

# *Smart ticketing*

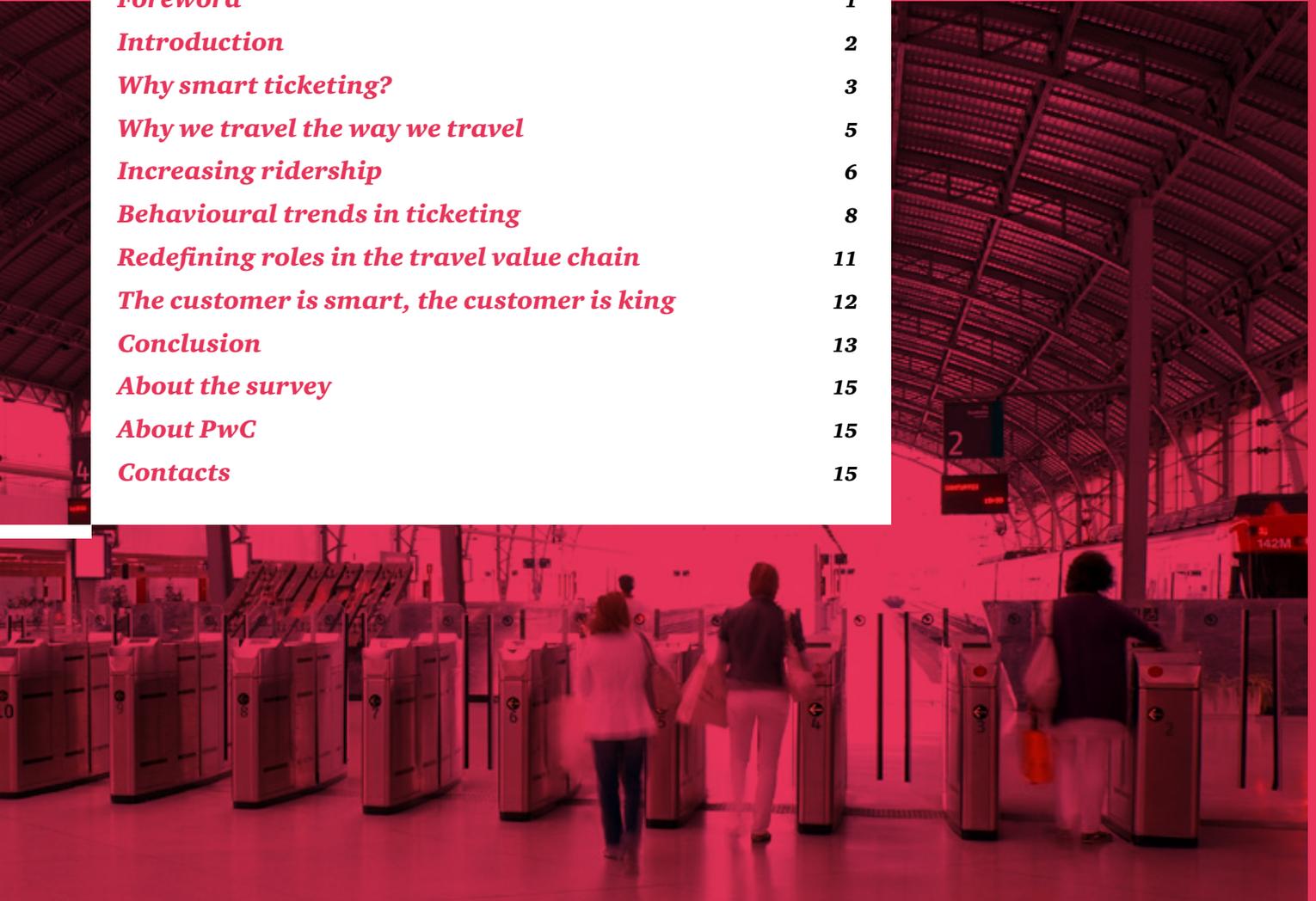
*Talking Points*

A route to better and  
more accessible public  
transport services



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# Foreword

***Government wants people to make greater use of public transport to help reduce the pressure on an already constrained road capacity and to increase mobility, which in turn contributes to national productivity.***

However, with a tightened public purse affecting subsidies, coupled with rising costs and restrictions on certain fare rises, operators of the UK's public transport services are faced with twin challenges: increasing ridership in order to increase revenues and enhancing the efficiency of their operations in order to reduce costs.

Meanwhile customer behaviours are changing, with a growing number of people booking online or using new forms of ticketing for their travel. The notion of a printed ticket is beginning to be seen as inconvenient and outdated when smart phones or contactless bank cards are now routinely used to pay for other types of goods and services. The success of Transport for London's Oyster card, and the recent move to accept contactless bank cards on buses in the capital, has started to make people aware of what is possible. But this is just the beginning of a journey that will fundamentally change the way we pay for and use public transport services in the future.

