Integrated Ticketing in Scotland - Needs Analysis and Options
INTEGRATED TICKETING IN SCOTLAND
NEEDS ANALYSIS AND OPTIONS

TNS Social Research, TRL and TRi

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INTRODUCTION

1. In October 2003, the Scottish Executive commissioned research to support the development and implementation of an Integrated Ticketing Strategy for Scotland. The research incorporated a wide variety of methods, including:

- a literature review and internet search
- a telephone survey of stakeholders in integrated ticketing
- case studies of existing integrated ticketing schemes
- a desk-based review of legal and policy barriers to integrated ticketing schemes
- a household survey of 1,024 Scottish adults
- statistical modelling of the potential demand for integrated ticketing in Scotland
- the development of recommendations for pilot integrated ticketing schemes

DEFINING INTEGRATED TICKETING

2. Ideally, for a ticket to be described as “integrated”, it should be multi-modal and multi-operator, including more than one bus operator. However, in practice, where the bus is the dominant mode a multi-operator bus ticket may be considered “integrated”.

3. Integrated ticketing schemes should be user-led. Different products may be required for different types of passenger, such as commuters, leisure travellers and tourists. For any prospective scheme, the first question should be what types of trips do people in this area need to make? The appropriate area, modes and duration of tickets will stem from the answer to this question.

BEST PRACTICE IN INTEGRATED TICKETING

4. Research into existing integrated ticketing schemes in the UK and abroad suggests that the following features are associated with successful schemes:

- Flexibility in terms of modes and types of journey covered, so that the scheme meets the needs of as large a customer base as possible. Schemes should offer a range of ticket durations.
- Schemes need to be underpinned by integrated transport systems in order to be effective in encouraging public transport patronage and modal shift.
- Active marketing is required.
- Strong operator buy-in, which can be achieved through strong leadership and administration arrangements that are viewed by all participating operators as fair.
- The scheme should be planned and executed as a long-term project, with resources, structures and plans in place to facilitate this.
TECHNOLOGY

5. The research found a general trend in integrated ticketing schemes in the UK and abroad towards the adoption of smartcard technology. Smartcards offer potential advantages including: facilitating revenue distribution; enabling the collection of more detailed passenger data to assist in public transport planning; and opening up a broad range of applications to the passenger, not confined to transport.

6. The Scottish “Citizen Card” which is currently in development may offer a cost-effective way of developing an integrated transport ticket in Scotland. However, as it is still in the planning stages its applicability to future integrated ticketing schemes is not yet clear. Further, while smartcards clearly offer many potential advantages, the research suggests a need to monitor the impact of such tickets in terms of:

- Effects on boarding/disembarking times
- How data protection issues are handled
- Whether any potential passengers are deterred by smartcard technology
- What passengers use smartcards for (i.e. transport and other uses)

PASSENGER UPTAKE AND MODAL SHIFT

7. There is a relative dearth of evidence on the precise impact of existing integrated ticketing schemes on patronage and modal shift. In general, the strongest evidence that integrated tickets have a positive impact on patronage originates from countries where integrated tickets are heavily subsidised and offer substantial discounts over both single-operator and single-journey tickets. Moreover, it is extremely difficult to separate the impact of integrated ticketing schemes from other, concurrent, improvements to public transport.

8. However, the research does suggest that integrated ticketing has the potential to make a positive impact on travel patterns and modal shift. The Household Survey conducted for this study found a small but significant proportion of respondents who said they would use public transport ‘a bit’ or ‘a lot’ more if they could buy either a multi-operator or multi-modal ticket. Forty per cent of respondents indicated that they would buy a ‘fully’ integrated ticket if it cost either the same or less than their weekly transport costs, though previous research does suggest this is likely to represent an over-estimate of actual take-up.

BARRIERS TO INTEGRATED TICKETING

9. The research identified a range of potential barriers to the success of future integrated ticketing schemes in Scotland and suggested possible solutions to each of these as follows:

- Allocating revenue in a manner that is perceived as fair. An alternative to expensive surveys may be to derive passenger miles from fare-distance relationships and fares taken on each operator’s service. Smartcards may help in the future, although at present their inability to monitor exit as well as entry on
some modes (particularly buses) presents a barrier to their use for measuring passenger miles, and therefore their use for revenue allocation.

- OFT regulations are an important perceived barrier but in practice, if the OFT is consulted at the set-up phase of any scheme, most concerns about issues of legality are in fact able to be resolved.

- The necessity for multi-operator tickets to cost more than single-operator tickets may hamper the success of such schemes if passengers are unwilling to pay such a premium. This premium needs to be set as low as possible.

- The cost of administration and marketing may be a barrier to scheme success. It may be necessary to subsidise these in the early stages of new schemes.

- Existing schemes have encountered some difficulties in securing the participation of rail-operators. It may be necessary to use legislation or contractual arrangements to require rail-operators to participate in such schemes.

**PILOT INTEGRATED TICKETING SCHEMES**

10. Three general types of area for piloting future integrated ticketing schemes are suggested by the research findings:

- A rural scheme, including bus, rail and ferry services. The scheme would particularly target local residents making infrequent long-distance trips and the tourist market. It would probably be paper-based initially, and would be based on local bus, coach and ferry services and linked with long-distance rail services.

- A town scheme, focused around a travel “hub” but including rural and relatively remote areas that might depend on the town for work, education, public services, etc. The scheme would probably be bus-based with some rail services, and might start with a paper ticket format, though depending on the area selected there might be scope for introducing an electronic system.

- A city scheme, possibly covering the central lowland conurbation, linking the areas currently covered by the One-Ticket and SPT ZoneCard schemes. This large-scale scheme would particularly target commuters and would benefit from being based around smartcard technology. It would be bus-based, but would also include rail, and possibly trams, underground services and demand responsive services.
CHAPTER 1: BACKGROUND AND INTRODUCTION

BACKGROUND TO THE STUDY

1.1 Achieving greater “integration” in public transport is a prominent theme in current discussions about transport policy in Scotland, the UK and further afield. Increased integration in public transport is seen as essential to achieve key Scottish Executive policy objectives, including:

- *Encouraging modal shift* - *Scotland’s Transport*¹ states that “today the core issue for transport is the relationship between the private car and public transport”. Greater integration of services is seen as key to persuading people to use public transport and encouraging them to leave their cars at home.

- *Promoting social inclusion* – by improving and supporting access to work, learning, health or personal development opportunities, and by targeting specific groups of people who are disadvantaged by current transport arrangements.

1.2 Integration in public transport can operate at a number of different levels. It is important to distinguish between integrated *routes*, where services are designed so that passengers can make convenient connections between different transport modes, and integrated *ticketing*, where passengers can use the same ticket on different modes of transport or across different transport operators.

1.3 The Scottish Executive committed itself to supporting “easy to use, through-ticketing schemes, including time-limited tickets” in the Partnership Agreement². The current White Paper, *Scotland’s Transport Future*, states that the Executive is “working to improve integration on three fronts – services, information and ticketing”. It goes on to state:

“We are committed to extending the provision of integrated tickets across Scotland and across all forms of public transport.”

1.4 The Scottish Executive hopes that integrated ticketing will make using public transport more convenient and therefore help to support patronage increase and modal shift. However, in spite of the high level of interest in integrated ticketing in Scotland and elsewhere, there is a relative dearth of research evidence exploring the need or demand for such schemes or the practical issues involved in making integrated ticketing a success. The Executive therefore commissioned TNS Social, the Transport Research Laboratory (TRL) and the Transport Research Institute (TRi) at Napier University to conduct research to support the development and implementation of an Integrated Ticketing Strategy for Scotland.

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¹ Scotland’s Transport: proposals for a new approach to transport in Scotland – a consultation (Sept 2003), Scottish Executive.
² A Partnership for a better Scotland: Joint statement by leaders of the Scottish Labour Party and Scottish Liberal Democrats (2003), Scottish Executive.
RESEARCH AIMS

1.5 The key aims of the research were to provide an overview of the level of need and user demand for future integrated ticketing in Scotland and to inform the development of successful integrated ticketing schemes in the future. In order to meet these over-arching objectives, the research team was required to:

- explore definitions of integrated ticketing, in order to recommend a single definition for use by the Scottish Executive
- review current integrated ticketing provision in Scotland
- conduct an assessment of user demand for future integrated ticketing schemes
- establish best practice in integrated ticketing from Scotland, the UK and other countries
- establish the impact of integrated ticketing schemes elsewhere in the UK and internationally, particularly on public transport patronage and modal shift
- explore potential, longer-term impacts of integrated ticketing, e.g. on the levels and nature of services provided by different transport operators
- review barriers to introducing further integrated ticketing schemes in Scotland, including legislative barriers
- move forward the development of integrated ticketing in Scotland by proposing options for a maximum of three outline, multi-modal, pilot, integrated ticketing schemes.

METHODOLOGY

1.6 In order to address the wide-ranging objectives for the research, the study incorporated a wide variety of methods, including:

1. A Literature Review and Internet Search (conducted by TRL in late 2003/early 2004) – This was primarily intended to help inform a definition of “integrated ticketing” for use by the Scottish Executive by providing evidence on accepted definitions of integrated ticketing in the UK and the EU. The Literature Review was also used to identify current integrated ticketing schemes in Scotland and the rest of the UK and to explore any evidence that integrated ticketing has an impact on public transport patronage.

2. A Telephone Survey of Stakeholders (conducted by TRL in late 2003/early 2004) – Telephone interviews were undertaken with 30 “stakeholders” in integrated ticketing, including operators, local authorities and Passenger Transport Executives. The interviews explored a variety of issues, including: stakeholders’ understandings of the term “integrated ticketing”; their opinions on existing schemes; their views of the key aims of integrated ticketing; and barriers to introducing future schemes.

3. Case studies of existing integrated ticketing schemes (conducted by TRL in April/May 2004) - In addition to the general review of existing schemes conducted
for the Literature Review, more detailed case studies were undertaken of four UK-based integrated ticketing schemes with the aim of providing more detailed evidence on issues such as revenue allocation, uptake, infrastructure needs, etc. These case studies were intended to inform the development of schemes in Scotland by providing evidence on “best practice”, as well as highlighting any problem areas that future schemes will need to tackle.

4. **Legal and policy barriers review (conducted by TRi)** – This desk-based review explored commonly discussed barriers to integrated ticketing schemes as well as possible solutions to overcome these barriers.

5. **A Household Survey (conducted by TNS in February/March 2004)** – A face-to-face survey of 1,024 Scottish adults was conducted in order to provide evidence on the potential take-up for integrated ticketing schemes in Scotland – who would buy such tickets? What types of tickets are people most interested in? The survey also explored wider issues around attitudes towards public transport and the factors that might encourage travellers to use public transport more often.

6. **Modelling of potential demand for integrated ticketing in Scotland, based on findings from the Household Survey (conducted by TRL in May/June 2004)** – the results from the Household Survey were applied to develop a statistical model in order to predict what types of areas within Scotland would be associated with the highest potential uptake of integrated ticketing.

7. **Pilot Scheme recommendations (TRL leading)** - The results of the various elements of the research, in particular the demand modelling and case studies, were used to develop recommendations for integrated ticketing pilot schemes in Scotland.

**REPORT STRUCTURE**

1.7 This report draws together findings from all the research conducted for this study. It is structured as follows:

- Chapter 2 presents findings from the literature review
- Chapter 3 reports findings from the telephone survey of stakeholders, including views on what constitutes an integrated ticketing scheme and the potential for future schemes
- Chapter 4 reports on lessons learned from the case studies
- Chapter 5 discusses barriers to future integrated ticketing schemes and potential solutions to these barriers
- Chapter 6 reports findings from the household survey on the potential take-up and impact of integrated ticketing in Scotland, in addition to discussing perceptions of public transport and the factors that might increase patronage more generally
• Chapter 7 applies the results of the household survey to present a more detailed model of the factors that might impact on take-up of integrated ticketing schemes

• Chapter 8 draws upon the findings from the research in order to recommend pilot integrated ticketing schemes which could be established in Scotland

• Chapter 9 presents the research team’s overarching conclusions to the study.

1.8 While each chapter focuses primarily on one element of the research, wherever possible other elements of the study are referenced to clarify, reinforce or challenge emerging findings.
CHAPTER 2: LITERATURE REVIEW

CHAPTER SUMMARY

- A review of the published literature relating to integrated public transport ticketing has been carried out.

- There appears to be widespread general agreement that public transport integration is a worthwhile objective, and that it is potentially beneficial on many levels.

- There also seems to be general agreement that an integrated ticketing system is an essential part of an integrated transport policy.

- Integrated ticketing implies:
  - seamless transfers between connections
  - seamless interchanges between modes
  - consequent convenience and time-saving
  - probably cashless fare payment at the point of travel
  - satisfactory supporting information and guidance
  - safety and ease of use.

- Integrated transport policies incorporating integrated ticketing systems are already operating, or being planned, across the industrial world, including the UK, and particularly in the EC.

- Integrated ticketing schemes are usually centred on densely populated metropolitan areas with existing developed transport infrastructure.

- The UK schemes are concentrated in PTE/PTA areas and tend to rely on the co-operation of the large bus operators.

- Schemes are often introduced as part of a co-ordinated, multi-faceted programme of improvement and development, including, for instance, real-time information systems.

- Across the world, most new schemes appear to be based on electronic smartcards.

- Contactless smartcards are believed to allow significantly faster passenger movements and may be particularly beneficial to people with frailties or disabilities.
• Smartcard tickets were thought to be too expensive for infrequent journeys, relative to magnetic stripe cards, though it has been indicated to the research team that this may perhaps no longer be so.

• The Review found some difference as to whether smartcard ticket functions should be confined to transport related services, or whether they should be multifunctional CityCards.

• Attention should be paid to the longevity, standardisation and interoperability of any electronic ticketing system.

• It is important that passenger expectations of a scheme and the service are positively fulfilled, and that stakeholder expectations are managed effectively.

• There do not seem to be any insurmountable barriers to the implementation of additional integrated ticketing systems in the UK, although careful research, planning and organisation are always required when setting up a scheme.

• Based on the findings of this Review, it is recommended that research into public travel habits, preferences and attitudes (such as the Household Survey undertaken for this study) is taken into account when designing a scheme.

• It is also recommended that schemes are promoted effectively, and in a way appropriate to their target passengers.

• This Review did not find any conclusive studies of specific patronage effects of integrated ticketing. It is, therefore, recommended that specific, locally-appropriate research is undertaken in an attempt to assess the effects when considering setting up a scheme.

