schemes. It is an overview and all parties involved in setting up integrated schemes should ensure they are familiar with the source legislation and have their own legal advice.

## Transport Act 2000

- 13.2 Sections 135 - 138 of the Transport Act 2000 give Local Authorities the power to set up a ticketing scheme and to compel operators to join the scheme. This includes bus, train and tram operators.
- 13.3 However, the Act does not give the authority to set the fare prices. These must be set through agreements with operators which must be consistent with Competition Law, particularly Chapter 1 of the Competition Act 2008.

## The Competition Act 1998 and the Block Exemption

- 13.4 Chapter 1 of the Competition Act 1998 (CA98) prohibits agreements and concerted practices that prevent, restrict or distort competition, unless they are exempt in accordance with the provisions. Prohibited agreements and concerted practices include those which "directly or indirectly fix purchase or selling prices or any other trading conditions", which clearly can apply to integrated tickets and mean that an exemption is likely to be required.
- 13.5 To be exempt from the CA98, a ticketing scheme would either need to satisfy the conditions of section 9 of CA98, which sets out the criteria for individual exemption, or fall within a category of agreement specified as a block exemption under section 6 of CA98.
- 13.6 Section 9 of CA98 exempts agreements which contribute to (i) improving production or distribution, or (ii) promoting technical or economic progress, while allowing consumers a fair share of the resulting benefit; as long as they do not (i) impose restrictions which are not indispensable to delivering the above objectives; or (ii) afford opportunity to eliminate competition. These could be satisfied by a ticketing scheme. It is not necessary to apply to the OFT for an

exemption under section 9 and but all parties must be satisfied that they have met the requirements of CA98.

- 13.7 To provide greater certainty for those who may be less familiar with Competition law, there is a specific block exemption<sup>12</sup> from Chapter 1 of the CA98 for multi-operator ticketing schemes. This allows operators to set the price of multi-operator travel cards and agree revenue sharing arrangements.
- 13.8 The block exemption was put in place after consultation with the industry to exempt from the Chapter 1 prohibition, categories of agreement that are likely to satisfy the conditions in Section 9 of CA98, such as multi-operator schemes. This provides greater assurance that schemes do not contravene competition law.
- 13.9 A further point to note is that if a ticketing scheme agreed as part of a Voluntary Partnership Agreement that is certified by the Local Transport Authority as meeting the Part 2 competition test contained in schedule 10 of the Transport Act 2000 (as amended)<sup>13</sup> is subsequently found to be anti-competitive, the OFT cannot levy a fine, though the scheme would either have to be remade or the offending part of the agreement removed (see below).

### The Local Transport Act 2008

- 13.10 The Local Transport Act 2008 (LTA 2008) included measures to strengthen the range of options available to Local Transport Authorities to secure a wide range of improvements to bus services. The LTA 2008 focused on three main tools, Voluntary Partnership Agreements, Quality Partnership Schemes and Quality Contract Schemes.

### **Voluntary Partnership Agreements (VPA)**

- 13.11 These are voluntary agreements between Local Authorities and bus operators and work very well in places where both sides see mutual advantage in agreeing packages of improvements. Subject to certain conditions, a VPA could be used to agree arrangements for smart or

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<sup>12</sup> Competition Act 1998 (Public Transport Ticketing Schemes block exemption) Order 2001 (SI 2001 No 319)

<sup>13</sup> By the Local Transport Act 2008.

integrated ticketing, and this could include agreement to a maximum fare for (say) a multi-operator day travelcard.

- 13.12 The LTA 2008 also amended the application of competition law to certain agreements involving bus operators and authorities, and certain agreements between operators. As a result, if a VPA certified by the local transport authority is subsequently found to be anti-competitive by the OFT, the sanctions available to the OFT would not include their usual power to impose fines.<sup>14</sup> This is intended to provide some comfort to operators about the competition law risks of entering into VPAs, and these provisions would be helpful where operators and Local Authorities shared a clear commitment to deliver smart and integrated ticketing that would be of benefit to their passengers.

### **Quality Partnership Schemes (QPS)**

- 13.13 A QPS is a scheme made by a local transport authority which imposes minimum standards of service on operators who wish to use 'facilities' (eg bus lanes) made available by the Local Authority. Offering smart and/or integrated ticketing could be part of the standard of service included in a scheme, as could a provision setting a maximum price for specific types of ticket (subject to certain conditions, including that there must be freedom for operators to charge a price that is lower than the specified maximum price).
- 13.14 Operators can generally choose to participate (i.e. they can continue to operate services without meeting the scheme standard, but are then prohibited from using the Local Authority's facilities).
- 13.15 A QPS could be used to deliver smart ticketing infrastructure, particularly on certain routes. However a conurbation-wide integrated ticketing scheme would need to be matched by a substantial conurbation-wide investment in facilities that benefit operators.