Against this backdrop, PwC commissioned its second annual survey of public transport ticketing in the UK. The results are encouraging for advocates of a move to smart ticketing, but highlight that this will not happen by itself; customers are going to need some encouragement to switch to a new form of ticketing.

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# Introduction

We commissioned Opinium Research to conduct a poll of over 2,000 members of the general public across the UK in Spring 2013. We wanted to understand perceptions of current and future public transport ticketing options, and their implications for how the industry needs to change if smart ticketing is to realise its full potential. This followed our research of 2012 into the ticket buying behaviours and preferences of users of public transport.

Our research found that despite the rapidly changing technological environment that is affecting the ways in which consumers are buying and using services and information, the public transport sector has yet to fully embrace the potential of these new technologies. But there are signs that this is changing.

On the whole, there is evidence that the consumer appetite for smart ticketing is growing. This is encouraging as it shows that passengers are seeing the value of smart over conventional ticketing. By 'smart', we mean the various ways passengers can interact with public transport services without the traditional paper ticket.

However, it is also apparent that there is more public transport operators can do to make smart ticketing more attractive and thus accelerate the pace of adoption, such as through the use of incentives. For example, four out of five respondents to our survey who use the bus and rail felt that one or more of the incentives we listed would persuade them to move to smart ticketing. The incentives ranged from price discounts to improved real time information provision. This supports the potential for smart ticketing to transform a transport operator's customer offering – if they embrace it fully.

Change is necessary if public transport is to offer a viable alternative to the car. Developing a sound customer proposition is at the heart of this change, and smart ticketing offers one way to do this. This Talking Points publication sets out the key findings from the market research and discusses how the sector might maximise the opportunity being offered by smart.

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# Why smart ticketing?

The full potential of smart ticketing is only now becoming apparent to many passengers. If planned and implemented well, it can benefit passengers, operators and government alike.

Through the greater insight into individual travel patterns that these technologies provide, operators can tailor products for discrete groups of customers, thus increasing ridership and improving service utilisation. Passengers no longer need to queue on a bus or at a station to get a ticket, and by utilising smart ticketing technologies they benefit from not having to work through complex fare structures to be sure of the best prices. They may also be able to buy more flexible season tickets that better suit today's working patterns, which are not always five days a week in the same location. They may even be rewarded for using trains outside of the busiest peak periods. Furthermore, the extra insight gathered by smart ticketing means that if a service is delayed, any information on its impact can be 'pushed' to those passengers most likely to be affected.

Smart ticketing may take many forms, but when we speak about it here we mean the range of ways a passenger can gain access to a public transport service without the traditional paper or cardboard ticket.

It includes dedicated transport smart cards, such as Oyster in London or Go-Ahead's key, as well as contactless bank cards, which are being used more frequently for many low value payments. Perhaps the largest growth potential for smart ticketing is in mobile commerce. This uses the ubiquitous smart phone as the payment, access and information device either on its own or linked to a contactless card. We include these new forms of usage in our definition of smart ticketing as well.

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## ***The Passenger Benefit***

Smart ticketing will only take off if there are tangible benefits for the passenger. If it works well, smart ticketing will make it quicker and simpler to buy and use tickets. On its own that is a major benefit, but – as our consumer research highlights – it may not be enough for a significant behavioural change without some other incentive to switch. This is important because it is only when a significant proportion of passengers have switched that the power of smart ticketing really begins to reap benefits. So smart ticketing will most likely need to offer passengers direct material benefit to ensure adoption – for example, ensuring guaranteed best prices for all journeys or offering more flexible season tickets.

The technology behind smart ticketing also gives greater insight into individual journeys so that passengers can potentially receive tailored information on service disruptions or timetable changes through a range of new channels. Other possibilities include refunds for qualifying delays that could be paid automatically, and vouchers and other offers which could be tailored to the route and time of travel.

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## ***The Operator Advantage***

For public transport operators, the immediate advantage in moving to smart ticketing is in its potential to reduce costs – fewer ticket printing machines and fewer mechanical breakdowns of ticket readers, for example. Later, savings will also come from eliminating some of the older style ticket formats. But the biggest benefits come from the insight that smart ticketing can give operators into their passengers' travel patterns. Operators will be capable of developing schedules and timetables that better fit passenger demand. Likewise, tailoring their products to their passengers' travel needs should encourage increased use of their services, especially outside of the peak commuter periods.