INTRODUCTION

2.1 In a Working Paper on strategy development in the rail industry (Scottish Executive, 2002), the Scottish Executive stated that:

“Through ticketing and simpler and more transparent and easily understood ticketing can contribute towards reduced deterrence of potential users by enabling more seamless travel and reducing factors such as confusion over eligibility or times of travel using discounted tickets.”
2.2 The overall import of this statement could be applied to almost any public transport network, particularly so in multi-modal systems, which are the focus of this study. While the potential for British modal shift and consequent public transport growth is often seen to be focussed on the bus industry, through-ticket schemes are presently perhaps more widely encountered and more generally familiar to the British public in rail travel. In the major conurbations, the relative concentration of public transport facilities and services has fostered the development of multi-modal ticketing schemes, but these are less common in suburban and rural parts of the United Kingdom, where transportation options are generally much more restricted. The need for sustainability and improved social inclusion means that the effective exploitation of the potential for multi-modal travel is important throughout the United Kingdom. Scotland, with its diversity of community structure, including significant, low-density island communities, as well as heavily populated industrial and commercial regions, has much terrain that lends itself better to a combination of rail, sea and air transportation, rather than multi-lane highways, for example.

2.3 An objective of this Literature Review is to establish the most widely accepted definitions of integrated ticketing in the United Kingdom and in the rest of the European Union, while searching for examples of ways in which integrated ticketing affects public transport patronage, and with the aim of elucidating the mechanisms at work. The conclusions are summarised at the end of this chapter.

2.4 The literature search was originally confined to sources published within the past twenty years, on the grounds that recent changes in technology, social patterns, travel habits, transport provision and regulation and political attitudes would render most earlier literature of doubtful transferability, although a few slightly older sources were later included for the sake of the principles they established. European sources were freely included, while American literature was generally not. This was because European travel habits were thought more similar to British than the American patterns, and the findings from the literature thus more readily transferable. Far Eastern sources were used where they contributed interesting technological information. No other decision was taken on whether the findings were applicable to Scotland because it was considered that all informative sources could usefully contribute towards a knowledge base that would then possess the capacity to relate to most, if not all, of the various situations and applications that might arise in Scotland – for instance, urban, rural, industrialised, decentralised, regenerative, multi-modal, multi-operator etc. It would then be possible to select the best ideas and most applicable principles for consideration in Scotland.

2.5 As well as reviewing conventional literature sources with these aims in mind, an Internet search was also carried out for information about the integrated ticketing schemes currently in operation within Scotland in particular, and with general reference to the rest of United Kingdom and abroad.

The focus of the literature

2.6 A large proportion of the published literature identified in this Review focused on the technological capabilities which have considerably expanded the potential of the concept of integrated ticketing, and this is undoubtedly reflected in current worldwide
trends towards the use of smartcards. It should also be noted that some sources indicate that smartcards may not be cost-effective solutions in all cases, such as where their use is short-lived or infrequent, for instance, although they appear to be the preferred eventual aspiration for most schemes. There is also some evidence from the Household Survey conducted for this study to suggest that smartcards may not be the preferred option for all potential users in Scotland (see Chapter 6).

2.7 There was also an apparent lack of conclusive evidence in the published literature for a business case for integrated ticketing schemes, in the UK and elsewhere. This may be owing to the reluctance of commercial operators to release commercial information into the public domain, or it may be that reliable assessments have simply not been carried out. Although many sources appeared convinced that a business case exists and the supporting arguments in favour of integrated ticketing appeared strong and persuasive, this Review could not confirm the certainty of a financial benefit.

TYPES OF INTEGRATED SCHEME

2.8 James (2001) declared that integration represents an opportunity to re-assess the way we think about public transport service from the customer’s viewpoint, with the aim of delivering greater consistency, clarity and simplicity. He maintained that the traditional passenger expectations of frequency, reliability, accessibility and safety had given way to a new set of ‘integrated experience criteria’:

- Safe
- Reliable
- Frequent
- Accessible
- Easy to use
- Clear to understand
- Comfortable
- Appealing.

2.9 Nowhere were these criteria more important than in a multi-modal interchange, where it was essential that passengers could transfer smoothly and seamlessly between services.

2.10 Integrated ticketing schemes may be broadly described according to:

- The modes on which they permit travel
- The area throughout which they permit travel
- The technology that they employ

2.11 Some schemes may also be classified according to their duration of validity or the times at which they permit travel. The schemes identified in this Review provided examples of all three main types, but it became clear in the course of the Review that, regarding the technological aspects, the trend was towards the use of Smartcards –
typically plastic, credit card-sized tickets incorporating an electronic ‘chip’ - on which were normally encoded the holder’s details and such travel permit and price information as was required by the scheme and the traveller. Moreover, this could theoretically be extended to include virtually any information desired or required, thus providing the opportunity to extend the range of use of smartcards to other travel-related applications, and beyond.

2.12 Despite the apparent profusion of electronic ticketing schemes across the world, at least in the United Kingdom, the classification of an integrated ticketing scheme as electronic, or perhaps as a Smartcard scheme, is still comparatively rare. However, as will be seen, the Review indicated that the time is rapidly approaching when all integrated schemes, and probably most other service payments too, might be made by similarly cashless means. The concept of integrated ticketing appears to be intertwined with the development of electronic ticketing so that one is almost synonymous with the other in many situations. Electronic ticketing is therefore a prominent thread running through this review and is a direct reflection of the focus of the literature.

2.13 This section of the literature review presents a brief summary of the different types of scheme identified, classified as above, as an indication of what were perceived to be the most significant presently available options.

**MODAL DIFFERENCES**

2.14 An integrated ticketing scheme may be classified according to the mode of transport to which it applies. Brief examples are given below of schemes that fall into each category.

**Bus Schemes**

2.15 Innovative ticketing, including travelcards and multi-operator tickets, on UK buses has apparently enjoyed a renaissance in recent years, having been somewhat unpopular and impractical immediately following bus deregulation when there were many small companies in fierce competition. The UK bus industry today is dominated by a handful of major players and some of these have entered into integrated schemes in recent years, often linking with train services, which some of the bigger operators also run. However, there are still a few small bus-only schemes.

2.16 An example of a bus scheme is the Day Discoverer ticket available in Dumfries and Galloway, which allows a day’s unlimited bus travel throughout the area on services operated by several local bus and coach companies. As stated, this scheme uses coaches as well as buses, and trams are sometimes also included in bus schemes.
Rail Schemes

2.17 Rail travel passes that permit travel throughout the network are especially popular in Europe, where distances unbroken by sea are greater, and the rail network is well developed. In some cases, this involves travelling on a single operator’s network – perhaps the national railway company. In others, it may involve an integrated route provided by different operators in different countries. For example, the Benelux TourRail ticket allows unlimited rail travel on the respective national rail networks of Belgium, the Netherlands and Luxembourg for any five days in a given month, while the ScanRail travel pass allows unrestricted rail travel for a specified period in Denmark, Norway, Sweden and Finland.

Ferry Schemes

2.18 Multi-operator travel tickets between ferry services are not common in Britain, but tourist tickets that allow extended travel during a month, with a car, over a selection of ferry routes, are offered in the Western Isles by Caledonian MacBrayne, under the name Island Hopscotch.

Bus & Rail Schemes

2.19 PlusBus was the first British national integrated ticket to link the bus and rail modes (Haigh, 2004). It was introduced at 35 railway stations in September 2002 and was available at 135 stations a year later. The eventual intention was that the scheme would cover all substantial towns and cities in the United Kingdom, and would be the first of a series of national integrated travel products. It currently covers 22 stations in Scotland. The ticket entitles the holder to unlimited bus travel within a specified area at one or both ends of their journey between participating rail stations, where specific travel service information is available. Public attitude surveys indicated a favourable response and a likelihood of increases in bus patronage, although the tickets tend to be perceived as more suitable for occasional use (Lawes & Kember, 2003). Other bus and rail schemes may include access to light rail and/or metro services.

Others Including Multimodal Schemes

2.20 There are now several integrated tickets in the UK, mostly based on metropolitan boroughs and their surrounding areas, that may permit travel on possible combinations of a variety of modes – bus, tram, light rail, heavy rail and metro. Examples are the Strathclyde Passenger Transport ZoneCard and the Nexus Tyne & Wear Network TravelTicket. Similar, or more extensive examples, are now increasingly found in Europe and there appears to be a general acceptance that if travellers are to be successfully enticed away from private cars, the alternative modes need to be as flexibly accessed and fully integrated as possible. These schemes represent an attempt to address that issue.
2.21 Briginshaw (2003) reported an ambitious scheme in the Netherlands to introduce an electronic integrated ticketing system across all public transport modes – bus, tram, taxis, rail and metro, as well as paying for parking – throughout the country. The system would be entirely cashless and would use two types of chip – one for season ticket holders and one for irregular pre-paid travel – which could be embedded in the user’s choice of article, such as a conventional travel pass, or a key ring, mobile phone or watch. The primary aims were to provide the travelling public with speed and convenience, but other advantages associated with electronic ticketing were anticipated. It was expected that incentives such as discounted fares would be offered and as travel patterns emerged from the data collected by the system, those could become more frequent and specific, such as incentives to travel off-peak to ease congestion.

2.22 A similar scheme was reported as being under development in Paris, which would apply to any combination of train, bus, coach, metro, automated metro, light rail or other mode, together with related services such as park & ride facilities. This was intended to present a serious challenge to the private motor vehicle (IRJ, 1998a).

2.23 In Britain, in addition to the multi-modal schemes mentioned above, there are train-bus-airport links to be found in association with airports e.g. Heathrow and Manchester. Taxis are often involved in highly integrated multi-modal urban schemes and additional services such as parking may be included in the facilities available through the ticket.

2.24 According to Ratchford (1999), the driving force behind Merseytravel’s decision to commit to a smartcard integrated ticketing system was the requirement for better, cheaper information about service use. The selection of a contactless smartcard system was based on the conviction that contactless readers without moving parts would be more robust and reliable in the hostile environment of moving vehicles and that a contactless system was easier for older people to operate. Once introduced, the system was subjected to continuing evaluation by stakeholders and included appraisal of the following aspects.

- Tendering procedures
- Scheme specifications
- Card issuing arrangements
- ETMs/card readers
- Cards
- Printers
- Customer perceptions
- Driver/operator perceptions
- Merseytravel perceptions
- Financial viability
- Evolving technology
- Evolving standards.

2.25 The system had been introduced with plans for further development and extended applications, but Ratchford (1999) emphasised the need to ensure that the system in its original form was fulfilling existing requirements satisfactorily before extending it.
2.26 Ellenberg (1999) provided a useful summary of payment systems in general, different ticket types and fares structures, which involve a consideration of area of travel. He pointed out that fares depend on two main elements: the type of traveller and the range and duration of the journey.

2.27 Travellers may include the following, or subdivisions of these depending upon age, for instance:

- Unaccompanied person (basic unit of calculation in the study)
- Elderly person
- Person with disabilities
- Student
- Unemployed person

Interestingly, family groups were not specifically mentioned.

2.28 Journey definitions may include:

- Travel zones
- Demarcation lines
- Maximum time durations
- With, or without, connections
- Multiple use on the same, or different, days

Clearly, combinations of these are possible and are often found.

2.29 The area of validity of a travel ticket may be very wide. For instance, Öörni et al. (1997) described the integrated ticketing scheme for buses throughout Finland, which was, at the time of its implementation, believed to be the first nationwide smartcard based payment system in public transport anywhere. Electronic public transport fare collection systems have been operative in Finland since 1988, and in 1990, a Government decision was taken to focus specifically on smartcards, and not to pursue magnetic stripe cards. The objective was that by the end of 1998, it would be possible to pay by a single smartcard for all parts of a transport chain across all modes throughout Finland.

2.30 London is an example of a relatively clearly defined operational area, consisting of zones in which specific integrated tickets may be used. The peculiarity of London in size, regulatory structure and function has both encouraged and permitted ventures that might not have been possible by the same means elsewhere in the UK. The London Travelcard has been well established for many years, but the Oyster Card represents an interesting innovation. Further details of the Oyster system are given below.
2.31 The cost of establishing a technologically advanced ticket scheme may set a lower limit on the effective area of operation. Similarly, such ticket systems are usually considered too expensive to be applicable to infrequent users (Ellenberg, 1999) although today’s manufacturers may disagree (see, for example, Moreau (2003) and Najman (2003)). The implications of venturing into a rapidly developing technological area are considered below.

TECHNOLOGY

2.32 In his discussion of different types of fare collection device, Comps (2000) made the point that the fare collection system usually represented the only type of equipment in public transport that was operated by passengers and was often their first point of contact with the service. The quality and fitness for purpose of the fares policy, fares medium and equipment design were therefore very important.

2.33 Collins (1982) commented that the effects of a simplified fares structure in London (coupled with a temporary fares reduction) were wholly positive, resulting, for instance, in marked reductions in marginal boarding times on buses and shorter queues at Underground ticket offices.

2.34 In a discussion of fares structures and elasticities in London during the 1980s, Fairhurst (1986) declared that fares simplification might best be viewed a policy to complement fares integration in a process of the development of new ticketing products to offer passengers better value for money. The relative success of the London Travelcard in the climate of high fares at that time was unusual (compare, for example, Fisher et al. (1982)). Fairhurst (1986) suggested the London experience indicated that the higher the revenue raising requirement, the greater the need for, and potential benefits from, attractive ticketing products. The Travelcard offered intensive users a product whose purchase could be justified on the basis of journeys to work, and whose use for leisure purposes was then regarded as ‘free’. It was suggested that this strategy would result in increased travel and consequential operator benefits.

2.35 Integrated ticketing implies that some form of physical ticket is involved. Nowadays, that need not necessarily be so, but many integrated schemes, as well as most ordinary day services, still require a ticket as a permit to travel, even if the ticket cannot be purchased at the time of travel, and must be obtained beforehand.

2.36 Tickets appear in a variety of shapes and sizes and are obtainable from a range of outlets, but they can be divided in to those that are entirely passive and those which can be required to supply information automatically.

Passive Ticketing Systems

2.37 Those tickets which are here termed passive are variations on a pattern which has been in use for decades – a piece of paper or cardboard that usually bears details of the journey, such as origin and/or destination, date of travel, fare paid and perhaps the class of
travel. They may be almost any size, shape or colour and be sold manually, or by vending machine, or printed from an Internet transaction, but the common feature is that all require manual intervention to determine validity.