### **Quality contracts schemes (QCS)**

- 13.16 A QCS is intended to enable Local Transport Authorities to introduce a London-style bus network, where the Authority defines the bus network and services on that network are provided under contract to the

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<sup>14</sup> Provided the arrangement does not involve price fixing and is not in breach of Article 81 of the EC Treaty.

Authority. This could be used to deliver London-style integrated ticketing. The LTA 2008 makes QCSs a more realistic option for Local Authorities.

- 13.17 There is a trade off for this greater control, as moving towards a more heavily regulated bus market is a large task and would require ongoing resources to maintain. However, QCSs do provide a route through which a Local Authority could deliver a highly integrated, smart ticketing scheme.

## **E-Money Directive**

- 13.18 The final text of the e-money directive was released in October 2009. The FSA will run a consultation in 2010 and follow it up with guidance before the new directive becomes law on 1 May 2011. The Department will engage with the FSA to clarify what the new measures are and how they will effect the roll out of schemes

# Annex B – Consultation Responses

13.19 In total 122 responses were received. These responses can be broken down as follows:

Local Government	44
Large Company	32
Small to Medium Enterprise	15
Representative Organisation	18
Interest Group	3
Member of the Public	3
Other	7
<b>Total</b>	<b>122</b>

13.20 A full list of those organisations that responded is below.

## Summary

- 13.21 Overall, the majority of respondents agreed with our position on smart and integrated ticketing and supported our vision for the future. The responses provided valuable information and have helped to shape the final strategy.
- 13.22 Central Government funding was perhaps the most common issue raised as were concerns about the business case for operators. These are addressed in section 6 and the operator business case is looked at in Annex C.
- 13.23 There was also a clear message that the Department for Transport has an important role in providing strategic leadership and the need for a clear roadmap with milestones. Section 11 sets out the overall strategic roadmap and section 4 sets out how the Department will increase its strategic capabilities. The Department is also clear that the issues here should not be considered in isolation and are embedded within wider policy.

- 13.24 The importance of ITSO and the need for a robust organisation and specification was also highlighted by many. This is well understood by the Department and addressed in section 5.
- 13.25 A large number of responses felt that further legislation may be necessary to deliver more integration. The measures to encourage legislation are considered in section 7. Further legislation has not been ruled out if there is no progress in the matter.
- 13.26 The need to ensure social inclusion, particularly for the unbanked was raised by many and the strategy recognises this. It also recognises the importance of data protection, which was raised by many and is considered in section 9.
- 13.27 Many responses also highlighted the potential of smart ticketing to links public service delivery. While the focus remains transport this is considered in the strategy.

## Summary of Responses

### Q1. Is the proposed scope of the strategy the right one?

**Yes: 83**

**No: 28**

**No Answer<sup>15</sup>: 11**

- 13.28 A clear majority of respondents agreed with the scope of the strategy. The most common point raised by those who did not was that the Department for Transport should play a more active role in the delivery of the strategy, possibly by introducing more legislation to compel operators to offer integrated tickets at a fair price. A number of responses also suggested that the scope of the strategy should be broadened to encompass more links to public services and to include a more detailed indication of the funding and pricing structures that would be involved.

### Q2. Do you agree that integrated ticketing can improve the offer to the public and encourage modal shift?

**Yes: 113**

**No: 2**

**No Answer: 7**

- 13.29 The vast majority of respondents agreed that integrated ticketing would lead to modal shift, with most citing the increased flexibility and

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<sup>15</sup> Responses were considered as having no answer if the respondent left the question blank, or answered both “Y” and “N”

convenience as the principal benefits. However, many respondents noted that the benefits associated with integrated ticketing would not arise out of integration alone, but rather out of an associated package of benefits including fare simplification and improved reliability of buses.

**Q3. Do you see any benefits to integrated ticketing that have not been covered?**

**Yes: 71**

**No: 41**

**No Answer: 10**

13.30 A number of additional benefits were identified, the principal ones being the possibility of incorporating public services into the card, generating tourism, links to green living and increasing targeted marketing opportunities.

**Q4. Do you agree that smart ticketing can improve the offer to the public and encourage modal shift?**

**Yes: 110**

**No: 4**

**No Answer: 8**

13.31 The vast majority of respondents agreed that smart ticketing could lead to modal shift, with most citing the opportunities for seamless travel with varied ticketing, the removal of cash and the ease of use as the principal benefits. However, as with integrated ticketing, many respondents noted that smart ticketing only added value as part of a package of benefits.

**Q5. Are there any benefits to smart ticketing that have not been listed in the document?**

**Yes: 70**

**No: 40**

**No Answer: 12**

13.32 A number of additional benefits were identified. Many suggestions provided more detail over the main themes already included in the consultation, such as better data and incorporating other services into the same smartcard, while the safety and security for children travelling to school and also the improved overall image of public transport was also raised.

**Q6. Are there any issues around smart ticketing and privacy that you would like to bring to our attention?**

**Yes: 70**

**No: 35**

**No Answer: 17**

13.33 A range of issues relating to privacy were raised by the respondents, the main one being that an anonymous option for transactions was vital to allow people to be able to use the technology with confidence. Other issues included the importance of complying with all data protection

legislation, the need for clear ownership of data by the relevant company or Local Authority and the need to gain and maintain trust in data security from users.