In particular, smart ticketing will facilitate the adoption of new pricing mechanisms, such as shoulder pricing – where there is a mid-price between peak and off-peak travel periods – to better cope with demand and reduce congestion. Smart ticketing is the most effective way of enabling this change, allowing passengers to decide on a daily basis whether to take the more expensive peak train or bus, or to travel slightly earlier or later and receive a reduced fare – either immediately or calculated after the journey and applied as a discount to a season ticket – directly to their smart phone, smart card or account.

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### ***The Public Sector Wins Too***

Smart ticketing is not just about the benefits for individual passengers and the savings for operators. Central government and local transport authorities can also benefit from smart ticketing. For example, certain savings would translate into reductions in government subsidies or grants, such as through rail franchise agreements or the bus service operators grant (BSOG). But the bigger benefits lie in the increased use of public transport, which reduces road traffic congestion and improves the connectivity of people to places of work, thereby boosting local economic activity.



# Why we travel the way we travel

High on the government transport policy agenda is the move to get more people to travel by public transport, particularly by bus and rail. For our survey, we first wanted to understand what modes of transport people are currently using and why.

It comes as no surprise that the car is still the predominant form of transport, with 77% of survey respondents stating they travelled by car at least once in a typical week. By the same measure, the bus was used by 38% of respondents, followed by overground and underground train at 15% and 11% respectively.

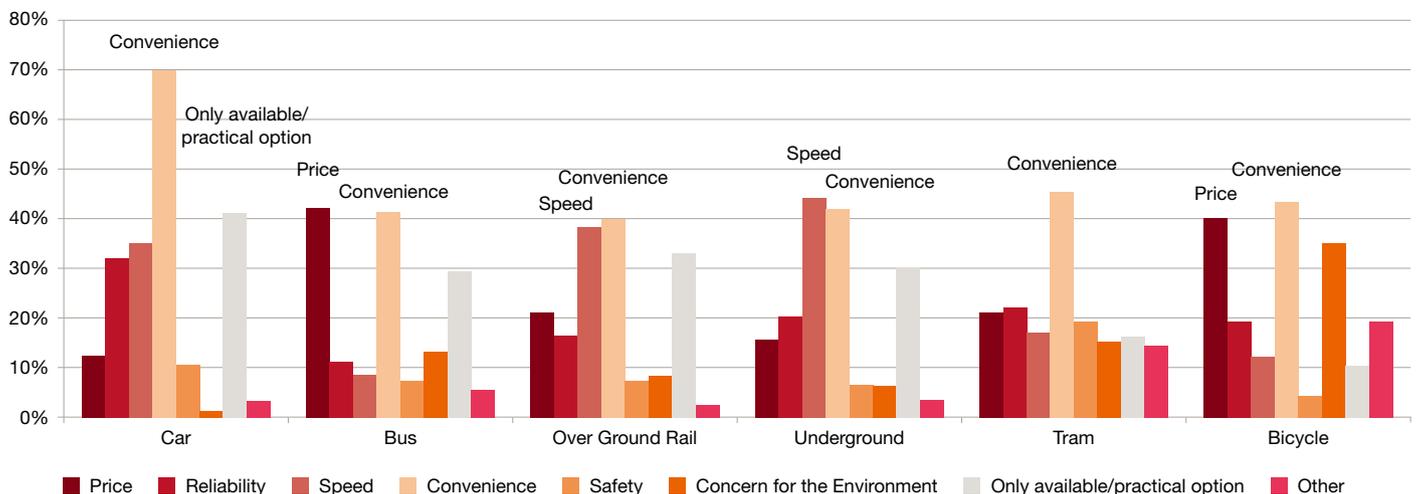
Convenience is the most important determinant of how people select their mode of travel, in relation to the car and almost all forms of public transport in rural and urban areas (Figure 1). This outweighed price and speed, which were the next biggest determinants.

Convenience and price competitiveness are therefore particularly decisive factors in determining whether someone is prepared to leave the car at home and consider public transport alternatives. This resonates with the Department for Transport's March 2013 'Door to Door'<sup>1</sup>

strategy, which looks at how to make it easier and more convenient for people to make their journey from door-to-door using multiple modes of public transport. This is encouraging for smart ticketing, which has the potential to improve both the convenience and price of using public transport.

<sup>1</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/142539/door-to-door-strategy.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/142539/door-to-door-strategy.pdf)

**Figure 1: What would you say are the main reasons that you use this method of transport over others?**



# Increasing ridership

The consumer focus on price poses a challenge to the public transport industry which is already characterised by high-volume, low-value transactions. However, it is interesting to note that a clear majority of respondents to our survey reacted positively to a range of incentives to use public transport, only some of which are price-related.