**Electronic Ticketing Systems**

2.38 A consideration of electronic ticketing is essentially a history of smartcard technology. The addition of a memory capability to a piece of cardboard by means of a magnetic stripe radically transformed tickets from articles that required individual manual scrutiny to passes that could be automatically checked by machines, and which opened the door to speedy throughput of passengers, better validity monitoring, lower staffing levels and audit tracking.

2.39 In an overview of the effectiveness of UK Park & Ride schemes, Walters (1997) noted that UK services were extremely varied, being provided by a wide range of local authorities and bus operators with a correspondingly diverse range of charging and ticketing systems. Among these, the use of smart cards to collect payment for parking and bus fares was noted as becoming more prevalent. Unfortunately for today’s reader, the early magnetic stripe cards were termed “smart” in their day. However, as the technology has improved, the cards have become ‘smarter’, and the early cards are no longer regarded as ‘smart’. The term appears to have been first reserved for cards incorporating memory chips, and subsequently for re-programmable cards with microprocessors. Consequently, it is now necessary to refer collectively to cards which have an electronic capability as ‘electronic’ and reserve the ‘smart’ description for re-programmable cards. In Britain, accreditation of smartcard technologies is provided by the Integrated Transport Smartcard Organisation, which works towards full interoperability between systems (RGI, 2001).

**Types of Electronic Card**

2.40 Truly smart cards are the latest refinement in a series of electronic ticketing methods that began with magnetic stripe cards in London in 1964 (Turner & Smith, 2001). These authors provided a historical overview of electronic ticketing systems in their review of the operation of smartcard payment and ticketing. Many of the cards used for parking payment still are magnetic stripe cards, otherwise known as ‘electronic purses’ (Ralph, 1999). Although technologically simple and cheap to produce, these hold a relatively small amount of information, are easily read and copied and are not re-programmable. They are thus relatively insecure. The incorporation of an electronic memory chip confers the facility to hold value on the card, and to include more effective security features, but such cards cannot be re-programmed and when their value is spent, their use comes to an end. Phone cards are a common example of this sort of card.

2.41 Incorporating a microprocessor together with a memory, however, renders the card re-programmable, which not only means that its monetary value can be increased, but also that other information can be stored or exchanged if the card is inserted into an appropriate reader. The potential for exploiting this facility is enormous, but it requires a similarly
sophisticated infrastructure and carries related security implications. PIN codes are commonly used to protect such cards.

2.42 Contact-less smartcards permit access without physical contact with a card reader. Instead, the reader gains access to the card’s data by emitting radio signals which are received by the card’s inbuilt antenna that facilitates two-way information exchange with the card’s memory. (Schlumberger, 2003). This can include validation procedures and access controls. Furthermore, such cards can be powered by induction using the reader, which extends the useful life of the card. However, as noted in the Barriers Review section (Chapter 5), it is not clear whether, at present, completely contactless cards are available. The contactless cards which are currently in use (e.g. OysterCard in London) are perhaps better described as “proximity” cards which require to be held up within a short distance of a card reader.

Infrastructural Requirements

2.43 Ralph (1999) provided an overview of the infrastructure that is required to underpin smartcard payment systems and Pearson & Ranta (1995) gave a detailed, early case study of one of the pioneering Finnish systems, which still provides a useful consideration of the operational aspects that require consideration. A system typically involves card readers at the consumer interface, connected by modem or radio links to the operating organisation. Data can be downloaded from card readers via handheld collection devices where necessary – in mobile situations, for instance. Retailers or employers may function as loading stations to enable value to be added to the cards by direct payment or automatic debiting. Nowadays, these connections are also possible via the Internet.

2.44 Clearly, privacy and security are major issues with such systems. Fraud and invasion must be prevented with effective firewalls and encryption, and data protection legislation requirements must be observed. This would be especially true of a system such as that described by deKozan (2003) where transit smartcards intended for use in the San Diego area of California could have value added to them over an Internet connection, which was confirmed when the cards were next used.

2.45 The selection criteria for a smartcard system will obviously take account of the initial cost of establishing the required infrastructure and administration to support the scheme, but must also consider not only the running costs, but the probable life of the technology and the cost and feasibility of upgrading. The rate of progress in this field has been astonishingly rapid – witness the development of mobile phones during the past decade, in which smartcard technology is implicated. The potential for using mobile phone smartcards for purposes such as booking and paying for travel and entertainment has long been recognised. While there is a likelihood that the cost may decrease as the technology becomes established, obsolescence presents a formidable snare awaiting any new smartcard system that lacks the necessary flexibility for adaptation at a feasible cost.
Oyster

2.46 The Oyster smartcard was developed by the TranSys Consortium, led by EDS (Electronic Data Systems) and CTS (Cubic Transportation Systems) in partnership with Transport for London (Ennis, 2004). Oyster was introduced in London early in 2003 and, within six months, was believed to have almost half a million regular users, although it should be noted that in August 2003, Transport for London launched its Pay Before You Board initiative on central London bus routes, thus providing an additional incentive to use the Oyster card, at least in the central zone.

2.47 The introduction of Oyster was preceded by several years of preparatory work by TranSys to:

- Procure the cards
- Install remote ticketing devices on buses and at underground stations
- Fit station gates and equip retailers and train operators with card readers
- Retain and administer ticket sellers and manage financial procedures
- Establish data centres
- Upgrade ticket vending machines
- Introduce new ‘queue buster’ ticket vending machines

2.48 The introduction of the Oyster card began with an annual travel pass facility and was gradually extended to monthly and weekly bus and general travel passes. A new ‘Pay as You Go’ facility was planned for the card early in 2004.

2.49 Ennis (2004) reported that customer feedback had been very positive, take-up rates had been encouraging and looked promising, and TranSys were optimistic for the card’s future.

Potential Advantages of Smartcards

2.50 The manufacturing company Schlumberger (2003) (unsurprisingly) applauded smartcards for offering the unique advantage of being the most cost-effective and secure technology, while providing maximum flexibility for identity verification and access protection. Ampélas (1997a) also referred to the wide range of possible commercial and social applications. In his review of cashless payment for parking, Ralph (1999) cited the convenience of card payment as the main reason for its popularity with the public. Cards that can store biometric data may increase this convenience while providing increased security.

2.51 In their overview of the implications of smart card technology, Lawson & Steinmetz (1997) identified the significant potential benefits of being able to control fraud and fare evasion – over 10% of passengers may be travelling with invalid or missing tickets at any time – and noted that the technology may also allow operators to vary fares in order to spread demand at peak travel times. Admittedly, a greater understanding of local
elasticities may be necessary in order to practise this to advantage (see Balcombe et al. (2004) for a comprehensive consideration of fares elasticities).

2.52 The Oyster smartcard is an example of the way in which contemporary technological developments can be successfully harnessed to meet a current transport need. Oyster offers the facility to pay on the Internet and to have the added value recognised and confirmed at the departure barrier, which is a very recent development (Ennis, 2004). The card is recognised as a significant advance in multi-application smartcard technology and is believed to hold the key to a huge range of possibilities for ticketing options and other functions.

2.53 In his review of the role of intelligent transport systems in transport policy, Brown (1998) was of the opinion that smartcards, once introduced, would be economical to run (although he did not attempt to estimate the initial outlay). A considerable advantage would be the volume of transactions that could be handled within a short time. Particularly in the case of contact-less smartcards, Brown (1998) thought this would significantly contribute towards the integration of multi-modal transport systems and classed electronic financial transaction as one of the key advances in transport during the last quarter century, while emphasising the importance of these technological developments to future transport policy. However, Turner and Smith (2001) maintained that the frequently cited benefits of smartcard ticketing systems were often presumed because few of them had been in operation sufficiently long to assess the effects adequately.

Potential Disadvantages of Smartcards

2.54 Brown (1998) pointed out that this technology opens the way for large-scale integration of charging for services provided by local, national and European government, such as road travel, parking and public transport, but that this necessitates the establishment and maintenance of a common standard of operation. It also requires appropriate legislation to permit hypothecation of the revenues if such authorities are to be able to realise the full benefits of the system.

2.55 In fact, the development of card standards has been in progress for several years. For example, the ISO7816 Smartcard standard has established the physical characteristics and transmission protocol (Cardwerk, 2004).

2.56 The Oyster card is not without its critics and has raised some concerns about civil liberty and personal privacy (The Independent, 2004). While the data handling centres have to comply with the provisions of data protection legislation, the use of the card enables an individual’s movements to be tracked precisely. This could provide useful information in cases of the need to trace missing people or criminals, but is also believed to have at least the potential for misappropriation.

2.57 Öörni et al. (1997) also reported the results of public attitude surveys in Finland which indicated that while the public had some reservations about the personal privacy aspects of smartcards, they welcomed the potential for nationwide integrated travel,
wished for wider application of the system and had high expectations of its ease and efficiency of use.

2.58 It was also found that the cost of plastic smartcards was too high for those who used the cards infrequently, such as tourists and occasional travellers to London. Ennis (2004) reported that the feasibility of using cheaper and less durable alternatives to carry the smart chips, such as paper-based card, were being investigated. However, it has been suggested to the research team that low cost smartcards are fast becoming a feasible option, so this may no longer be a genuine obstacle.

2.59 Holm & Öörni (1999) listed six potential problem areas associated with smartcards:

- Card quality faults
- Software problems
- Hardware malfunctions
- Inadequate end-user training
- Inadequate after-sales support
- Organisation and external problems e.g. ticket sales

2.60 These issues were not seen as insurmountable hurdles, however, and an international project to validate and evaluate new card technologies had been established, involving the then British DETR, among others.

Integration with other services

2.61 This Review of the published literature has uncovered a difference of approach towards the function of travel smartcards. On the one hand, the card can be specifically designed for travel purposes, but on the other, it can be a multi-function card that admits the holder to a variety of community services and retail opportunities. Both approaches have their advocates and it appears that the previous customs and experience of the using public must be taken into account when making a choice.

Transport or Citycard?

2.62 Describing Finland as one of the most advanced countries in the research and application of smart cards, Öörni et al. (1997) reported that one of the goals of the Finnish smart card strategy was that the whole journey chain, including parking, should be paid for with one card. However, multi-application citycards – urban passports, in the words of the Director of the Parisian public transport authority’s information systems (IRJ 1998a) – were also promoted, where public transport was just one of many facilities accessed with the card, although across the country, travelling on public transport was one of the most frequent applications of smartcards. This strategy was government-led and sponsored, with codes of practice being drawn up to ensure commercial fairness, progressive technological development, and security and transparency where respectively appropriate.
2.63 Although writing when public transport integration was first becoming a stated part of central government policy, Jenkins (1997) made the point that integration in the UK has tended to arise when large multi-modal operators offer through-ticketing options to meet their own business objectives. The point has also been made that regulation of services facilitates integration, and the most prominent example of this in generally deregulated Britain is, of course, London, where the London Travelcard has been in use for many years and is now accompanied by the electronic OysterCard.

WIN-WIN POTENTIAL

2.64 Harvey (1999) provided an appraisal of the developments towards integrated schemes in which the trends driving that progression were identified as:

- Updating ageing systems
- Availability of new fare media and payment technologies
- Desire for system interoperability
- Requirement for cross agency compatibility
- Need for flexible fare management
- Need for security to combat fraud
- Shrinking public funds
- Privatisation

2.65 The primary stakeholders involved in developing the business model were likely to be:

- Organisation defining overall policy
- Transport operators providing travel in return for revenue and subsidy
- Governing body directing operational activities
- Central system operator running the clearing and management system
- Prime contractor providing the technology and system integration.

2.66 A successfully implemented scheme would need to satisfy these and all other stakeholders, whose needs might typically include:

Transport operators

- Automatic data collection and analysis
- Accurate revenue apportionment and subsidisation
- Increasing fare structure flexibility
- Seamless intermodal transfer
- Profitable patronage increase
- Maximum fare media reliability
- Reduced maintenance costs
- Reduced cash handling.
Government
• Fare structures that support policy e.g. decentralisation or privatisation
• Public transport promotion
• Patronage increase
• Environmental policy promotion
• Simplified subsidisation

Passengers
• Convenient payment
• Rapid boarding
• Seamless intermodal transfer
• Safety and security
• Multi-functionality in one card

Drivers
• Simplified fare collection
• Improved customer relations

2.67 Reporting on the South Yorkshire transport centre of excellence, Sherrington (1999) wrote that the councils were trying to engineer a win-win situation whereby their aspirations for better public transport are matched by increased ridership for the bus companies. Multi-modal, county-wide tickets were part of that effort and clearly, if a convincing prospect of a win-win situation could really be engineered, the initiative stood a much greater chance of success. For instance, Hesketh (2000) listed the following potential benefits for operators that might accrue from an integrated smartcard system:

• Reduced boarding times
• Additional and onward journey payments
• Fraud prevention
• Simplified and more accurate accounting
• Market potential information
• Audit trails
• Customer information

2.68 Hesketh (2000) reported that the integrated smartcard ticketing scheme introduced in Manchester for concessionary travel involved several operators in what appeared to be a successfully integrated manner. However, Hayes (1997) believed that the public transport operators of any given area would only participate in integrated ticketing schemes if convinced that the total revenues of the scheme would increase, that is, if there were a major shift from car to public transport. For that reason, many large schemes incorporated ‘stick and carrot’ measures to persuade motorists to make the transfer, and it was recognised that incentive and reward features were necessary in ticketing schemes to help effect the change. However, discounted travel tickets could reduce the revenue from existing passengers if they adopted the new scheme.
2.69 Even if a multi-function card were not selected, as Boussouira (1998) noted, despite the enormous diversity among public transport service providers and operators, as well as operating environments, there are certain natural interfaces between services which are common to most of these environments e.g. between trains and taxis, buses and trains, stations and car parks, and the timetables of public transport modes. If these services and facilities can initially be linked through an integrated smartcard, a major step will have been taken towards transport integration, and perhaps, progress towards modal shift will have been made.

2.70 Clark (1999) challenged the operators to make electronic ticketing systems work. The technology existed to meet their business needs and the supporting services were ready to implement the technology.

EFFECTS ON PATRONAGE

2.71 In considering the long-standing reluctance of motorists to transfer to other modes, Young (1998) suggested that it seems easier to attract car users onto trains rather than onto buses. Better accessibility was seen to be the key (although probably only one of several factors) with easier links between joining modes being facilitated by (probably) contactless smartcards – even, perhaps, a national travel card. Young cited examples of car to public transport transfer in the cases of the Manchester Metrolink light rail system and the Sheffield Supertram, and pointed to the levels of successful multi-modal integration achieved in other European countries, where the necessary commitment and investment in infrastructural improvements have been provided.