**Q7. Do you agree that EMV will play an important role in the future of ticketing?**

**Yes: 86**

**No: 12**

**No Answer: 24**

13.34 The majority of respondents believed that EMV would play a role in the future of ticketing, with most citing the advantages to occasional users and the fact that it is a recognised international standard as the main benefits. However, concerns were raised about the fact that the infrastructure is not yet well adapted to ticketing and the fact that it is suitable for some but not all users, such as the unbanked.

**Q8. Are there any barriers to EMV cards becoming widely used for ticketing?**

**Yes: 103**

**No: 7**

**No Answer: 12**

13.35 The main barriers identified included high costs to operators and passengers, the maximum limit of £10 per transaction (though this may soon be raised to £15), lack of provision for social inclusiveness and lack of necessary partnership between key stakeholders, especially ITSO.

**Q9. Do you agree that NFC will play an important role in the future of ticketing?**

**Yes: 102**

**No: 11**

**No Answer: 9**

13.36 The majority of respondents thought NFC would be important in the future of ticketing. The principal benefits identified were the fact that ticketing products and information could be displayed on the screen and the ease and convenience of not having to buy a separate ticketing product.

**Q10. Are there any barriers to NFC mobile phones becoming widely used for ticketing?**

**Yes: 102**

**No: 7**

**No Answer: 13**

13.37 The main barriers identified included the potential for fraud and security issues associated with revealing your phone on public transport, the dependence on good inter-industry relationships between the mobile phone industry and the transport industry, currently unproven, and the high capital and development costs.

**Q11. Are there any other ticketing technologies that you think will play an important part in future ticketing?**

**Yes: 61**

**No: 42**

**No Answer: 19**

13.38 Respondents identified a number of technologies that they predicted would play a role in ticketing including biometric embedded media, bar code ticketing and print at home tickets. Many respondents also suggested that to consider smart media only in the form of cards was limited as it could also come in the form of key fobs, wrist bands, guide dog collars and stickers.

**Q12. Do you agree with this analysis of current arrangements?**

**Yes: 79**

**No: 22**

**No Answer: 21**

13.39 The majority of respondents agreed with the Department's analysis of current arrangements. Concerns were raised over some assumptions in the business case which many respondents believed overstated the benefits of smart ticketing, the fact that the operator business case was not proven and the lack of clarity in competition law.

**Q13. Are there other problems with current arrangements not included here?**

**Yes: 75**

**No: 31**

**No Answer: 16**

13.40 The main issues identified were the need to compel operators into offering integrated tickets more widely and cheaply since they had not done so of their own accord and the fact that social inclusion issues had not been sufficiently addressed.

**Q14. Why do you think smart ticketing is not already more widespread?**

13.41 A number of different reasons were identified including the high costs and lack of available capital, the lack of a business case for operators, the complexity and costs associated with ITSO and the continued expectation that the Government would provide widespread funding.

**Q15. Are there issues we have not identified regarding the introduction of integrated tickets?**

**Yes: 84**

**No: 28**

**No Answer: 10**

13.42 The main issues that arose were a lack of clarity surrounding the relationships between various stakeholders and the problems surrounding revenue sharing arrangements.

**Q16. Do you agree with this proposed vision as the right aspiration for public transport in England?**

**Yes: 102**

**No: 9**

**No Answer: 11**

13.43 A clear majority of respondents agreed with the proposed vision for the principal reason that it will improve the transport offer to the public. However, there were concerns that it would not be well implemented because of the variety of stakeholder interests, the lack of adequate funding provisions, the lack of cross boundary plans and the fact that ITSO is not strong enough to support it.

**Q17. Is the vision deliverable?**

**Yes: 84**

**No: 20**

**No Answer: 18**

13.44 Most respondents agreed that the vision was deliverable but several caveats were raised, the main ones being that it was deliverable subject to more funding, subject to more defined road maps and timescales, subject to a different approach being taken in the PTEs from the smaller regions and subject to ITSO expanding its supplier base. The Department acknowledges the importance of adopting different approaches in different regions, as set out in section 11.

**Q18. Do you think the current ITSO specification and organisation can deliver this vision?**

**Yes: 47**

**No: 42**

**No Answer: 33**

13.45 Opinion was divided over whether ITSO could deliver the vision. Respondents suggested that, for the strategy to succeed, it was important to separate the technical specification from the strategic role and that the strategic role should not necessarily lie with ITSO. Other issues identified included the fact that ITSO could be considered expensive and complex, and that security has been prioritised. Read times are a concern and there was a suggestion that amendments could be made to better suit the commercial market, and the rail industry.