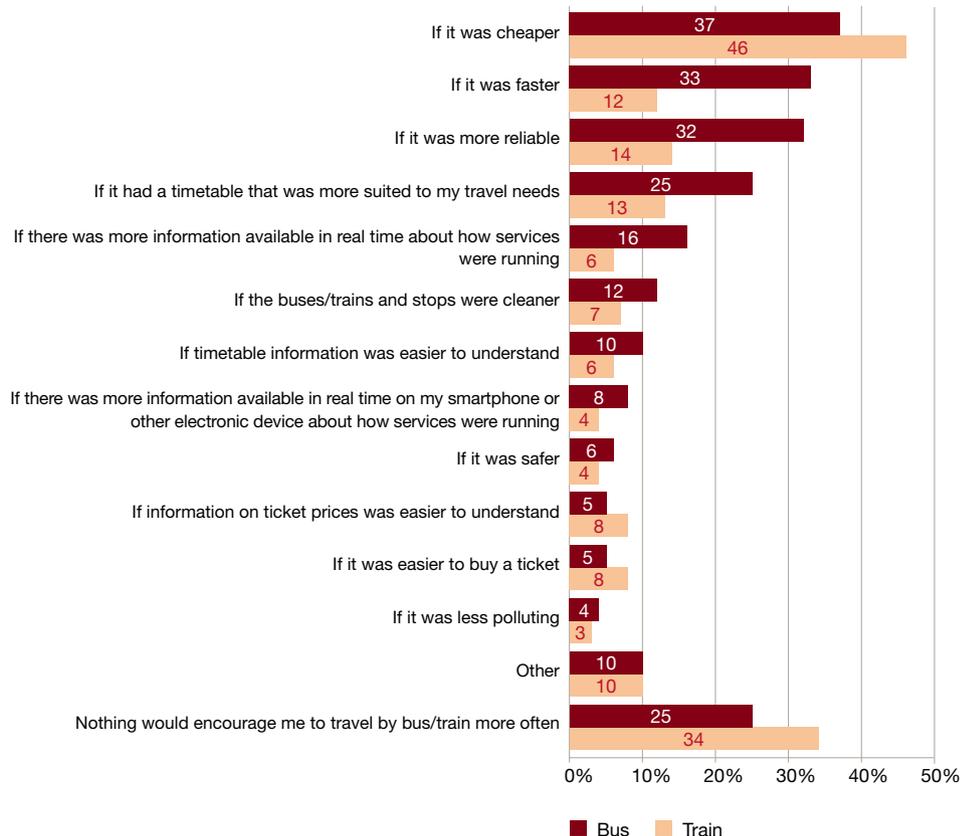
Figure 2 shows that 25% and 34% of all respondents would remain unpersuaded to travel more by bus and rail respectively, even if they were presented with a range of incentives. However, this suggests that the other 75% and 66% of all travellers could be persuaded to travel by bus and rail more often if the mix of incentives were right.

Of the potential incentives, 37% stated they would use the bus more often if it were cheaper, 33% if it were faster, 32% if it were more reliable, and 25% if the timetable were more suited to their travel needs. Price was also the overwhelming motivator for rail, with almost half (46%) of all respondents stating they would be encouraged to travel by train more often if it were cheaper. Speed, reliability and timetable suitability were also significant motivating factors at 12%, 14% and 13% respectively.

Customer-related technologies falling under the banner of smart ticketing also generated positive responses towards a potential change of mode. Some 5% of