2.72 Such a case was reported by van der Maas (1998) who described the Freiburg city season ticket (the EcoAbo) which was sold to households rather than individuals. This ticket permitted unlimited multimodal travel for the family off-peak, but was limited to one person during peak times. Coupled with capital investment in services, the ticket initially led to a 16% patronage increase, of which a fifth were new users. This shift was thought to have originated among car users and by 1998 it was estimated that the fares revenue accounted for 70% of operating costs.

2.73 Similar tickets were introduced in Basel in Switzerland and in Karlsruhe. The number of ticket holders was seen to increase, together with patronage, but the effects could not be separated from service improvements, nor be seen to be covering operating costs more effectively as a result of the ticket. A multimodal season ticket scheme in Stockholm managed to increase the proportion of operating costs covered by fares over ten years, while benefiting from a patronage increase of a third over a similar period (van der Maas, 1998). However, it was not clear whether service improvements or changes had also taken place during that time.

Potential for increase

2.74 In Taiwan, Chang et al. (1997) found that when people were offered a multi-application contactless smartcard, they expressed high expectations of being able to use
the card on a variety of public transport modes and for paying for parking at railway stations, indicating a probability of patronage increase. Discounted fares were offered for multi-modal travel, but public acceptance exceeded expectations.

2.75 Holm & Öörni (1999) also reported favourable public attitudes towards public transport smartcards and multi-operational citycards in the Helsinki area. Three quarters thought the systems were progressive, two thirds expected transactions to be faster, and a majority thought the cards would be at least as easy to use as their predecessors.

2.76 However, Holm & Öörni (1999) were less certain about the effects on patronage. While two thirds of people did not expect to change their habits as a result of the card, three quarters eventually reported no change, although twice as many as expected (16%) reported increasing their travel. Unfortunately, the system data were not available to corroborate this finding.

2.77 When the people in Helsinki were asked how the multi-application cards had changed their behaviour in other respects, they reported about a 10% increase in bus use, but little use of the card for other purposes, such as paying to use leisure facilities (Holm & Öörni, 1999). This was partly attributed to low levels of promotion and marketing, but although at variance with Chang et al. (1997), the finding tends to support the suggestion of Holzwarth et al. (1997, see below) that the public prefers a specific travel card to a multi-purpose card that is more similar to a credit card.

2.78 It is worth noting, however, that Holm & Öörni (1999) were able to report that bus drivers who were originally sceptical about the card were persuaded that the innovation had, in fact, made their jobs easier and was really an improvement. This might eventually have been reflected in better customer service and patronage changes as a result.

2.79 Cheung & Tinselboer (1988) described the introduction in the 1980s of a universal, multi-operator zonal fares structure and nationally integrated ticket system in the Netherlands. Although at that time, patronage information was largely dependent on manual counts and passenger questionnaires, it was estimated that patronage rose when fares were set at a low (uneconomic) level, but that non-essential journeys decreased when fares rose. Cheung & Tinselboer (1988) focussed on these effects in a study of fares elasticities (see Balcombe et al. (2004) for a detailed discussion of these).

Journey effects

2.80 Public transport providers are constantly searching for ways of reducing journey times and improving reliability in order to increase patronage. One of the sources of delay in stopping services is the time necessary for passengers to board and alight, and boarding is usually the longer process because of the necessity to produce evidence of having paid a fare. Any innovation that makes that process faster and simpler is likely to reduce overall journey times and help to make those times more predictable.

2.81 Advocates of contactless smartcard systems (see, for example, Moreau (2003)) point to the faster journey times that can be achieved when boarding times are reduced through contactless, cashless fare collection. Passengers may be passed through a boarding gate at
the rate of 50 per minute, while the equipment reads the card, checks it against a list of lost or stolen cards, processes and updates the card, and displays the result of the fare validation visually and audibly. In the process, valuable data are accumulated for the operator.

2.82 Batten (1998b) also advocated contactless smartcards for bus use because of the need for boarding speed. He suggested that contactless cards could be used in 400 milliseconds, whereas contact cards could be slower than cash at longer than 2 seconds per transaction.

**Origins of patronage increase**

2.83 Little published literature documenting the details of patronage changes as a result of integrating ticketing schemes was found during this Review. This could be because most schemes are relatively new. However, while noting the lack of comprehensive European studies, Holzwarth et al. (1997) observed that in order to be really beneficial and attractive to the public, an integrated electronic ticket should offer multiple applications, particularly a range of fare options and associated services, in order to encourage the wider use of the facility. The thinking seems to be that if an integrated ticket (a card) permits the traveller to make virtually any journey they wish, whenever and however they wish, with associated facilities such as booking the journey and paying for parking, taxis, refreshments or a left-luggage or cycle locker, they are more likely to use the card regularly. Conversely, if an attempt to travel with the card fails on any occasion, the damage to perception and travel habits may be long lasting.

2.84 It may be supposed from the card requirements described above that any conventional credit or charge card might serve as well. However, Holzwarth et al. (1997) implied that the travelling public would prefer a specific ‘travel’ card that was separate from any conventional bank service and that if the potential for efficient, reliable, multi-modal travel were present, such a card would encourage trip generation.

2.85 When describing the establishment of the Tyne and Wear Metro over twenty years ago, Acton (1980) identified its passenger potential as lying in its advantage of being integrated with bus services and parking, and its ability to attract short distance travellers, particularly in areas of high population or employment density. High service frequencies, increased penetration through more stopping points and effective deployment of the most effective modes for particular locations were all designed to increase the attractiveness of the public transport option. A zonal fare structure enabled passengers to use one ticket per journey for multi-modal trips throughout the region. The multi-modality of the ticket was intended to off-set any inconvenience caused by having to change modes during a journey.

2.86 Oulds (1999) predicted that smartcards could effect modal shift away from cars because of their convenience and the way in which they improved the public transport travel experience.

2.87 Pickett (1999 & 2000) specifically addressed the issue of the role of smartcards in integrated transport from the point of view of the car driver, and illustrated ways in which the technology might simplify and clarify the use of public transport services to increase
their competitiveness with the car. He argued that any public transport strategy would need to address the perceived attractions of travel by private car in order to succeed. For instance, because car travel is so convenient, integrated ticketing is essential to permit the traveller to use all necessary modes simply and easily, and smartcards can help to provide the traveller with the information required, as well as paying fares and other charges, or accumulating incentives and rewards cf. air miles. Pickett (2000) suggested that public transport operators and service providers might constructively consider the way in which other services and products are marketed and profit from their example.

SERVICE DEVELOPMENT

2.88 Integrated ticketing may be introduced as one of a series of service improvements. Clearly, while the ticket may make services easier to use and more attractive to the travelling public, a sophisticated ticketing system cannot compensate for inadequate, inefficient or outdated service provision. In fact, if the service does not fulfil the expectations generated by the promise inherent within the ticket, the patronage damage may be severe and long-lasting because the public will seek alternatives elsewhere and may be reluctant and unwilling to return. Although the introduction of other improvements concurrently with ticketing innovations may make it harder to assess the specific effect of the ticket, other service improvements may be necessary to ensure the success of the ticketing scheme, and so that the associated expenditure is not wasted, nor the opportunity lost.

2.89 This suggestion is supported by the Household Survey conducted for this study (Chapter 6), which found that while a small proportion of respondents would use public transport more if various integrated tickets were available, improvements in terms of frequency and reliability were likely to have a bigger impact. Further, almost all those who might use public transport more if integrated tickets were available mentioned other factors relating to service improvements which would also encourage them to use public transport more. This suggests that integrated ticketing is more likely to be effective if introduced in combination with other service improvements.

Bus priority & real-time passenger information

2.90 Referring to the French RATP – the largest multi-modal urban transport company in the world – which provides over nine million passenger journeys a day in the Ile-de-France region, Ampélas (1997b) described a three-pronged programme of service improvement.

2.91 The first component was the introduction of a contactless smartcard to replace a magnetic stripe system. A selection was made which harmonised with similar systems across Europe and is operated in communication with cities in other countries.

2.92 The second component involved a GPS based RTPI and bus fleet management system, which included trams and was compatible with other public transport operations besides.
2.93 The third component provided a comprehensive travel information service, including street maps, places of interest and civic importance, public transport routes, stations and stops, multi-modal interchanges, car parks, taxi ranks, timetables, fares and calculated journey times. The service is available from interactive terminals and on-line and has been compared to a French Intranet. Locally tailored versions of it are also available in Brussels and Lisbon.

2.94 It was considered that these projects would help to fulfil passenger expectations based on recent technological developments, and to raise public confidence.

2.95 Considering European systems from a British standpoint, Blythe et al. (1999) also saw electronic ticketing using contactless smartcards as a way forwards, as part of a programme of intelligent transport system (ITS) developments.

**Intelligent transport systems (ITS)**

2.96 The use of electronic and radio systems for automatic toll collection has been under consideration for many years, although it has not been as widely applied in the UK as in mainland Europe. Alvisi (1997) and Galvan & Armellini (1997) wrote of the introduction in Italy, in the area of Florence, of a smartcard system that allowed city dwellers to pay tolls, public transport fares (local and inter-city) and parking charges, and then pay for their petrol or evening meal on the way home with the same card. This illustrates the potential that can be realised by committing the required investment in the necessary infrastructure.

2.97 Blythe et al. (1999) clearly saw a role for ITS in public transport and suggested that associated smartcard use might most productively be linked to other city services, on the grounds that the consumer might value the card more highly. These authors considered that ITS had a significant role to play in enhancing motorists’ perception of public transport services and helping to realise that expectation, (but see the discussion of possible card applications above).

**Multi-application smartcards**

2.98 While commenting that the use of integrated smartcard systems appeared to be more widely encountered in other European countries than in the UK, Barnes (1998a) reported the early use of BT Phonecards to pay for parking, which appeared to be well received by the public. The principle of using a payment system to provide an additional facility of service seemed therefore to have a fair prospect of success and thus might reasonably be extended to public transport and related services.

2.99 It was also noted by Barnes (1998a) that in one parking scheme, card payments were discounted as a further incentive to use a system that was beneficial to the council, as well as convenient for the motorist. This principle, too, can be extended to public transport and generally the initial introduction of smartcards has been for season ticketing, where a
discount on the standard rate usually applies. The use of cards can also be linked to loyalty
reward schemes cf. air miles.

2.100 It should be noticed that even where a benefit may be apparent, a system can prove
difficult to introduce where it requires passengers to change well established habits. For
instance, in Germany, it has been found necessary to develop options that permit
smartcard use without any action on the part of the passenger because travellers have
hitherto grown used to not showing their passes (Briginshaw, 2002). It is suggested that
the ideal solution in those circumstances is therefore a system that:

• functions without passengers having to do anything
• therefore means that passengers cannot abuse it
• can be used without prior knowledge of the fare structure
• eliminates ticket purchase
• obviates the need to buy any particular kind of ticket.

2.101 It is apparent from this and other reports that preliminary research to determine
public attitudes and preferences form a well-advised part of any ticketing scheme
feasibility study. Public behavioural considerations are discussed further later in this
section under ‘Possible barriers to implementation’.

**REVENUE**

2.102 Clearly, the effect on the company’s business prospects is of paramount significance
to any operator considering entering into an integrated ticketing scheme. Likewise, local
authorities and other providers will be concerned about the way in which the scheme is
likely to affect their costs. According to Holm & Öörni (1999) this can be difficult to
estimate because the effects are interdependent and complex. They concluded, however,
that the overall effect is beneficial.

2.103 Anderson (1999) asserted that smart cards were the most powerful marketing tool to
date for the public transport industry because they provided the first effective method of
enabling transport providers to understand who used their services, and where and perhaps
why they travelled. That was seen as a primary benefit that surpassed the convenience of
electronic ticketing. However, the potential business case would be even stronger for
multi-function cards that could be used in a variety of revenue-generating situations in the
community, workplace or in education because they provided the means to attract new
customers. The most obvious benefit to stakeholders from a multi-function card would be
the shared costs, but the potential benefit from gaining access across markets to non-users
could be still greater, enabling a transport operator to identify a multi function card holder
who, for example, could have travelled to the town centre where the card was used by bus
(Anderson, 1999).

2.104 Calder (1999) considered some areas in which business opportunities and
advantages might result from commitment to a multi-function electronic integrated
ticketing scheme. Money might either be made or saved from:
• Ticketing
• Customer loyalty schemes
• Entertainment
• On-board services
• Passenger lounges with chargeable facilities
• Shopping including e-commerce
• Telephony
• Reduced employment costs
• Improved staff management
• Passenger tracking
• Luggage tracking
• Reduced ticket distribution costs
• Reduced administration costs

Revenue control & distribution

2.105 The potentially fraught question of revenue apportionment was addressed by Clarke (1993) who pointed out that different modes were likely to have different cost structures and their passengers would have different journey patterns so a simple head count would not be a fair method of apportioning revenue. This could be seen as an argument for advanced technology ticketing systems that would provide much more information about the journeys made.

2.106 In his report on the early days of the Hertfordshire smartcard scheme, Batten (1998a) noted that one of the perceived advantages of the system was that it allowed Hertfordshire County Council to monitor the use of its travel card, and to allocate an accurate level of reimbursement to the bus operator on a journeys-made basis (though note discussion in Barriers Review section on the possible difficulties of using smartcards for revenue allocation on all buses – Chapter 5). It was also possible to reimburse district council service providers accurately for their costs incurred, and to monitor service use for planning purposes. While increasing the potential for integrated transport for the public, the scheme was expected to allow local authorities and operators to benefit from secure and accurate revenue control (Lamb, 1998).

2.107 Holm & Öönni (1999) also reported that an integrated, virtually cashless, electronic system was much quicker and less liable to fraud than the previously paper-based system. Automatic clearing was so much faster than manual clearing that service providers received their money in an average of three weeks, rather than almost two months. Similar improvements were hoped for in the transition from manual paper ticketing to smartcard use on Amtrak heavy rail services (Hunter et al., 2000).

2.108 Annual savings of about 2.8% of the total annual public transport budget were recorded by Holm & Öönni (1999) following the installation of a smartcard based integrated system, and almost 50% of the capital costs of implementation had been recovered in a year. However, the reticence of operators, particularly the smaller
companies, was noted where economic effects of integrated ticketing schemes were concerned.