**Q19. Should DfT play a role in shaping the system architecture for smart ticketing in England?**

**Yes: 100**

**No: 10**

**No Answer: 12**

13.46 A clear majority of respondents felt that DfT should play a role, with the majority proposing that this role should involve more funding, or greater leadership. Further suggestions included promoting partnerships further, especially in relation to shared HOPS, producing guidance on

how to implement systems and compelling operators to ensure interoperability.

**Q20. Do you agree that the existing tools are sufficient to allow the creation of integrated ticketing products?**

**Yes: 59**

**No: 47**

**No Answer: 16**

13.47 Opinion was divided over whether the existing tools are sufficient. The majority of respondents who disagreed cited the necessity for amending legislation to allow more flexibility over e-money limits and to compel operators to set fair prices for integrated tickets, fears over competition law and the complexity of Quality Contracts.

**Q21. Do you agree with the outline strategy?**

**Yes: 80**

**No: 28**

**No Answer: 14**

13.48 The majority of respondents agreed with the outline strategy but some key concerns were identified. There was a concern that BSOG involved direct funding to operators and did not involve Local Authorities and could favour large operators. Financial concerns arose again as respondents felt that more pump priming funding would be required to implement the strategy.

**Q22. Do you think that the successful delivery of the Department's existing policy commitments will be sufficient to deliver the vision?**

**Yes: 23**

**No: 78**

**No Answer: 21**

13.49 There was a clear view that the existing policy commitments would not be sufficient to deliver the vision. Reasons given for this were wide-ranging and included the fact that too much was riding on the impact of BSOG, that operator business cases should be made clearer, that stronger leadership and ownership of the strategy was needed from DfT and that more local and central Government funding was needed.

**Q23. Would these suggested workstreams help deliver the vision?**

**Yes: 104**

**No: 2**

**No Answer: 16**

**If you answered “Yes”, please indicate (with "x") which workstreams would help deliver the vision:**

- Putting in place national Framework Agreements to assist Local Authorities deliver smartcard infrastructure: **Y81**
- Evaluation of whether the introduction of a National Pre-pay scheme is desirable: **Y67**

- Facilitate sharing of best practice between schemes: **Y81**
- More formal engagement with new technologies such as EMV and NFC: **Y75**
- Advice on Data Protection and Privacy: **Y69**
- A smart and integrated ticketing competition: **Y44**
- Further modelling of costs and benefits: **Y71**

13.50 Respondents widely supported the suggested workstreams, with sharing of best practice and national framework agreements being judged the most useful. A smart and integrated ticketing competition received least support as respondents felt that this could be used to fund further pilots, which were judged unnecessary.

**Q24. Short of direct funding (beyond current and planned incentives and provisions) is there anything else Central Government should do to encourage the roll out of integrated smart ticketing?**

**Yes: 95**

**No: 12**

**No Answer: 15**

13.51 The most common suggestion was for the Department to set clearer goals and milestones for implementation for all concerned stakeholders including the Department itself. Other suggestions included making sure that ITSO is robust and providing incentives for more private investment.

**Q25. Do you agree with the roles for the key stakeholders?**

**Yes: 72**

**No: 36**

**No Answer: 14**

**If you answered “No”, please indicate which stakeholder roles you disagree with:**

- Local Authorities: 29 disagree
- Operators: 15 disagree
- ITSO Ltd: 15 disagree
- Suppliers & Consultants: 9 disagree

13.52 The majority of respondents agreed with the role for each key stakeholder. The role of Local Authorities was the most disputed, but even here only 24% of responses disagreed. The main concern raised was that some respondents did not consider Local Authorities to be best placed to lead the implementation in their areas and preferred either a neutral overseer, or the Department for Transport.

**The following organisations & individuals sent in consultation responses:**

ALBUM (Association of Local Bus Company Managers)	Mastercard
Allerdale Borough Council	Merseytravel
Almex UK	National Express
Arriva	NedRailways
Association of NE Councils	NESTI
ATCO	Network Rail
ATOC	Newbury Data
Atos Origin	Norman Louis
Barclaycard	North Somerset Council
Bath & NE Somerset	Northampton Borough Council
Bemrose Booth	Nottinghamshire County Council
Blackpool Council	NTegrity UK Ltd
Boosting Advanced Public Transport Systems (BAPTS)	Oberthur Technologies
Brighton & Hove City Council	PA Consulting
Bristol City Council	Parkeon Transit Ltd
Bus Users UK	Passenger Focus
Campaign for Better Transport	Paypoint Plc
Castle Borough Council	Plymouth City Council
Centro	Poole Borough Council
Chana Systems Ltd	PriceWaterhouseCoopers LLP
Chartered Institute of Logistics & Transport	PTEG
Cheshire Concessionary Travel Consortium	Railfuture
Cheshire ITS	Red Dragon Card Ltd
Citigroup	RFIT Solutions Ltd
Concept Data Technologies Ltd	RMT
Consult Hyperion	RTIG -Inform
County Councils Network	Rushmoor Borough Council
CPT UK	Scheidt & Bachmann GmbH
Cubic	Serco-NedRailways
Cumbria County Council	Smartcard Networking Forum (SNCF)
Derby City Council	Smartran Ltd
Devon County Council	Sony Felica
Dominic Lund-Conlon	Soul Dyalog Consultants
Ecebs Ltd	Southampton City Council
ePay UK	Sparta Technologies
Essex County Council	sQuidcard Ltd