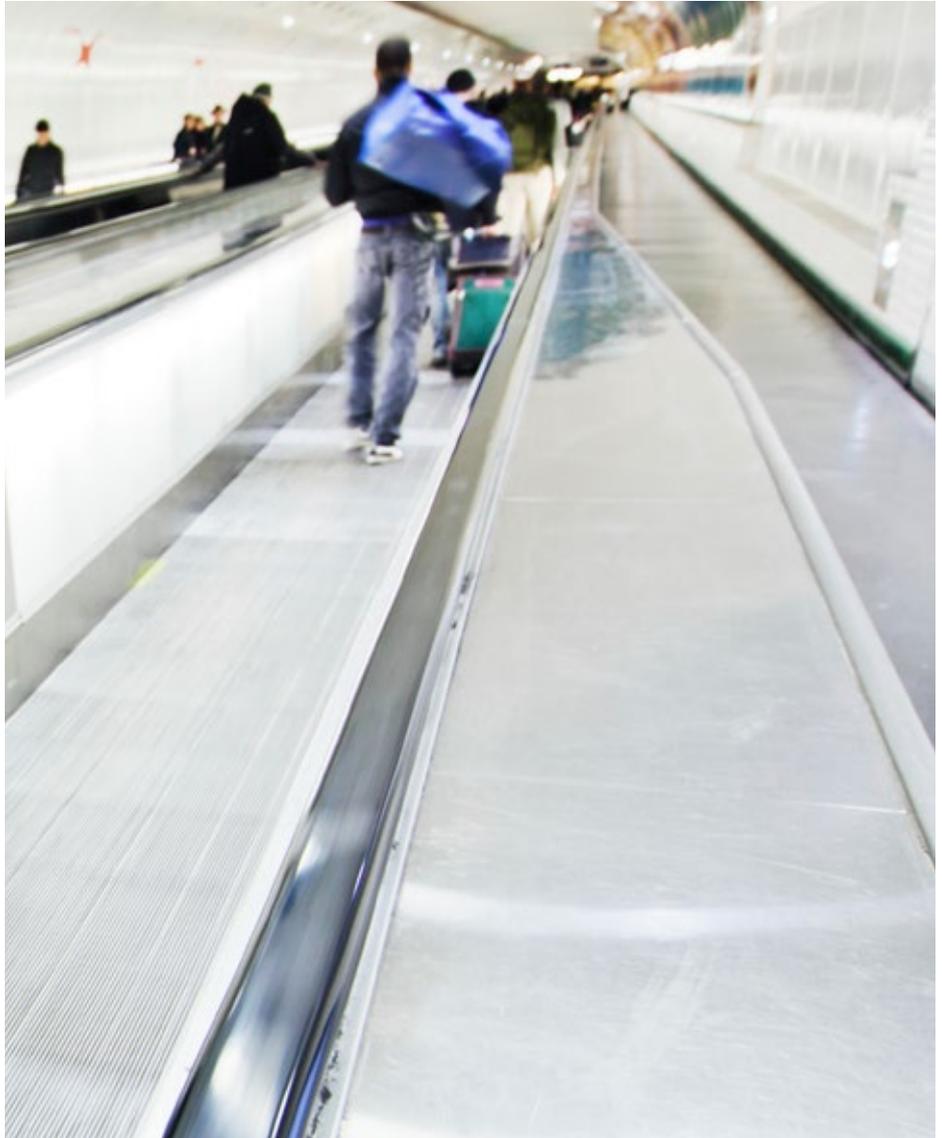
respondents said they would be encouraged to take the bus and 8% the train if information on ticket prices were easier to understand or if it were easier to

**Figure 2: Which, if any, of the following reasons would encourage you to travel by bus/train more often?**



purchase a ticket, implying that smart ticketing coupled with associated tailored information services could be effective in increasing public transport patronage without needing to alter fares. Given the emergence of mobile as a means for payment as well accessing passenger information, it is interesting that 8% of respondents would be encouraged to travel by bus and 4% by train if they were able to receive real-time journey information on their smart devices.

At first glance these figures for incentives enabled by smart technologies seem small in comparison to the more substantive drivers of price and speed. However, if it were achievable, encouraging 5-8% of travellers to shift from car to bus or train would represent a significant uplift for public transport operators. Indeed, the panoply of responses suggests that customers are alive to the possibility of shifting to different means of transport and that there is much public transport operators can do to offer attractive alternatives.



# Behavioural trends in ticketing

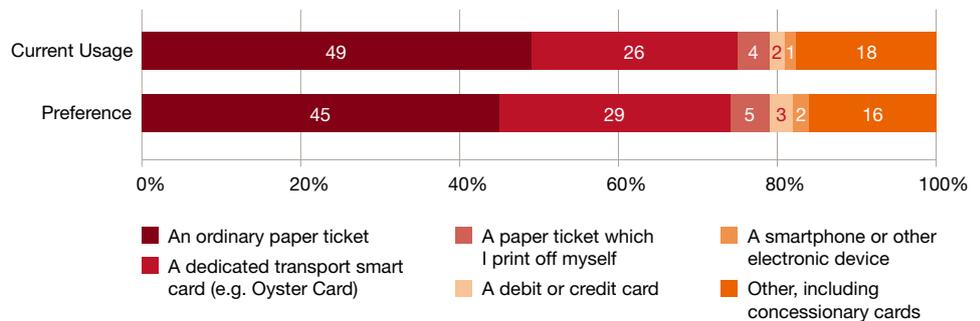
While the potential for smart ticketing is becoming more apparent, we wanted to understand whether passengers were taking advantage of the smart ticketing options currently available and, if not, what would persuade people to start using them.

Figure 3 compares the tickets people currently use against the tickets they would prefer to use. It indicates that, with no other change, there is a small but noticeable appetite to move from paper to smart ticketing. Whereas 29% of users currently use smart products (a dedicated transport smart card, a smart phone or bank card), 34% would prefer to use these. Conversely, 49% of respondents currently use paper tickets but only 45% would prefer to use them. Finally, it is clear that ‘next generation’ ticketing technologies such as using a mobile phone or contactless bank card have yet to take off, with adoption rates marginal, at 3% and 2% respectively. This is not surprising given the limited consumer offerings in the marketplace at the time of the survey.