Cost savings

2.109 Assertions have been discovered frequently in the literature that smartcard systems ultimately save money because of reduced staffing levels and better control of fare evasion and fraud. However, few authors appeared able to quantify the potential savings. Ampélas (1997a) estimated that the contactless smartcard he described could result in savings in investment (details were not provided) and maintenance of 50% and 30% respectively, and that co-operation between cities and regions would magnify these savings because of resource sharing and reduced duplication.

2.110 Öörni et al. (1997) reported that both system operators and service providers in Finland expected new integrated ticketing systems to result in management and strategic planning benefits. These stakeholders spoke of achieving rationalisation, reporting, accounting and cost saving and the service operators expected customer service improvements too, but it was noted that the highest initial expectations were of internal business benefits rather than benefits to the travelling public. It was hoped that while this might encourage system implementation, the public would benefit in the long run.

2.111 One of the ways in which this occurred was in reimbursement for school travel. Holm & Öörni (1999) reported that paying bus operators for school journeys actually made by children with integrated smartcards, rather than a figure based on calculation, had reduced the need for subsidies by 10 to 40% cf. the Hertfordshire experience. The operators’ response is not known.

2.112 According to Moreau (2003) the case for contactless smartcards is now overwhelming. Even for single trips, it is asserted that it is less expensive overall to abandon magnetic stripe tickets because “the reduced investment in pure contactless equipment, as well as the maintenance savings from eliminating magnetic stripe tickets completely, can more than offset the incremental cost of using contactless smartcard tickets”. Moreau (2003) attributed this to the requirement of magnetic stripe validation equipment to include moving parts, with their consequential maintenance requirement. Chambers (1996) also reported the relative reliability of contactless smartcards, which were then thought to be up to ten times more dependable in operation than magnetic stripe tickets.

2.113 Najman (2003) pursued a similar argument with an account of the results of an economic model of the effects of using different ticket strategies in Asian cities. The example of the New Delhi metro is reported as showing that the most cost-effective option is a combination of contactless smartcards for stored value cards and passes, and contactless smart tokens for single journeys and round trips. All other options were considered more expensive, including the ‘do-minimum’ scenario of using recyclable magnetic stripe tickets, which would cost 70% more. Combinations of smartcards with magnetic tickets were similarly more expensive.
Uptake

2.114 Dunning (1998) discussed the attitudinal reasons why the public might be reluctant to adopt electronic payment systems. It appeared that some of these might be addressed by ensuring that the system was really simple to understand and use, and was effectively presented. Clearly, the more effectively integrated the services, the simpler their ticketing and use should be, but local variations such as number of operators and service frequency can affect the simplicity of presentation of the scheme with respect to features such as timetable design, fare structure and travel facilities.

2.115 Although the price sensitivity of travelcards was noted in the work of York (1995) he also confirmed that, in effect and as expected, the greater potential that people perceived in their cards, the greater value they placed upon them. Nevertheless, the primary reason for buying a travelcard was found to be the cost differential between the card and paying cash fares, although because stored value cards were considered to be more like paying with cash, they were unpopular with habitual travelcard users, but relatively more popular with cash payers.

2.116 Integrated smartcards schemes in Greater Manchester and Tyne & Wear were discussed by Hesketh (2000) who noted that additional features were being added to the cards to make them more attractive. For instance, school travel cards could be used to pay for school meals and for sports facilities, or for youth incentive payments. Reward points could be accumulated on the buses. Ellenberg (1999) observed that electronic ticketing lends itself to the promotion of civic events and festivals and access can be specific to particular sectors of the population.

Concessionary fares

2.117 The reported convenience and flexibility of smartcards has already been mentioned earlier in this Chapter. Batten (1998a) reported a relatively early UK use of smartcard technology in Hertfordshire County Council’s school bus travel scheme. It was subsequently extended to the concessionary fares scheme, with the intention of developing a county-wide system that would embrace employer travel schemes and parking payment, for instance.

2.118 Manchester has also introduced smartcards to the participants in its concessionary travel schemes (Hesketh, 2000). Whereas the scheme described above involved predominantly just one operator, the Manchester scheme involved several and appeared to be thoroughly integrated amongst them.

2.119 As noted above, the use of an integrated smartcard system can provide opportunities for cost savings on concessionary fares by enabling actual journeys to be monitored more easily (Holm & Öörni, 1999).

2.120 Assessments of revenue implications are difficult to make because of the reluctance of companies and organisations to disclose their profits and costs, and because integrated ticketing schemes are rarely introduced in isolation. It may be realistic to consider these
schemes as a necessary step in continuing programmes of service improvement, where the whole initiative may result in patronage increases and revenue benefits.

ECONOMIC DEVELOPMENT

2.121 Public transport usually forms part of local development plans and now that concerted efforts to restrict private car use are being made, public transport consideration are likely to figure in any plans for regeneration or re-development. This Review searched for examples of instances where an integrated ticketing scheme had been linked to such a development.

Community planning

2.122 The Review has found that in many instances where public transport is well established and supported and the principle of integrated ticketing is widely accepted, the advent of contactless smartcards has encouraged the concept not only of a faster, more flexible fare payment system, but of a general passport to city services (Cocuccioni, 1997). The stated objective is that everyone should use the card and think of it as a citycard rather than a travelcard (contrary to the more specific suggestions of Holzwarth et al., 1997).

2.123 This has the obvious advantage to city planners that it could provide them with an unparalleled statistical database on which to base their future strategies, but it clearly has data protection implications too. Cocuccioni (1997) noted rather soberly that while obtaining travel behaviour data could enable cities to deliver more appropriate services, the eventual choice of the characteristics of the system could even profoundly change citizens’ behaviour, so it was essential that the right choice was made.

Economic consequences

2.124 With significant assistance from central Government to cover its massive accumulation of debt, the Sheffield Supertram system was not only saved, but developed into the hub of a South Yorkshire transport centre of excellence (Sherrington, 1999). This resulted from a concerted partnership between four South Yorkshire councils – Sheffield, Barnsley, Rotherham and Doncaster – to develop a strategic regional network. One of the ways in which this succeeded was in the generation of secondary partnerships between the public sector and commercial transport operators. Sherrington (1999) reported that the South Yorkshire transport centre of excellence scheme encompassed eleven different projects:

- Flexible ticketing, including the introduction of smartcards
- Creation of mini-interchanges providing bus-to-bus or bus-to-tram connections
- Industrial regeneration schemes, including persuading existing employers to limit car use to release capacity to incoming businesses
- Integrated public transport, including some free city centre buses
- Quality bus corridors and rapid bus services
• Increased bus priority enforcement and monitoring, and improved lining and signing
• Increased customer care, including fewer timetable changes
• ‘Schools without cars’ projects
• Community transport initiatives
• Developing strategic corridors to relieve congested routes
• Increasing train speeds and promoting train use.

2.125 Although integrated ticketing was not the primary driving force behind this effort, it became an essential part of it and was developed as an enhancement in its own right. The long-term plans were to introduce zonal ticketing based on the London model, moving towards county-wide tickets and smartcard ticketing within the region.

2.126 In the Bay area of San Francisco, an integrated travel card was recently launched in response to changing patterns of commuter travel (Patterson, 2002). It was found that traditional fare structures were becoming inappropriate because commuters were either travelling through more than one travel zone or varying their route through different zones. The intention behind the new card was to facilitate travel though different districts, and by different modes – bus, light rail, heavy rail, metro and ferry.

2.127 Najman (2002) reported a programme of integrated multi-modal electronic ticketing in Hong Kong, Singapore, Taipei, Kuala Lumpur and Manila, which was driven by the rapid urban growth in those locations and the need for more workers to travel relatively long distances to their workplaces. Recyclable magnetic tickets were used for short journeys and contactless smartcards for multi-modal transfers. It was noted that the Asian climate did not favour the use of paper or cardboard tickets, but the speed and security of electronic transactions were essential.

RELATED POLICIES

2.128 Transport is recognised as being the key to many aspects of community development. Even those who do not travel far themselves often rely on others to come to them.

Social inclusion

2.129 In a report of a newly introduced contactless smartcard for regional bus networks in Canada, Wiercienski (1999) noted that the highest percentage of use of smartcards was among elderly passengers and students. While these sectors of the population are traditionally disproportionately represented among British bus passengers, nevertheless, the observation probably indicates a reasonable level of acceptance of the card among those people. If an integrated ticket scheme simplifies fare calculation and payment, it might contribute towards assisting such people to travel by bus who might otherwise have been reluctant.
2.130 Similarly, Laconte (1998) advocated the implementation of contactless systems because although they were quicker and easier for all passengers, they offered particular benefits to elderly persons, people with disabilities or infirmities, and those with the care of young children or encumbered with heavy luggage or shopping.

**Community planning**

2.131 Batten (1998a) suggested that Smartcard technology provides the ideal way for local authorities to evaluate budget allocation, cash handling, fraud and the way they deliver services such as concessionary bus fares, leisure, libraries, education and housing benefits.

2.132 In that report, and in an augment for the citycard mentioned previously, Hertfordshire County Council’s Head of Passenger Transport was quoted as saying:

> “In terms of economics, the smartcard technology will provide us with increased management information, allowing us to be much more accountable and [to] target our services accurately – responding to local needs.

> We are also committed to encouraging the use of passenger transport in the county, and the Herts. Smart Scheme is an important part of making passenger transport more convenient and quicker and easier. In the future we aim to add other services – libraries, parking sport centres – onto the card so each Hertfordshire citizen has a card personalised to their needs and interests.”

**Sustainable transport policies**

2.133 Turner & Smith (2001) observed that the Australian cities of Melbourne, Sydney, Brisbane and Auckland each prepared an integrated transport plan which included a strong emphasis on the development of a sustainable transportation system. A primary component of each of these plans was an integrated electronic ticketing system.

2.134 In a report on the use of intelligent transport systems and smartcard technology in access control within city centres, Miles et al. (1998) suggested that local authorities might consider forms of integrated ticket technology that have been demonstrated to make public transport more convenient and attractive in European cities. Chang et al. (1997) reported that the planned transition from a magnetic stripe integrated public transport ticketing system to a contactless smartcard based system was favourably received by customers because they expected to be able to use the card on several integrated modes and to experience shorter bus journey times.

2.135 Hayes (1997) believed that the potential of ITS and smartcard technology in assisting policy development for sustainable mobility in European cities was only just beginning to appear. Seven years later, it appears to be well on the way.
Public health

2.136 It has been noted by Canadian researchers (Suen et al., 1997) that elderly people have higher accident rates on public transport than the population in general. While reporting the potential benefits of Intelligent Transport Systems for older people in particular, it was suggested that more effective public transport integration would reduce stress and accidents among such people, and assist other people with disabilities. While better travel information, including real-time information, would assist in this respect, it was suggested that integrated smartcard payment would reduce the number of actions required in a short time when boarding a public transport vehicle. Such systems can also compensate for a lack of dexterity, or poor sensory function, while requiring less calculation of fares and change, and permitting the passenger to grasp a support while boarding. It was pointed out that these issues are of increasing importance as the average age of the populations of Europe and North America increases.

2.137 Health and safety issues were one of the reasons behind a decision to change from a manual, paper-based system on American rail services to a smartcard system (Hunter et al., 2000). The existing system only released trip data weeks after the event. Accurate manifests and inventories were not possible and accurate ridership and revenue figures were confounded by data loss and errors. The American National Transportation Safety Board required passenger manifests to support emergency procedures and a prohibition of standing passengers on high speed trains, and it was intended that the electronic system would provide the required information while permitting more efficient and profitable management.

Environmental impact

2.138 It is widely supposed (and hoped) that if widespread transfer from private cars to travel by public transport takes place, encouraged by integrated ticketing or any other service improvement, the change will be environmentally beneficial, resulting in reduced harmful emissions, better air quality, fewer road accidents, less land-take, and better public health overall. While Ampélas (1997b) emphasised the role of public transport in alleviating the pressure on Europe’s town and cities, Cocuccioni (1997) saw contactless smartcards as a significant key, particularly if their flexibility and facility for multi-application were effectively exploited. Cards could be recharged at home, specific services could be afforded to those who needed them, and by this means, seamless transport integration could be realised and unnecessary shifts and transfers avoided.

2.139 Barnes (1998b) suggested that integrated smartcards could be used to help reduce pollution levels by charging differential or preferential parking rates to encourage car sharing, and advantageous rates on public transport and park & ride services. Where integrated ticketing has been introduced as part of a programme of service improvements including ITS, air quality monitoring is often part of the package (see, for example, Hayes, 1997).

2.140 Dargay & Pekkarinen’s (1997) report of a Finnish multi-operator bus travelcard focussed on modelled fares elasticities, but is relevant to this Review that the objective
behind the introduction of the scheme was the reduction of energy consumption and the other environmental effects of transport by seeking to encourage a modal shift from private cars to public transport. The scheme was based on a monthly regional bus card that offered substantially discounted fares and was valid between the city centre and satellite communities.

**POSSIBLE BARRIERS TO IMPLEMENTATION**

2.141 Although a separate review of legal and policy barriers has been undertaken for this study, the Literature Review has also highlighted a variety of potential barriers to implementation which are included here for completeness. In particular, this section focuses on barriers relating to the introduction of smartcard technology, given that smartcards feature heavily in the literature reviewed for this section.

2.142 The Literature Review has discovered that the future of integrated ticketing is presently seen to be closely linked to the developments in smartcard technology. The transaction speed, information exchange potential and convenience of smartcards are generally viewed as being conducive to seamless transport interchange and through ticketing, while facilitating charging for other services and enabling service providers to monitor transactions and control revenue more effectively. However, writing in 1997, Lawson & Steinmetz identified certain barriers to the widespread implementation of smartcard systems that may still be relevant, although perhaps to varying extents.

**Co-operation**

2.143 Lawson & Steinmetz (1997) noted the potential for disagreement and delay when decisions have to be taken by a consortium of stakeholders in any given scheme. Reconciling the respective interests of public and private sector organisations is often difficult, and when such disparate organisations as local authorities, bus operators and equipment manufacturers are required to reach agreement on a common agenda, in which each has a separate business objective in a competitive environment, the problem becomes more acute.