Annex B – Consultation Responses

Exeter City Council	St Helens Council
First Group	Stagecoach Group
Fujitsu	Stockton-on-Tees Borough Council
Gemalto	Suffolk County Council
GEP Tec Ltd	Sustainable Travel Group, Upper Calder Valley Renaissance
GMPTE/GMITA	SW Smartcard Board
Go-Ahead Group	SYPTTE
Greater Manchester Travelcards Ltd	Tandridge District Council
Hampshire County Council	Telford & Wrekin Council
Herefordshire Council	The Human Chain
Hertfordshire County Council	thetrainline.com
HP Enterprise Services	Thurrock C
Institution of Engineering and Technology	Ticketeer (Corvia Ltd)
Institution of Highways and Transportation (IHT)	Transport for London
Iosis Associates	Travelwatch North West
ISL	TSYS
John Waugh	UK Cards Association
Journey Solutions Partnership	UK Mobile Contactless Forum (Telefonica O2 UK, Orange UK, Vodafone UK, T-Mobile UK, 3, Virgin)
Keane Inc	Unicard Ltd
Kevin Howard	Visa Europe
LGA	West Lancashire Borough Council
Lincolnshire County Council	West Lancashire Local Strategic Partnership Integrated Transport Thematic Group
Logica	West Midlands Campaign for Better Transport
London TravelWatch	Worcestershire County Council
Masabi Ltd	York City Council

**The following organisations also offered comments:**

OFT	TCF Working Group 21
ICO	CPRE

# Annex C – Business Cases

## Disclaimer

- 13.53 Please note that the following business cases are indicative only. They are based on the best possible information available to the Department for Transport at the time.
- 13.54 All figures included in the business case tables are rounded, so there may be some minor rounding errors.

## National Business Case for Smart Ticketing

- 13.55 The commentary and table below summarise the different elements of the calculation of the benefits and costs associated with the introduction of smart ticketing. The calculations are based on two variants of the full take up of smart cards. The first uses savings in bus boarding times, number of existing passengers and ticket types affected, and demand responsiveness of new passengers to an effective reduction fare that is thought to be achievable in conditions favourable to smart ticketing. The first variant also has a lower optimism bias on capital costs. The second variant takes the same factors into consideration but assumes conditions are less favourable to smart ticketing, and a higher optimism bias on capital costs.
- 13.56 For the purposes of this calculation, and unless otherwise stated, the benefits and costs associated with trips on buses and roads, and factors affecting the operation of buses, are to do with England outside London only. The costs and benefits attributable to rail are assumed to be national.

## Benefits

### Bus

#### Journey time savings to existing bus passengers

- 13.57 This is based on estimates of savings in boarding times that smart tickets could bring, compared with the current situation that comprises a mixture of ticket types including cash tickets and period tickets, and a variety of boarding and alighting arrangements. Various sources have been consulted, to produce a range of 1.5 to 4 seconds saving per passenger boarding. The average number of people on a bus is estimated from different sources, with a range of 10 to 15.

- 13.58 Combining the boarding time saving and average number of people on the bus produces an average journey time saving per passenger of 15 seconds to 1 minute. This saving in time is then converted to a value based on average bus passenger value of time of £7.49 per hour.

**Benefit 1:** Range of £77m to £309m pa for England outside London bus trips

### **Benefits to existing passengers of smart tickets**

- 13.59 A range of quantitative and qualitative studies have found positive responses to elements of the smart card offer. Benefits are said to include ease of use (less need to carry cash, more certain budgeting), more flexible journey choice of mode, route, timing, and easier interchange within and between modes. However there is no simple read across from a ticket type effect to time savings or a cash fare equivalent. Ticketing schemes tend to be introduced at the same time as other changes, such as simplified fare structures, so isolating their effect is not easy. And there is a wide range of existing ticket types, so there is no single comparison that can be used as a reference case.
- 13.60 As an initial estimate and for the purposes of this business case, we assume that the ticket effect is the same as, and additional to, the dwell time effect for the low dwell time saving case. And this effect is applied in both the low and high dwell time cases. The effect is similar to a reduction of 3p, or 2.5%, of the average bus fare.

**Benefit 2:** £55m pa for England for outside London bus trips

### **Operating cost savings to bus operators**

- 13.61 This is based on the estimated reduction in boarding time and number of trips outside London to produce a saving in bus hours. Then using an estimate of average speed and average operating costs per bus vehicle km (from DfT data) to calculate a saving in total operating costs. The estimate assumes that small changes in bus hours can be translated into a full saving of average costs. The range shown below reflects the range of dwell time savings.