This shows that if left to changes in consumer behaviour alone, the shift to smart will be incremental and slow. Deriving the full benefits of smart ticketing will require a higher degree of coordinated incentivisation by transport authorities and operators, typically on a

regional basis. By considering the smart product along with the approach to pricing, coupled with marketing and associated services, there is potential for a significant step change in ticketing across the country.

Figure 3: Overview of ticket usage and ticket preferences for bus and train journeys



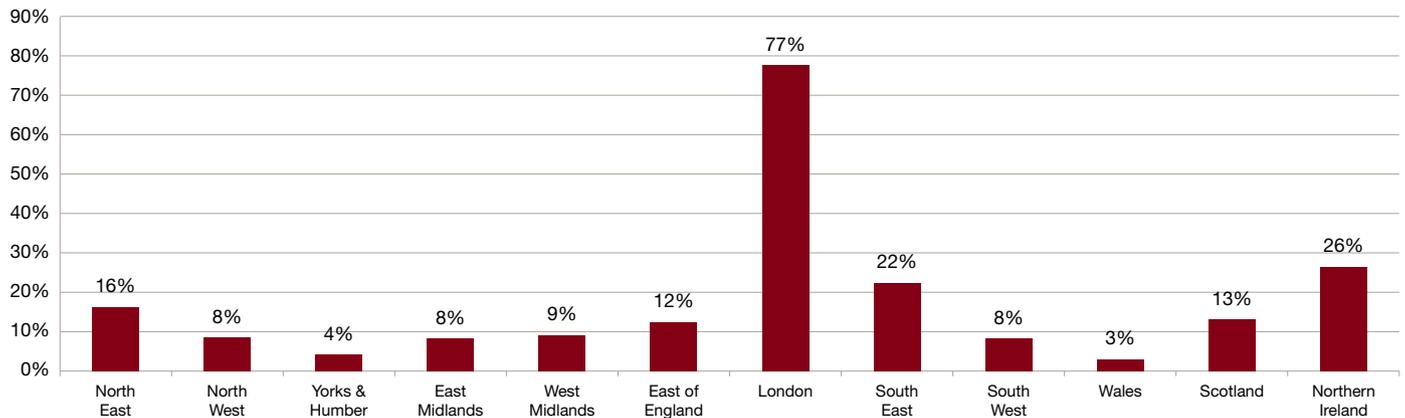
In terms of preferences for ticketing, 45% of bus and train users would still prefer to use ordinary paper tickets. Traditional forms of ticketing are therefore likely to persist for some time. However, when broken down by age group, 39% of 18-34 year olds – the so-called Generation Y – would prefer to use a form of smart ticket (with 31% preferring a dedicated smart card, 6% a smart device and 2% a contactless bank card). Transport operators will therefore need to accommodate and promote both

‘traditional’ and ‘emerging’ preferences in order to cater for all customer segments.

The use of smart ticketing varies across the country. The regional breakdown in **Figure 4** illustrates that the growth of smart ticketing has been primarily London-driven to date, where Oyster has gained wide acceptance. However, these regional differences highlight some interesting findings. In Northern Ireland, 26% of survey respondents are currently using a dedicated transport smart card,

suggesting that even a smart product offering that is more limited in scope than Oyster can lead to significant rates of smart ticketing penetration. These levels of smart card market penetration are not contingent on large passenger volumes, and are therefore achievable in areas outside of London. However, they do require active marketing and incentivisation to make the shift in behaviour and drive the inherent benefits.

**Figure 4: Proportion of travellers using a dedicated transport smart card for bus and rail**



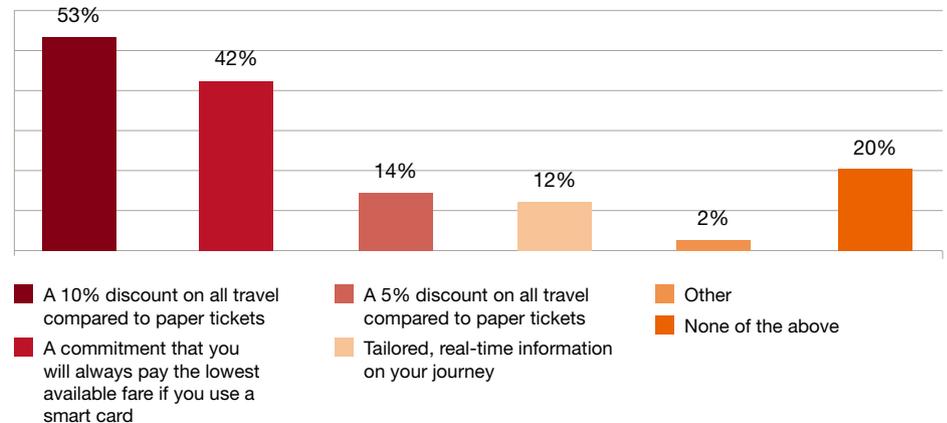
The survey findings also indicate that incentives can be effective in moving passengers towards smart ticketing. As illustrated in **Figure 5**, 80% of respondents felt that at least one of the incentives listed would persuade them to move to smart ticketing. This suggests there is significant untapped potential to convert customers to smart media. Specifically, respondents stated that:

- 1.** Offering just a *5% discount* on all travel compared to paper tickets would encourage **14% of travellers** to switch to smart ticketing.
- 2.** Offering a greater *discount of 10%* would encourage **53% of travellers** to move to smart.
- 3.** Even in the absence of price discounts, **42% of travellers** indicated they could be persuaded to use a form of smart ticketing if they were guaranteed the *lowest available fare* for their journey.
- 4.** Finally, **12% of respondents** indicated they were prepared to move to smart ticketing if it offered them tailored, *real-time journey information*.

In London, the Oyster card offers lower fares than the paper ticket alternative and this has proved very successful in converting customers. However, the third and fourth incentives are striking in that they do not involve a discount at all. This indicates that price is only one of several

levers available to public transport operators to increase ridership, and that improving the service and developing a more intuitive customer proposition are just as important in the eyes of the customer.

**Figure 5: Which, if any, of the following incentives would persuade you to switch to a dedicated transport smart card if it was available?**



# Redefining roles in the travel value chain

The operating model for the public transport sector was not originally set up with smart ticketing in mind. Therefore, changes to this model will be necessary in order for the full benefits of smart to be realised.

Traditionally, public transport operators have been responsible for every interaction with their customers throughout the supply chain – from selling and validating tickets and providing the journey, through to customer service and handling complaints. As the sector moves towards smart ticketing – as we believe it inevitably will and must – other entities such as banks, mobile phone operators and specialist retailers are likely to become involved in that supply chain.

At a minimum, there will need to be some separation of roles to allow for greater connectivity between schemes across the country. Already there are a number of entities emerging that play a role in determining the customer experience. We see potential for five key roles:

## 1. Smart ticketing scheme owner.

Organisations such as Passenger Transport Executives (PTEs) are responsible for defining the rules and fares within a transport ticketing scheme.

**2. Transport operator.** Bus and train operators are responsible for running services, either independently or in accordance with local contracts or franchises.

**3. Account provider.** This is a newer role in ticketing, akin to a credit card company, dealing with a customer's account and making sure they have what they need (e.g. a smart card) to use participating public transport services.

**4. Back office provider.** Working to a scheme, there is an emerging role to carry out fare calculations based on a passenger's use of a scheme, including providing the link between the scheme owner and the account provider.

**5. Retailer.** This used to be only the bus or train operator and still can be. But new entrants are already in play, particularly with third party rail retailers. More will consider entering into this market as smart ticketing takes hold.

In some circumstances these can, of course, all be one and the same entity. But if the customer experience is to be seamless across the country, these new roles in the travel value chain will need to emerge. We are already seeing more

players entering the market with a view to 'owning' the customer – including banks and mobile network operators – as smart ticketing moves to the next generation of innovative products. This is where we see the public transport operating model fundamentally changing, becoming more akin to the mobile or the bank card industry, with a separation between the retailer and the account provider.

Collaboration between these new entities is key to ensuring that smart ticketing works seamlessly for all modes of public transport across the country. Operators will need to work together to deal with both technical and customer service issues, such as smart phones/cards not working at a particular barrier or customers being incorrectly charged. In a smart, integrated transport system of multiple operators and retailers, all parties will have to agree and design a process for handling such incidents seamlessly, from technical specifications to commercial agreements. Getting this right is critical to realising the potential of smart ticketing at scale.

# *The customer is smart, the customer is king*

Transport operators have a real opportunity to do more for their customers, starting with how they design and develop smart ticketing schemes. However, creating an appealing customer proposition inevitably requires an upfront investment, with implications for any transport operator's business and ticketing strategy. In tackling these challenges transport operators and other players considering entering the smart ticketing market will need to consider the following:

- Do we need to design for multiple ticketing solutions to cater to changing consumer preferences – ranging from traditional forms of cash payment to mobile or contactless bank cards?
- How can we take advantage of smart ticketing as a platform for new marketing campaigns and pricing models to attract new customers and drive demand?
- Does each operator or scheme need to build its own applications and infrastructure to support smart ticketing or can this be bought, potentially as a 'per use' service?