2.144 Turner & Smith (2001) asserted that the real challenge in making integrated electronic ticketing a reality lay not in managing the technology, but in managing the expectations of the stakeholders. It may also be difficult to secure the co-operation of existing staff to significantly different procedures and practices, especially if, as in the case of smartcard systems, fewer staff and different skills may be required. There may be a need – practical or financial – to put particular services out to contract. Nevertheless, Pickett (2000) suggested that there is need for the public transport operators, local authorities and card technologists to work together towards the common goal of encouraging and effecting modal shift from the private car.

2.145 Ellenberg (1999) recommended that sufficient flexibility is retained within projects to allow for these potential difficulties and to accommodate any standardisation requirements, but noted that significant progress was being made in this regard. For
instance, it is now possible to install a system that comes with a management package (as in Tokyo – (IRJ, 2002)) including:

- Transaction data collection
- Smartcard holder account management
- Smartcard life-cycle management
- Fraud detection
- Blacklisting where appropriate
- Lost card registration and re-issue
- Stolen card value refunding
- Management and distribution of action lists
- Account settlement and clearing
- Operator training
- Clock synchronisation.

Standardisation

2.146 As mentioned previously, while drawing attention to the potential afforded by smartcard technology to enable large-scale integration of service charging throughout Europe, Brown (1998) pointed out that a common standard of operation was required. The difficulty of standardising in a highly competitive world was also noted by Lawson & Steinmetz (1997). This may mean that potential investors in systems are reluctant to commit to heavy capital expenditure because of the uncertainty. Both in the context of smartcards and real-time passenger information, reference is often made within the transportation industry to “not wanting to buy Betamax” viz. to the similar uncertainty that once surrounded the different types of VCR operating systems, in which those who chose the system that did not prosper suffered the consequences. This may mean that the responsibility for encouraging practical decisions in this regard falls upon central government, otherwise there could be the risk either of protracted prevarication or monopolisation cf. the situation now prevailing in the personal computer operating system industry.

2.147 However, there are examples of successful co-operation with the specific intention of encouraging standardisation. Ampelas (1997a) described a European contactless smartcard ticketing CLUB – ContactLess technology Users’ Board – to which major cities across eight countries were subscribing. Öörni et al. (1997) reported the Finnish Government’s support for smartcard implementation: public funding was provided for contact processor card systems because standardisation of those systems was further advanced (the Government’s focus on smartcards having begun in 1990) than that of contactless smartcards. And although there were apparently some energetic discussions with bankers during the UITP’s (International Public Transport Organisation) third international conference on automatic fare collection, the eventual conclusion was that contactless cards had become a viable option, and that totally contactless ticketing was both economical and practical (IRJ, 1998b).
ISO standards of smart cards

2.148 The UITP has supported technological collaboration and the definition of transparent standards for smartcards and ticketing systems in order to reduce development costs and encourage mutual compatibility (Laconte, 1998).

2.149 This is an area of rapidly expanding technology. Several companies are responsible for developing the systems currently in use, and competition in this expanding market is strong. One of the problems for public transport operators is the question of the stability of the market. They do not wish to invest into a system that will either be quickly outdated or incompatible with other systems. For example, if a bus were temporarily transferred between operating areas, the on-board equipment would need to interface with the fare system operating in both areas.

2.150 Considerations such as these have led to reluctance to invest in smartcard ticketing systems, and in recent years, this has been addressed by the industry. Throughout the 1990s and up to present day, ISO standards have under development for Identification Cards (IC Cards) and therefore smartcards in general.

2.151 Standards now exist for many elements of smart cards, including their physical dimensions and data transfer protocols (see Stanford (1999) for a discussion of interoperability standards) although these take a long time to develop and organisations have been formed meanwhile that set their own standards:

- The Integrated Transport Smartcard Organisation (ITSO) in the UK
- Calypso across a group of European partners
- Verband Deutscher Verkehrsunternehmen (VDV) in Germany

2.152 ITSO has considered the specifications, business rules and supporting systems required by such schemes (Tanner, 2003). It is formed of Passenger Transport Executives, bus operators, train operators and is supported by the Department for Transport. All new tickets in the UK have to be ITSO compliant to receive public funding. By June 2003, no ITSO standard schemes had been implemented, although a number of existing schemes were planning to migrate to those standards including the following:

- NoW (Cumbria, Lancaster, Blackburn, Blackpool) concessionary fare scheme.
- SWIFT (South Wales) concessionary fare scheme
- SWWITCH (South West Wales) concessionary fare scheme
- Cornish Keycard, a tourist and travel card

2.153 The ITSO standards aim for a multi-purpose ticket intended to be able to handle travel tickets, concessionary passes and electronic purses. The specification relies on ISO/IEC14443 and ISO/IEC 7816 to determine the physical specification of cards and other protocols. The main addition to the specification is that any ITSO compliant card
must be capable of being read and interpreted by equipment belonging to any other ITSO compliant scheme. This is intended to permit operators to enter into new business agreements with another ITSO compliant scheme without further investment in equipment. However, it is believed that this flexibility comes at a price, although the exact figures are not yet known.

2.154 Shield et al. (1999) described multi-application smart card schemes in five European locations and provided examples of ways in which interoperability, as encouraged by ITSO, might benefit the service provider and the user. The European schemes were beginning to demonstrate the potential of multi-application cards. For instance, a card could be used to obtain public transport travel information tailored to the user’s home address, then serve as a ticket to travel. Once in the city centre, it could be used to obtain access to city services, included, for instance, gaining access to medical records, and to obtain discounted access to leisure facilities.

**Operation**

2.155 The relatively high capital cost of technologically advanced systems may be discouraging, especially if there is no clear indication of the direction that improvements may take and hence, which systems are likely to remain economically viable for the longest time. However, Turner & Smith (2001) reported that the cost prompted organisations contemplating smartcard ticketing to seek additional actual or potential applications of the technology to support the business case for the investment.

2.156 There may also be opposition towards smartcards that facilitate detailed monitoring from individuals or organisations concerned about invasion of privacy or restriction of civil liberty. Such concerns are likely to be most effectively addressed by rigorous compliance with current legislation.

2.157 Turner & Smith (2001) maintained that the expectation of a ticketing scheme’s stakeholders plays an important part in determining the type and mode of operation of the scheme. These expectations of the scheme are suggested as follows:

From the user’s perspective:

- Familiarity and accessibility
- Convenience at point of sale and in operation
- Reliability – nearly 100% is suggested.
- Flexibility to accommodate fares elasticities and different operators
- Speed and efficiency must impress favourably
- Information feedback on charging and card debiting
- Integrity and consistency

And significantly –
• The system should permit the last stage of a journey to be made, even if the electronic ticket does not hold enough value for the minimum fare.

2.158 From the operator’s point of view, the system must provide:

• Rapid transactions and lower boarding times
• Improved profitability – any outlay is covered by improved patronage
• Rapid and convenient installation with minimum service disruption
• Improved patronage
• Data confidentiality and legal compliance.

2.159 Local or central government requirements are likely to include:

• Modal shift towards public transport
• Improved network integration and social mobility
• Smooth and trouble-free implementation with widespread acceptance
• Improved future planning and forecasting capabilities.

Legislation & competition

2.160 Lawson & Steinmetz (1997) argued that the competitive, deregulated environment disinclines transport operators to co-operate in integrated ticketing schemes, although the present preponderance of the largest bus operators may make integration more likely. Moreover, in the rail industry, relatively short-term franchises discourage investment and commitment in such schemes, especially at a time when ticketing is not the rail industry’s highest priority.

2.161 There is also competition between the equipment manufacturers and this may drive the proliferation of schemes that use their products. It is also likely to increase the range of those products as the manufacturers seek new and untapped corners of the market.

2.162 James (2001) suggested that, contrary to expectation, integration could provide the opportunity for true differentiation between competitors because it would become easier for passengers to see exactly who was providing what. It was therefore significant that consistent levels of service were proving one of the greatest challenges of integration, requiring an acceptance by operators that an integrated system would ultimately succeed or fail on the level of co-operation between stakeholders. This might require the commitment to sacrifice a degree of autonomy in order to become part of a larger, successful scheme that represents what James (2001) referred to as the ‘relentless’ drive towards integration. Clarke (1993) agreed that many operators under pressure to modernise services while cutting costs might see a net benefit in subscribing towards an integrated scheme, even if it meant pooling the revenue with their competitors.
However, one of the first concerns of operators and local authorities in the UK is likely to be whether any integrated scheme that they may be contemplating is compliant with the recent transport Acts (see below). Particularly in the case of bus operations, is the scheme likely to pass the scrutiny of the Office of Fair Trading (OFT)? Where rail services are concerned, until very recently the concern was whether the proposed fares would be accepted by the Strategic Rail Authority (SRA). The roles of the OFT and the SRA were not directly comparable, but each exerted a controlling influence over its respective sector of the public transport industry and although the situation has now changed with regards to the SRA, the prevailing situation within the transport industry continues to reflect these influences. Issues relating to OFT regulations are discussed in detail in the Barriers Review, using information obtained as part of this Literature Review. This section therefore confines itself to discussing issues relating to the SRA, which are still relevant for the reason given above, although in future rail competition and pricing will be under more centralised control.

**Strategic rail authority**

2.164 Unlike the OFT, the SRA was of very recent origin (it dated from February 2001) and operated within a relatively specific remit (SRA, 2004a). The SRA was responsible for delivering its own ten-year Strategic Plan for the railways, with particular emphasis on achieving Government targets for increasing passenger and freight transport, and improving service punctuality and reliability. In addition, the SRA let and managed passenger franchises, developed and sponsored infrastructure projects, managed freight grants, and was responsible for some aspects of consumer protection, including the regulation of fares, where that was enabled under the Railways Act 1993 and the Transport Act 2000.

2.165 Rail fares that were regulated by the SRA included most commuter fares, where something of a rail monopoly exists, and long-distance Saver tickets, in order to maintain the availability of reasonably-priced ‘walk-up’ leisure travel (SRA, 2004b). These encompassed:

- All standard class weekly season tickets for journeys where a weekly season existed in June 1995
- All Saver tickets for journeys where a Saver ticket existed in June 1995
- An unrestricted standard class returns, for each journey where no Saver fare existed in June 1995 (typically journeys under 50 miles, or journeys within the old Network South East area)
- All Standard Day Singles and Standard Day Returns for journeys within the London Travelcard zones, and from stations in the London suburban area into the Travelcard zones
- All season tickets, weekly and longer, for journeys within the London Travelcard zones and between stations in the Travelcard zones and stations outside the zones.

2.166 These regulated fares account for about 40% of UK fares revenue. Unregulated fares are set by the train companies according to business needs and include:
2.167 The SRA also set rules for the charging of Penalty Fares to passengers who travel without a ticket from a station at which it was possible to buy one. The following reasons were given for the penalty fares scheme.

“On urban and suburban routes, where stops are frequent and trains busy, it is not always practical to check every passenger’s ticket between every station. In the past, visual inspection of tickets has been carried out at station ticket barriers, but this can be both labour intensive and inconvenient to passengers (SRA, 2004b).”

2.168 It is interesting that a solution to rail fare evasion was adopted which was unlikely to identify all culprits, which involved the operators in extra procedures and costs, and which conferred no additional benefits (such as comprehensive revenue or travel auditing).

**Comprehension & attitude**

2.169 In their detailed study of the use of bus passenger information, Balcombe & Vance (1998) reported that difficulties in understanding travel information posed substantial obstacles to public transport users, and recommended changes to simplify and clarify such information. Focussing specifically upon electronic information and payment systems, including smartcards, Hendriksson & Robertsson (1997) found that about two thirds of their sample lacked necessary knowledge about such applications, and that the problem was particularly acute among women and those without training in information technology. Moreover, this relative lack of understanding meant that women tended to accord a lower priority to these applications than men.

2.170 Dunning (1998) took an overview of the potential of smartcards for transport integration and concluded that one of the more significant barriers was probably public attitude. It appeared that the public was not sufficiently comfortable with entirely electronic transactions to wish to forsake the reassurance of conventional receipts or tickets, or of traditional payment locations.

2.171 This finding also gains some support from the Household Survey conducted for this study (Chapter 6), which found that a significant proportion of those who would, in principle, be interested in buying multi-modal tickets were not interested in smartcards. However, there may be reason to suppose that such attitudes have undergone substantial revision in past few years and will continue to do so. Europeans generally seem to have adapted more willingly to electronic payment systems and accept them as part of the integrated transport structure that they have come to expect (see, for example, Ampélas, 1997a). There seems no obvious reason why the same should not eventually be true in Britain, especially if the transport service is seen to improve coincidentally.
Smith (2001) believed that credit card technology had effectively paved the way for the use of smartcard ticketing and Cocuccioni (1997) reported that Europeans were happier to pay by card for public transport than for any other service, mainly because it saved time. The primary disadvantage was that cards were thought easy to lose.

2.172 It was also noted by Dunning (1998) that the public might regard ‘yet another card’ as an increasing complication in an already confusing transport system. Clearly, a successfully integrated system should be more simple than its predecessors, but it appears to be important that the system is not only simple in use, but is presented as such, and perceived to be so.

2.173 From the point of view of ticketing scheme operators, a given scheme may imply significant business risks that might deter a potential partner in the scheme from participating (Turner & Smith, 2001). These may include:

- Varying and irreconcilable fare policies and/or structures
- Route sharing and/or headway agreements
- Operating strategies that may have adverse data loading implications
- Revenue apportionment
- Lost or stolen card policies
- Cash flow implications of revenue distribution mechanisms
- Capital and operating costs and who pays them
- Need for confidentiality and data security
- Requirement for simple and efficient operation with high reliability
- Uncertain market penetration prospects.

2.174 Providing reassurance on these issues may prove a significant hurdle to the instigation of a ticketing scheme. However, as more schemes are established, it should be possible to learn from those and to accumulate a pool of best practice upon which prospective scheme participants may draw.

2.175 Finally, as Turner & Smith (2001) pointed out, the needs of the user should remain paramount in any integrated ticketing system. If those are always taken into account, patronage levels are likely to rise and the scheme will succeed.