**Benefit 3:** Range of £21m to £57m pa for buses outside London

### **More accurate concessionary fare reimbursement**

- 13.62 This is based on experience in Scotland of a typical 5% reduction in reimbursement.

**Benefit 4:** £39m pa for buses outside London

### Reduction in fraud (overriding)

13.63 This is based on TfL and other experience of a 2% uplift in bus revenues.

**Benefit 5:** £42m pa for buses outside London

### Saving in surveys

13.64 This is based on Nottingham's experience.

**Benefit 6:** £5m pa for buses outside London

### Reduction in CO2 in buses

13.65 This is calculated from the reduction in bus vehicle km, fuel consumption for buses (from *WebTAG 3.5.6 Values of Time and Operating Cost*), and value of CO<sub>2</sub>, from *Carbon Appraisal in UK Policy Appraisal: A revised Approach*. The calculation does not take account of increase in bus vehicle km to cater for additional demand.

**Benefit 7:** £1m to £2m pa for buses outside London

### New net revenue to bus operators

13.66 This is calculated from applying the saving in journey time due to boarding time savings as equivalent to a fare reduction, and then using standard fare elasticity to estimate increase in patronage and gross revenue. An additional effect from the benefit of smart and integrated tickets as described above is also included. The net revenue effect is estimated from using a power rule for costs. The increase in concessionary travel is assumed to be the same percentage increase as fare paying passengers but for the dwell time only effect. The increase in concessionary passengers translates into extra revenue using the existing unit reimbursement rate for concessionary passengers. The range is based on the variation in saving in dwell time.

**Benefit 8:** £34m to £101m pa for buses outside London

### Benefits to new users

13.67 This is calculated from the increase in patronage noted above, and applying 50% of the benefit per existing passenger from journey time savings and ticket effects. The range is based on variation in saving in dwell time (reflected in number of new journeys and rate of benefit)

**Benefit 9:** £2m to £13m pa for buses outside London

## Rail

### Passenger time saved at gates

13.68 The saving in time is based on experience at Liverpool Street with the switch from paper to smart cards, and number of passengers passing through stations with gates (all England), value of time of rail passengers and waiting time uplift. The range is dependent on the percentage of tickets that are likely to be purchased using smart cards. The upper end assumes 100% of ticket sales at kiosks are affected, the lower end assumes only journeys below 25 miles (66%), with larger denomination tickets paid for by existing methods.

**Benefit 10:** £21m to £32m pa

### Passenger time saving at kiosks

13.69 Passenger time savings at kiosks are based on the number of rail ticket transactions, the saving in time for each transaction (20 or 30 seconds), the rail passenger value of time and waiting time uplift. The range is dependent on the percentage of tickets that likely to be purchased using smart cards. The upper end assumes 100% of ticket sales at kiosks are affected, the latter assumes only journeys below 25 miles (66%) are affected, with larger denomination tickets paid for by existing methods.

**Benefit 11:** £65 to £147m pa

### Benefits to existing passengers of smart tickets

13.70 There is a similar argument for bus passengers but no specific evidence, so for the purposes of this analysis, similar benefits to the sum of time savings of access and time at kiosks for the low case are assumed.

**Benefit 12:** £86m pa

### Saving in ticket sales costs

13.71 This is based on the overall cost of rail ticket sales of £500m pa. The upper end of the range assumes that half of this can be saved if all individual transactions at kiosks can be transferred to smart card, and the lower end of range assumes that a third can be saved if the 66% of rail journeys that are less than 25 miles can be transferred to smart

card. Longer, more expensive train journeys may not be transferred to smart card.

**Benefit 13:** £165m to £250m pa

### **Reduction in fraud (overriding)**

13.72 This is based on TfL and other experience of a 1% uplift in train revenues. Proportions have been applied to all of rail ticket sales. This effect increases recorded journeys and operator income.

**Benefit 14:** £56m pa

### **New net revenue to rail operators**

13.73 This is based on the estimated increase in journeys following from savings in entry, buying tickets and ticket type using an equivalent reduction in fare and standard price elasticity. The range is based on assumptions about the proportion of journeys that can be transferred to smart. It also assumes that net revenue gain is half of gross revenue gain. The actual distribution of these amounts between operators and Government depends on the terms of the TOC contracts.

**Benefit 15:** £56m to £85m pa

### **Benefits to new rail passengers**

13.74 This is based on the calculation for new net revenue and half the rate of benefit for existing passengers.

**Benefit 16:** £1m to £2m pa

### **Car traffic**

#### **Congestion savings**

13.75 This is based on car traffic in urban areas outside London, and using cross elasticities of car traffic with respect to bus or rail fare. The ranges are based on the range of dwell time savings, ticket scheme impacts and cross elasticities, and use a congestion saving of 20p per vehicle km. No account is taken of the extent to which road traffic might increase to fill up the released capacity.