- What are the cost implications and how can investments be effectively managed to maximise return?
- How should any smart ticketing offering link to other types of services provided to consumers?

Having better clarity on the answers to these questions will help operators and others involved in the sector to develop a coherent and realistic vision that can deliver the smart ticketing benefits for all stakeholders – operators, government and passengers. There is clearly benefit in sharing some investment and common services, reducing costs while still allowing for differentiated offerings.



# Conclusion

Smart ticketing has the potential to revolutionise the public transport sector. It will provide wider options for schemes and operators as more entities join the market. The direction of change is clear, but its pace and level of success will depend on a number of factors.

The findings from our survey provide some important indicators to realising the key benefits that smart ticketing can offer:

## **1. Convenience is paramount.**

Any changes to ticketing need to make the process of selecting a ticket, purchasing, fulfilling and then using it much easier than is currently the case. Smart ticketing has the potential to fully automate the selection, purchase and fulfilment of ticketing.

## **2. Better information can**

**encourage modal shift.** Providing better, more accessible timetable and real time information has the potential to encourage more people to switch to public transport. The enhanced data and personalisation that comes with smart ticketing means this should go hand in hand with improved, relevant and timely information provision.

**3. The appetite for smart ticketing is growing.** Even without incentives there is a growing awareness of and interest in using smart cards, contactless bank cards or smart phones in place of paper tickets – across all age groups, but particularly in Generation Y. But a mixed ticketing economy seems inevitable without an active decision to stop paper ticketing.

**4. Price is the key driver for passengers to change to smart.** Reducing ticket prices for smart compared with the price for a conventional ticket can have a major impact on converting people to the newer forms of ticketing.

**5. Fare commitments provide a compelling case to switch to smart.** Offering passengers a guarantee that they will pay the lowest available fare if they use smart ticketing could have a major impact in switching people to smart ticketing – without the need to discount or reduce fares.

**6. Separating roles will enable widespread rollout.** Providing a seamless customer experience through smart ticketing across the country will require changes to the operating model for the sector, separating out the roles of account provider, retailer and operator.

**7. The business case is improved if services are shared.** The core requirements behind any operator's or scheme's smart ticketing service are the same. Making use of common or shared facilities to support these services will improve the return on investment for all parties.

Success for smart ticketing will depend on the extent to which the public transport sector – whether PTEs or private operators – decide to put smart ticketing at the heart of their services. Government has been encouraging this through subsidies and incentives. But operators and local

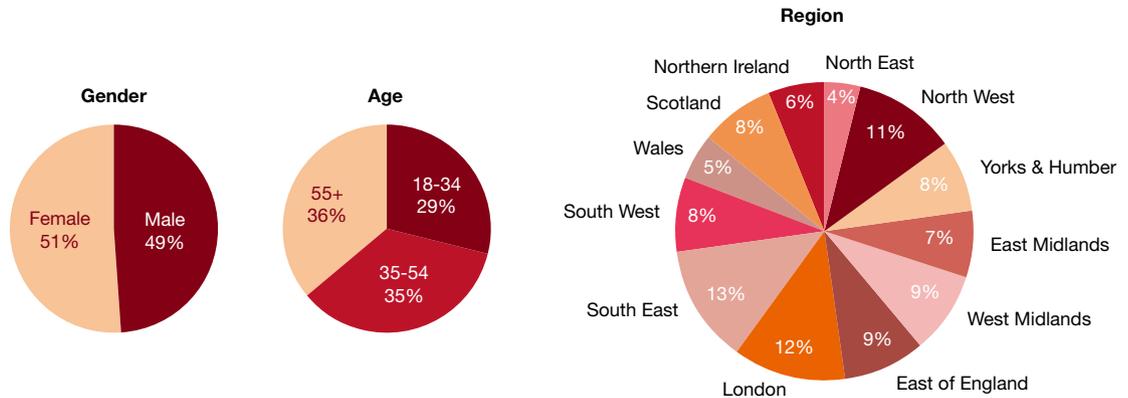
authorities will need to have a clear, joined-up vision on the customer offering if it is to return on the investment required to achieve significant market penetration.

Our survey indicates that there is appetite for smart ticketing, which suggests the scale necessary for a good return on investment can be achieved. But this will happen only if the customer proposition is clear and there is a high degree of collaboration between operators, authorities and the government. Success will mean a better, more efficient and lower cost public transport system for all.

## About the survey

This research was conducted in Spring 2013 under the strict guidelines of the Market Research Society Code of Conduct by Opinium Research, a research and insight generation agency offering a range of qualitative, quantitative, and collaborative methods ([www.opinium.co.uk](http://www.opinium.co.uk)). 2000 people participated in an online interview.

Who we surveyed:



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