**OVERALL SUMMARY OF POTENTIAL BENEFITS**

2.176 Although this Review did not discover specific evidence of revenue increases directly attributable to integrated ticketing, and therefore no conclusive business case, many of the sources, as has been shown, expressed a conviction that so many benefits could be expected to accrue that such a case would probably materialise. In an analysis of electronic ticketing systems, Villegas de Ruiz et al. (1998) wrote that the benefits of the systems developed across the world included shorter travel times, reduced operating costs, better monitoring capabilities and the promotion of integrated travel. They proposed an assessment model for selecting systems that were appropriate to specific locations.
2.177 The literature indicates that although paper-based systems may still have a limited function, the long-term view and the direction in which most implementers appear to be moving is towards electronic systems because of their enormous potential. It is suggested that an electronic country-wide scheme with interoperability options with other European schemes might be a constructive aspiration for Scotland. In their appraisal of smartcard ticketing, Turner & Smith (2001) listed the primary driving forces that tend to initiate such systems. These are also the expected benefits that may result from implementation, both to operators and to government, local or central.

2.178 For operators, the incentives may include:

- Reduced costs of fare collection and the ability to audit travel receipts. This ensures that all fares paid are collected and that they are collected efficiently
- Reduced transaction times that lead to overall improvements in journey times, which benefit passengers and help to sustain the market
- Potential reduction in management and accounting costs.

2.179 Government may look for:

- Modal shift towards public transport
- Reduced operating subsidies and highway costs
- Seamless modal interchange
- Improved ability to monitor and manage transport trends.

2.180 In addition, if significant modal transfer takes place, central government and local authorities may also expect:

- Improved environmental quality
- Subsequently improving public health
- Reduced social exclusion
- Subsequently improving social stability.

2.181 Referring to their study of Finland’s operational public transport smartcard systems, Holm & Öörni (1999) observed that:

“Implementation of, for instance, a fare payment system has a direct effect on ticket sales and clearing activities, but also has extensive indirect consequences on the functions of the involved institutions, their management, organisation of their operations and transport service production. A new system enables operational rationalisation that often seems to give more benefits than its direct impacts.”

“A simple final conclusion [of the research] could be that automatic public transport fare payment and partly also multi-application systems are seen, after being in use for a while, as an integral part of the main operation rather than a system that should or could be separated from it, or even less as an investment for which a separate feasibility calculation could be presented.”
2.182 As one operator explained, “The fare payment system is as essential for the buses as their wheels”.

SUMMARY OF EXAMPLES OF EXISTING INTEGRATED TICKETING SCHEMES

2.183 As a supplementary part of this Review, an Internet search was conducted to identify presently operating integrated ticketing schemes in Scotland, the rest of the UK, and elsewhere in the world, especially in Europe.

2.184 This was not an exhaustive search, although it includes most of the bigger British schemes. Its purpose is to provide additional information about some of the schemes mentioned elsewhere in the text, and to provide an overview of integrated ticketing activity, including its variety and any common characteristics, and to illustrate the options that have been pursued in existing schemes.

2.185 British multi-modal schemes are generally centred on the metropolitan boroughs, as might be expected. Similarly, schemes are generally scarce in southern England (excluding London) where car ownership tends to be relatively high and bus services are patchy.

2.186 It was found that many schemes, especially the smaller ones, tended to be aimed at particular sectors of the travelling public, for instance, tourists, commuters or business travellers, shoppers, or students. However, it was also noted that publicity for the schemes seemed to be sparse and that details were sometimes hard to find. The contrast between integrated ticket marketing and promotion, and that of other consumer products such as breakfast cereals or even cars, was very marked. Since one of the aims of the public transport industry is to attract new passengers, many of whom will need to be previous car users, the promotion effort might ideally be enhanced to the point where it compares attractively with car marketing.

2.187 It seems to be recognised by scheme providers that it is important that a ticketing scheme lives up to its promise. Good tickets cannot compensate for poor or inadequate services, which is another reason why existing schemes seem to be concentrated in metropolitan areas. The general scarcity of services in most rural areas of Britain makes it difficult to justify or to operate an integrated ticketing scheme, except for people to whom time is perhaps less important – tourists on holiday, for example, at whom the rural schemes are often aimed. Clearly, the marketing approach needs to be different for prospective users in those areas, than in the cities, where high frequency services and greater day-to-day exposure would be expected.

2.188 Regarding scheme funding and revenue, it was unsurprising that little information was available on scheme websites, and conversations with scheme operators did not elicit any information on the financial benefits that any had derived from co-operation with a scheme. However, it was apparent that some local authorities saw quality partnerships with local operators as a viable method of financing integrated ticketing schemes and other
improvements, and as a constructively progressive way forward. There was less enthusiasm for government funding and involvement, partly because experience indicated that it tended to involve stakeholders in a protracted chain of procedural obligations and delays before funding was obtained and before any scheme could be instigated. Indications were received that the operators were apparently enthusiastic and keen to see rapid progress.

**KEY POINTS AND CONCLUSIONS**

2.189 This Review sought to establish a definition of integrated ticketing for Scotland. From the findings, it is concluded that integrated ticketing should promote the ease of use and connectivity of public transport, and that it should be:

- Multi-modal
- Multi-operator

And ideally:

- Multi-national.

2.190 At least, it should be effective over a wide area that reflects regional travel needs and economic considerations, and if possible, over an entire country. This might readily apply to Scotland. Within Europe, the ultimate aspiration could be harmonised, multi-modal, integrated ticketing across the European Community.

2.191 The objectives of integrated ticketing schemes are usually to promote:

- Increased patronage
- Modal shift
- Improved social inclusion
- Improved public health
- Responsible environmental protection
- Greater sustainability

2.192 Although paper-based integrated ticketing is possible, the trend in electronic integrated ticketing schemes is towards the use of re-programmable smartcards, which confer options for flexibility, management and security, such as:

For operators:

- Rapid financial transactions
- Tracking and auditing
- Company data protection
- Flexible charging
- Selective access
For passengers:
- Ease of use
- Convenience
- Improved interchanging
- Personal data security
- Potential for range of applications

For government:
- Improved trend monitoring and management
- Enhanced environmental quality
- Improved public health
- Modal shift leading to reduced highway costs
- Social inclusion leading to greater social stability

2.193 No conclusive evidence was found that integrated ticketing leads directly to patronage or revenue increases, partly because integrated schemes have apparently not been studied or introduced in isolation. However, the many presumed benefits are thought to constitute a reasonable case for introduction.

2.194 It is recommended that further research be carried out to study the specific potential effects of integrated ticketing on patronage, modal shift and social inclusion. It is noted that no two locations are identical and that results will not be directly transferable, but useful general principles might be established.
CHAPTER 3: CURRENT TICKET AVAILABILITY AND STAKEHOLDER PERCEPTIONS

INTRODUCTION

3.1 One of the objectives of this study is to understand the key requirements a travelcard must meet in order to be classified as an integrated ticket. This research is also examining the barriers and possible solutions to implementing such schemes. In addition, it is to identify suitable areas for piloting integrated ticket schemes in the future. Consequently, information is needed on the current provision of similar tickets, where schemes have been tried and failed, and knowledge of where new schemes are being considered.

3.2 It is necessary to understand the concerns and (perceived) issues of the potential main stakeholders in any future schemes. This will allow the current standpoints to be taken into consideration in possible plans and to build upon the current knowledge within the industry. TRL designed and administered a telephone survey to a pre-selected list of organisations that could contribute their knowledge on the current situation in Scotland and provide a range of opinions from within the industry. It included passenger transport executives, local authorities, bus companies, rail companies and ferry companies.

3.3 In addition to the structured telephone survey of stakeholders, TRL conducted a further face-to-face interview with a representative of the Scottish Executive’s Cost/Infrastructure working group in February 2004, covering a variety of issues around integrated ticketing and smartcard technology in particular. They also reviewed the September 2003 minutes from the Scottish Executive’s Cost/Infrastructure Working Group.

3.4 This chapter discusses the results of these stakeholder interviews. Where possible any underlying commonalities across the whole sample, or within a given section of the industry, are drawn out from the answers to provide a picture of how people view integrated tickets and the considerations that need to be taken into account when introducing further schemes.

DEFINITION OF AN INTEGRATED TICKET

3.5 Travelcards exist throughout the UK. These can be day tickets valid on one bus operator’s services for one day (for example the FirstDay ticket in Edinburgh) through to being valid on all modes of transport within a given area over a period of time: for example, one of the London Travelcards is valid on rail, bus, underground, light rail and tram for a year. It is somewhat unclear precisely how integrated tickets and travelcards relate to each other. Certain types of travelcards may be classed as integrated tickets, and would be expected to encapsulate the ability to make a complete journey with one ticket. However, some tickets which may be classed as integrated (e.g. PlusBus) may not be classed as travelcards since they are only valid for one full journey.
3.6 The stakeholder survey explored what conditions must be met for a ticket to be classed as integrated. For example, is it necessary that the ticket can be used on all bus operators within an area, or only one operator? It may be possible to make the required journey by using a single operator’s services; however, it could be more convenient to catch the first bus to arrive. Similarly, a journey might be made by bus only, but it may be more convenient (and quicker) to travel one stage of the journey on a rail service.

3.7 A full set of underlying conditions associated with travelcard use include a combination of the following elements:

- Can be used on one or more bus operators
- Can be used on different modes (for example, bus, rail, metro, underground, ferry)
- Can be used on a set number of routes, or all routes within a pre-defined area
- Can be used for a number of journeys, or in a given time period

3.7 Stakeholders were asked to specify what a travelcard had to include in order to be classified as an integrated ticket. The question was completely open, other than a prompt that they should keep in mind the concept of one journey one ticket.

3.9 A keyword search has been performed on these replies to determine the components that they considered to be necessary within an integrated ticket. In terms of the four components discussed above, the number of respondents that felt an integrated ticket must contain each element is shown in Table 3.1.

<table>
<thead>
<tr>
<th></th>
<th>Multi-Modal</th>
<th>Different Times of Day</th>
<th>Different Bus Operators</th>
<th>Multi-Journey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>27</td>
<td>1</td>
<td>13</td>
<td>4</td>
</tr>
</tbody>
</table>

INTEGRATED TICKET MODES

3.11 Stakeholders were asked about the key modes of transport they considered essential to forming an integrated ticket scheme and, additionally, what modes they thought could potentially participate in such schemes.
3.12 Respondents were asked directly if they considered that an integrated ticket could be valid on one mode only. Respondents’ answers appeared to conflict with their own definitions of an integrated ticket (see Table 3.2). Most respondents stated that an integrated ticket could be introduced to cover journey on one mode only, whilst the vast majority had previously stated that a key component of an integrated ticket is the fact it can be used on more than one mode.

3.13 However, respondents were given the option to clarify their answers by explaining in what circumstances the ticket could apply to one mode only. All of the 22 respondents who answered that an integrated ticket could apply to one mode explained their answers. Most (14), including most of the bus operators, answered that an integrated ticket could apply to one mode provided that it was multi-operator. Other circumstances in which an integrated ticket could apply to a single mode included where only 1 mode was available in an area (2 responses) and where there was a need to interchange between services (2 responses). Interestingly, only 1 respondent (from a large bus operator) specifically said that a single operator product should be considered to be an integrated ticket.

Table 3.2 - Can “Integrated Ticket” Apply To One Mode

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

3.14 Respondents were also asked what modes of transport must be included in Integrated ticketing schemes (where these are multi-modal). Over three-quarters specified more than one mode and generally bus and rail were identified as the key modes (Table 3.3). All those that stated that one, or more, modes had to be included in such a scheme thought that at least one bus company must be included.

Table 3.3 - What modes must be included?

<table>
<thead>
<tr>
<th>Bus</th>
<th>Coach</th>
<th>Train</th>
<th>Light</th>
<th>Rail</th>
<th>Aeroplane</th>
<th>Ferry</th>
<th>Taxi</th>
<th>U/ground</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>3</td>
<td>22</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

3.15 Views on the modes that had to be included appeared to be highly influenced by the modes available in the respondents’ area. In most areas, a combination of bus and rail services accounted for most trips and some considered them to be complementary modes of transport, so both were considered necessary in the schemes. However, two respondents stated more than one mode had to be part of such a scheme, but included ferry instead of rail services. Both these respondents were from rural coastal regions where these two modes form the backbone of the local public transport network.

3.16 One respondent stated that overall 70% of trips in their area were made by bus, and another (in a rural area) that the only public transport available to 90% of the population was bus: both of these stated that bus was the only mode that had to be included in an
integrated ticket scheme, reflecting discussion above relating to the circumstances in which single-mode tickets can be classed as integrated.

3.17 Participants in these areas also considered that coach and aeroplane services must be included in an integrated ticket. This could in part be influenced by the market they consider that these tickets are targeting (discussed further below). Interestingly, however, the ferry company thought that ferries should be included in these schemes, but aviation companies thought their services were inappropriate for inclusion. Air operators felt that there would be problems with ticket issuing, revenue allocation and most importantly pricing policy - the air industry prices on the basis of low headline costs - all inclusive pricing would make air travel look unattractive. Additional problems were forseen with liability if a passenger misses a flight because of a late connection. It was pointed out that organisations which sell air tickets need an ATOL licence.

3.18 A representative from the Scottish Executive Costs/Infrastructure Working Group noted that some operators in the air and ferry industry were reluctant to participate in integrated ticketing. However, it was remarked that it is likely to be a condition of lifeline air service contracts that the operator participates in an integrated ticketing scheme. It is already a condition of the ferry PSO contracts (this does not currently include Northlink ferries to Orkney/Shetland but this contract is being re-tendered, and participation is a requirement of the new franchise).

3.19 Combining respondents views on what modes must be included, and those that could be included, in an integrated ticket scheme produced Table 3.4.

### Table 3.4 - What modes could be included?

<table>
<thead>
<tr>
<th>Mode</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus</td>
<td>29</td>
</tr>
<tr>
<td>Coach</td>
<td>25</td>
</tr>
<tr>
<td>Train</td>
<td>29</td>
</tr>
<tr>
<td>Light Rail</td>
<td>20</td>
</tr>
<tr>
<td>Aeroplane</td>
<td>18</td>
</tr>
<tr>
<td>Ferry</td>
<td>24</td>
</tr>
<tr>
<td>Taxi</td>
<td>14</td>
</tr>
<tr>
<td>U/ground</td>
<td>20</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
</tr>
</tbody>
</table>

3.20 The most commonly cited modes that could be included in such a scheme are bus (including coach) and rail services. However, participants considered a whole range of modes to be relevant to integrated tickets from the expected light rail, underground and ferries to less associated modes such as taxis. The type of participant (e.g. PTE, local authority, operator etc.) did not appear to influence the mix of modes that they considered could be included in an integrated ticket scheme.