**Benefit 17:** £28m to £75m for transfer to bus

**Benefit 18:** £21m to £53 m for transfer to rail

## CO2 savings

13.76 This calculation starts from the reduction in car vehicle km calculated in congestion saving. It applies fuel consumption rates from *WebTAG 3.5.6 Values of Time and Operating Cost*, and value of CO2, from *Carbon Appraisal in UK Policy Appraisal: A revised Approach*.

**Benefit 19:** £2m to £4m pa for transfer to bus

**Benefit 20:** £1m to £4m pa for transfer to rail

## Costs

### Bus & Rail

13.77 The capital and operating costs are based on figures in the consultation document with some minor revisions.

13.78 A major consideration is the degree to which capital and operating costs are adjusted for risk and appraisal optimism. Some previous smart card projects have had significant cost and time overruns. In the capital cost estimates for the consultation document there was an amount for consultancy (£55m allocated to buses and £104m allocated to for rail). It is designed to assist the process of integration of back office and other activities of the transport operators and authorities. Integration of operations was highlighted as one of the unforeseen costs of smart ticketing. In addition a 20% contingency was applied to all capital and operating costs.

13.79 A detailed assessment of the risks of smart ticketing is beyond the scope of this analysis, but some observations below are based on existing material and experience with other projects with IT components. Some of the costs of smart ticketing are reasonably certain because they involve buying off-the-shelf existing equipment, there is a known number of buses and other assets and infrastructure that are relevant to ticketing, and the ITSO licensing costs are known. On the other hand the requirement to integrate back office and other functions such as administration and IT, involving a number of organisations with different cultures and existing systems is a significant risk. Previous experience with IT projects highlight additional costs arising from unanticipated requirements and integration of existing systems.

13.80 Advice in the Green Book, *Appraisal and Evaluation in Central Government* and in *WebTAG 3.5.9c, The Estimation and Treatment of*

*Scheme Costs*, suggests that IT projects in the early stages of appraisal should be subject to a 200% optimism bias uplift on capital costs. In projects with a mixture of IT and other elements a composite optimism bias uplift might be applied, so an uplift of, say 66%, might be applied for smart ticketing.

- 13.81 The consultancy and contingency in the project costs shown in the consultation document are an uplift of 52% on capital costs attributable to bus and 44% on capital costs attributable to rail. It is arguable whether these elements are another way of considering optimism bias, or are part of a quantified risk assessment to which optimism bias should be added. To the extent that either directly or indirectly the capital costs will be incurred by private sector operators, there is a commercial incentive on them to control risk. On the other hand the operators are not at this stage directly involved in the process of estimating or controlling capital costs. For the purpose of the calculation of capital costs, the figures used in this analysis show capital costs with the existing contingency and consultancy, and a variant with an additional uplift to get to 66%. If the full 66% uplift were applied to the capital costs on top of the contingencies and consultancy, the bus capital costs would be £521m and the rail capital costs £1,230m.

## **Overall**

- 13.82 On the basis of the figures presented in the table below it would appear that taking in all the benefits that accrue to passengers, operators and road users, the introduction of smart ticketing would more than cover the up front costs. And so long as the benefits continue for a number of years this result holds even with a low demand and high optimism bias uplift on the capital costs. However, these results are dependent on a number of important assumptions:-

- Smart ticketing can achieve savings in dwell times, journey times and ticket buying times
- Full take-up of smart ticketing by passengers and operators
- The time gap between spending on equipment and achievement of full benefits is short.
- The risks of the project are successfully managed.
- Smart ticketing can work in a variety of market situations (or that market situations change to accommodate smart ticketing)
- Operators and Authorities can work together to produce integrated IT and back office functions.

**Summary of benefits and costs of smart card (£m)**

	<b>High demand/ low optimism bias</b>	<b>Low demand/ high optimism bias</b>
<b>Bus annual benefits</b>		
Journey time savings to existing passengers	309	77
Ticket type benefits to existing passengers	55	55
Operating cost savings to operators	57	21
Carbon savings	2	1
Concessionary reimbursement	39	39
Fraud reduction	42	42
Saving in surveys	5	5
New net revenue to bus operators	101	34
Benefits to new bus users	13	2
<b>Total</b>	<b>621</b>	<b>275</b>
<b>Bus annual costs</b>	<b>66</b>	<b>66</b>
<b>Net bus annual</b>	<b>555</b>	<b>210</b>
<b>Car to bus pa</b>		
De-congestion	75	28
Carbon savings	4	2
<b>Total</b>	<b>80</b>	<b>30</b>
<b>Rail benefits pa</b>		
Time saved at gates by existing passengers	32	21
Time saved at kiosks by existing passengers	147	65
Ticket type benefits to existing passengers	86	86
Saving in ticket sales costs	250	165

*Smart and Integrated Ticketing Strategy*

Fraud reduction	56	56
New net revenue to rail operators	85	56
Benefits to new rail users	2	1
<b>Total</b>	<b>658</b>	<b>450</b>
<b>Rail annual costs</b>	<b>191</b>	<b>191</b>
<b>Net rail annual</b>	<b>467</b>	<b>259</b>
<b>Car to rail</b>		
De-congestion	53	21
Carbon	4	1
<b>Total</b>	<b>56</b>	<b>22</b>
<b>Total net annual</b>	<b>1159</b>	<b>520</b>
Bus capital costs	314	343 (521)
Rail capital costs	741	853 (1231)
<b>Total capital</b>	<b>1055</b>	<b>1197 (1752)</b>

## Operator Business Case for Smart Ticketing

- 13.83 This analysis estimates the effect on operators collectively in England outside London of introducing a nationwide smart card. The table below summarises the relevant costs and benefits. For the purposes of this analysis we make a number of assumptions organised into two cases. The high demand case follows from an estimate of dwell time savings of 4 seconds per boarding, and lower optimism bias uplift on capital costs. The low demand case follows from an estimate of dwell time savings of 1.5 seconds per boarding and a higher optimism bias uplift on capital costs. In both cases we assume that there is full take up of smart cards, i.e. that all public transport users will have a smart card.
- 13.84 The identified benefits to bus operators are reduced operating costs of bus services as service times reduce, increased net revenue from new passengers attracted to bus services, higher revenue as a result of reduction in fraud and reduced cost of surveys. The analysis includes an extra Bus Service Operators Grant (BSOG) payment of £800 per bus pa for all buses fitted with ITSO compliant smart card readers.
- 13.85 Also for the purpose of this analysis we assume that the general level of fares remains unchanged.
- 13.86 The additional operating costs are in part to do with running a smart ticketing system. These include ITSO costs, systems management, ticket sales cost, issuing replacement cards and contributing towards the costs of running back offices. There is also a 20% contingency.
- 13.87 Another element of additional costs is the reduction in concessionary fare reimbursement to operators. This comes about because smart ticketing is thought to lead to a more accurate (lower) level of recording of concessionary journeys.
- 13.88 Additional capital costs consist of equipment and systems required to support a smart ticketing system. The main elements are issuing cards, on-bus equipment, back office set up, settlement systems, ITSO costs, and an allowance for consultancy to co-ordinate different functions. There is also a 20% contingency in the low optimism bias case. In the high optimism bias an uplift factor of 66% (based on factors used to appraise transport projects with an IT component) is applied to the costs excluding contingency and consultancy. A further case of applying a 66% optimism bias uplift to the capital costs including contingencies and consultancy is shown in brackets in the table below.

- 13.89 Depending on the organisation of the back office functions it is possible that some of the capital costs might be incurred by groups of Local Authorities or other bodies. But in that case bus operators would pay an annual user charge.
- 13.90 In the high demand and low optimism bias case, the business case for bus operators as a whole looks favourable. Net annual benefits are 38% of the capital costs, so that the pay back period to operators would appear to be relatively short (just over 3 years at a 10% discount rate, or a 37% rate of return over 10 years). But this favourable picture does depend on both the level of benefits and the speed and co-ordination with which the smart card is introduced and its benefits actually achieved.
- 13.91 In the low demand case, the business case for bus operators as a whole is unfavourable. Net annual benefits are only 5% of the capital costs and there would be no obvious incentive to spend on capital equipment.
- 13.92 If the high demand case was combined with the higher optimism bias uplift then operators would still see a payback in a relatively short period. The application of the 66% optimism bias uplift in addition to contingency and consultancy would increase the payback period, though the return would be 19% over 10 years.
- 13.93 Overall the attractiveness of smart ticketing to operators is particularly sensitive to the range of additional revenue and savings in operating costs that might be achieved.
- 13.94 To some extent these results may reflect variation in experience across the country. Some individual operators may well find that there is a business case for adopting smart cards in particular areas. And some have done so or are planning to do so. The additional revenue and operating cost savings more than cover the additional equipment and other costs. The risks and costs of co-ordination and integration may be avoided or reduced where there are only one or two organisations involved. But in other areas the circumstances for successful operation of smart cards may, for a number of reasons be less favourable, and the incentive to incur up front costs for uncertain future revenue benefits is lacking.

**Collective bus operator business case, England outside London**  
**(£m, 2008 prices)**

	<b>High demand low optimism bias</b>	<b>Low demand high optimism bias</b>
<b>Annual benefits</b>		
Operating cost savings to bus operators	57	21
Fraud savings	42	42
Saving in surveys	5	5
New net revenue to operators	101	34
Additional BSOG	21	21
<b>Total</b>	<b>224</b>	<b>123</b>
<b>Annual costs</b>		
Smart equipment costs	66	66
Loss of concessionary reimbursement	39	39
<b>Total</b>	<b>104</b>	<b>104</b>
<b>Net annual</b>	<b>120</b>	<b>19</b>
<b>Capital costs</b>	<b>314</b>	<b>343 (521)<sup>16</sup></b>

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<sup>16</sup> The bracketed figure applies a 66% optimism bias uplift to the capital costs including contingencies and consultancy. Please see Para 13.88 for reference.