**OTHER TICKET CONDITIONS**

3.21 In line with expectation, participants considered that bus services should be included within an integrated ticket. However, some areas have a number of operators providing a network of services that can overlap. In such circumstances it is possible that a traveller committed to a single-operator travelcard might not be able to board the next suitable bus for their journey. The questionnaire therefore asked how many operators should be
included within a scheme (Table 3.5). Most felt that an integrated ticket should include the services of at least two bus operators.

**Table 3.5 - Minimum number of bus operators within an integrated ticket scheme**

<table>
<thead>
<tr>
<th></th>
<th>1 operator</th>
<th>2 operators</th>
<th>3 or more operators</th>
<th>All operators in area</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>21</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

3.22 Two other main conditions are associated with a travelcard - the number of valid routes or area of validity, and the length of its validity.

3.23 Generally, travelcard schemes allow passengers to travel during a set period of time. Some, particularly those targeted at the tourist market are valid for one day (for example the Wayfarer ticket in Manchester), whilst others can be valid for up to a year. These longer duration cards tend to offer discounted travel for commuters into major conurbations. Other forms of travelcard are also available within the UK, for example carnets of tickets and stored value cards (electronic “purses” on smartcards). However, these discounted travel tickets were not included within the confines of this particular questionnaire.

3.24 The durations considered to be acceptable in an integrated ticket scheme are shown in Table 3.6. Most participants considered that the duration of a travelcard was irrelevant to its classification as an integrated ticket. Respondents were then asked to state which of these ticket durations would be the most useful. Some respondents linked their answers to their view of demand within their area. For example, some of those in the rural areas considered daily tickets to be the most important, implying that residents make infrequent public transport trips, or that they were considering the tourist market. In more densely populated areas the weekly, or monthly, tickets were considered more appropriate. This is indicative of the commuter market within these areas. As some of the respondents stated, the most useful duration depends on the area being covered and the objectives of the ticket.

**Table 3.6 - Possible durations of an integrated ticket**

<table>
<thead>
<tr>
<th>Duration</th>
<th>Single</th>
<th>Return</th>
<th>Daily</th>
<th>Weekly</th>
<th>Monthly</th>
<th>Time Limited</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25</td>
<td>25</td>
<td>27</td>
<td>26</td>
<td>26</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

3.25 Participants were asked to state what they considered to be the minimum area covered by an integrated ticket (Table 3.7). There appears to a split in opinion, with

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3 It should be noted annual tickets were not included on the questionnaire and therefore participants were not prompted for this response. However, where participants mentioned annual tickets unprompted, it was recorded. This explains why the returns for “annual” are significantly lower than for the other durations.
around 1 in 5 believing that one route is sufficient, whilst a quarter consider it should cover a region. Given the nature of their services it is not surprising that most of the rail, ferry and aviation companies considered that an integrated ticket could apply to one route. In contrast, two-thirds of the bus companies thought it should be valid over an area.

3.26 Although not clear cut, respondents’ answers suggested that the more rural an area, the greater the area that needs to be covered within such a scheme. So, for example, an integrated ticket could be valid in one town in areas with at least one moderately sized conurbation, whilst the whole of the region needs to be included in the most rural areas.

Table 3.7 - Minimum area of an integrated ticket

<table>
<thead>
<tr>
<th></th>
<th>One Route</th>
<th>Part of town/city</th>
<th>One town/city</th>
<th>Two adjacent towns/cities</th>
<th>One council area</th>
<th>Regionally</th>
<th>Nationally</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

3.27 A further question asked the participants whether integrated schemes would be most useful in urban or rural areas or both. Though just over a third of the sample considered that integrated tickets would be most useful in a given type of area, most considered that they can assist in all types of area. This is in agreement with the general stand point taken in earlier answers, and confirms the principle that an integrated ticket scheme can be flexible to target a given situation or market.

Table 3.8 - Most useful areas for integrated tickets

<table>
<thead>
<tr>
<th></th>
<th>Urban</th>
<th>Rural</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7</td>
<td>3</td>
<td>18</td>
</tr>
</tbody>
</table>

TICKET PURPOSE AND MARKETS

3.28 Tickets are introduced into an area for a number of reasons. They can be aimed at increasing patronage on public transport, assisting links for tourism or creating an assessable network of public transport the assist growth within the area. Table 3.9 shows participants’ views of the primary purpose(s) of introducing integrated ticketing schemes. Where more than one reason was given they were ranked. The first reason scored 1, the second 0.75, the third 0.5 and the fourth 0.25.

Table 3.9 - Primary Purpose of an Integrated Ticket

<table>
<thead>
<tr>
<th>Reducing Social Exclusion</th>
<th>Promoting Modal Shift</th>
<th>Promoting Tourism</th>
<th>Promoting Local Economic Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.50</td>
<td>22.25</td>
<td>14.25</td>
<td>10.25</td>
</tr>
</tbody>
</table>
3.29 The main reason for integrated ticketing was judged to be promoting modal shift, whilst tourism and social exclusion were important secondary reasons. Most bus and rail companies placed the emphasis on promoting modal shift. The highest rankings of promoting tourism and reducing social exclusion stemmed from companies and authorities in the more rural areas of Scotland.

3.30 Participants were also asked what they thought the main markets of such a ticket were (Table 3.10). The most commonly cited market was commuters. Respondents who did not include commuters as a target market were based in the highly rural areas. In contrast, it was generally respondents from these areas that not only chose leisure travellers as a target market, but also clearly stated the tourist market as the main component of this, and in one case made a point of emphasising that tourists were the most important market. The student market was also mentioned (unprompted) by two of the bus companies. Several stakeholders stated that all markets should be targeted, possibly using individual products.

Table 3.10 - Target markets of an Integrated Ticket

<table>
<thead>
<tr>
<th>Commuters</th>
<th>Leisure Travellers</th>
<th>Off peak</th>
<th>Occasional</th>
<th>Key demographic groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>17</td>
<td>10</td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>

3.31 These findings again highlight the importance of integrated ticketing being flexible enough to meet the needs and demands of different markets.

**SCHEME ADMINISTRATION**

3.32 Current travelcard schemes are administered by different forms of company throughout the UK. Some of these have developed over the history of the travelcard, and vary according to the organisations behind setting up the initial scheme. Examples include a Strathclyde scheme that was introduced by SPTE and is also administered by them and a Mersey scheme initially introduced by the passenger transport executive and now separately administered.

3.33 Opinions were sought from respondents on the type of company they consider should administer integrated ticket schemes (Table 3.11). Overall, the most popular form of administration was a co-owned company. This was the option favoured by the majority of the bus operators, although rail operators’ opinion was split between the Scottish Executive, a regional partnership and a separate administration company. Local authorities considered a number of administrative companies were possible, with four of them stating that they could administer such a scheme.
Table 3.11 - Preferred administrative companies

<table>
<thead>
<tr>
<th>Largest Operator</th>
<th>Any operator</th>
<th>Local Authority</th>
<th>Scottish Executive</th>
<th>Regional Partnership/PTE</th>
<th>Separate Admin Company</th>
<th>Co-owned company</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>8</td>
<td>8</td>
<td>18</td>
</tr>
</tbody>
</table>

3.34 An interviewee from the Scottish Executive Cost/Infrastructure Working Group suggested that a third party, such as TRAVELINE, could administer integrated ticketing schemes and that the costs might be met from revenue generation products.

BARRIERS TO IMPLEMENTATION

3.35 A number of both administrative considerations and legalities are often seen (and quoted) as preventing integrated ticketing schemes being formed. These include the Office of Fair Trading (OFT) rules pertaining to the competition act 1998 (although, as discussed in the Barriers Review, there are block exemption rules that cover agreements between local transport operators on multi-operator travelcards and other similar forms of ticketing and the OFT has stated that it willing to provide free advice on how to apply the block exemption rule). Other issues can stem from how the agreement is formalised between the parties, including the form of administration, pricing of the ticket and revenue apportionment.

3.36 The main perceived barriers according to the stakeholder interviewees have been subjected to a key word search and are summarised in Table 3.12. Many of those questioned considered that revenue distribution was an issue. Nearly half these answers were obtained from local authorities, and there was no particular source for the other replies. The main concerns for bus and rail operators were the OFT rules and the competition act. Further, half the bus operators considered agreement between stakeholders to be a barrier.

3.37 These barriers, and their potential solutions, are discussed in more detail in Chapter 5, below.

Table 3.12 - Perceived barrier to implementation

<table>
<thead>
<tr>
<th>Revenue Distribution</th>
<th>OFT Rules</th>
<th>Competition Act</th>
<th>Agreement between stakeholders</th>
<th>Scheme management</th>
<th>Scheme Pricing</th>
<th>Market share loss</th>
<th>Cost of setting up</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>4</td>
<td>7</td>
<td>9</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
BUSINESS CASE

3.38 Integrated tickets tend to be introduced into areas where participants think it will flourish and profit. Other considerations are taken into account before a company will join such a scheme, including protecting its revenue stream and market share. However, companies are unlikely to invest in any infrastructure costs, marketing costs and administrative costs unless they believe the scheme can assist in their business plans, either protecting their current patronage levels or preferably increasing them through modal shift. The respondents were therefore asked if they considered a business case existed for integrated ticket schemes (Table 3.13). The majority of respondents thought there was a business case for integrated tickets. Operators were fairly evenly split in their views, with 6 saying there was a business case and 5 saying there was no business case. Of the 7 local authorities interviewed, only one thought there was no business case for integrated ticketing.

Table 3.13 - Is there a business case?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Don’t Know</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

3.39 Stakeholders’ views of the likely commercial effects of introducing such a scheme have been summarised in Table 3.14. Responses were mixed, although slightly more respondents thought that it would be commercially beneficial (increasing patronage and revenue) than those that thought it would reduce revenue. On balance most local authorities and bus companies considered that an integrated ticket would have a positive commercial effect in terms of increased patronage, which in turn leads to increase in revenue. However, opinion between the rail companies was divided.

Table 3.14 - Perceived commercial impacts of integrated tickets

<table>
<thead>
<tr>
<th>Increase in patronage (modal shift)</th>
<th>Increase in revenue</th>
<th>Reduced Dwell Times</th>
<th>Improved cash flow</th>
<th>Reduced revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>11</td>
<td>2</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

3.40 Stakeholders were asked to consider what measures would need to be in place to encourage them to participate in an integrated ticketing scheme. Generally, it is the local authorities who consider that the current legislation is too complex and needs simplifying and clarifying. They also requested central guidance in the form of the Scottish Executive being active in applying pressure on operators to take part in schemes, though it was not suggested how this pressure might be applied.
Table 3.15 - Measures required to encourage taking part in a scheme

<table>
<thead>
<tr>
<th>Already Part</th>
<th>Competition Act</th>
<th>OFT guidance</th>
<th>Better consultation with stakeholders</th>
<th>Central Guidance</th>
<th>Financial Incentives</th>
<th>Smartcard Scheme</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

3.41 The bus and rail operators asked for better consultation with stakeholders to persuade operators to join the scheme and that there is a market for the tickets. A large bus and rail operator said that smartcard technology may remove many of the barriers and reservations, particularly uncertainty regarding OFT compliance and reservations over co-operating with competitors and Local Authorities, while a smaller bus operator said that there was a need for a standard smartcard technology to encourage greater participation in integrated ticketing.

3.42 While smartcards can make it easier to deal with revenue distribution, initial infrastructure costs are high and have an impact on the business case for integrated ticketing. The Executive plans to introduce a ‘National Citizen Card’ which already has transport application potential, including handling concessionary fares and integrated ticketing.

3.43 The National Citizen Card would appear to offer a number of potential benefits. First, any support, in terms of infrastructure for example, would be likely to improve the business case for integrated ticketing schemes. Second, the technology behind the Citizen Card has the scope to produce different kinds of cards, depending on user need. For example, occasional users or tourists might also be catered for via cheap disposable smartcards. Third, citizen card technology would offer operators more detailed information about passenger travel habits which would allow better service provision and planning.

INTEGRATED TICKET SCHEMES

3.44 Participants were asked for details of all existing integrated ticket schemes that they knew about. The current coverage of the identified schemes is shown in Appendix B.

3.45 All major current schemes are localised around the main cities within Scotland. Very few schemes are in operation in the more rural areas.

3.46 In addition to these few schemes a small number of schemes were identified that had been introduced and then failed:

- West Lothian Day Rover (which fell foul of competition legislation due to its method of revenue distribution but has since been replaced by a West Lothian-only “OneTicket”)
- Lothian/First Group joint acceptance of season tickets (which were apparently discontinued at the start of the “bus war” in Edinburgh in 2000)
- Lothian/First Group joint acceptance of evening only tickets
• Tayway corridor (discontinued at bus deregulation in 1986).

3.47 Also, respondents identified a number of proposed schemes that they understood are to be introduced:

• An enhancement to the One Ticket scheme
• A smartcard pilot (Aberdeen to Edinburgh)
• Aberdeenshire Connect
• Expansion of Plus Bus
• Through ticketing Citylink feeder services

3.48 Participants were asked which specific areas of Scotland they felt could most benefit from the introduction of an integrated ticket. Five areas were considered worthy of consideration with the most commonly cited areas being Dundee and Aberdeen.

<table>
<thead>
<tr>
<th>Borders</th>
<th>Glasgow</th>
<th>Dundee</th>
<th>Aberdeen</th>
<th>Islands</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>4</td>
<td>7</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

**KEY POINTS AND CONCLUSIONS**

3.49 Overall the key concept that emerges from stakeholders views on what could or should be classed as an integrated ticket is flexibility. The industry acknowledges that it should meet a number of purposes and be attractive to a range of markets. Many of the opinions on what forms an integrated ticket were clearly influenced by the local conditions affecting the respondents’ markets.

3.50 Given the requirement of flexibility, it is somewhat difficult to precisely define the features a travelcard requires to be classified as an integrated ticket. However, generally an integrated ticket is seen as one that covers journeys on a number of different public transport modes (at least in areas where more than one mode operates). Responses overwhelmingly supported the notion that one of these modes must be bus, given the high proportion of public transport trips currently made by bus. Furthermore, most respondents felt that a scheme should include the bus services of at least two operators.

3.51 Views on the other modes that should be included were influenced by the modes that were prevalent within the respondent’s area – while many respondents expected schemes to be valid on bus and rail, in some areas, bus and ferry may be the key modes for inclusion.
3.52 There was disagreement in the sample on the minimum area that should be covered by an integrated ticket scheme, with some considering one route was sufficient, whilst others thought that a whole region approach was necessary. Given the nature of the services provided it is not surprising that most rail, ferry and aviation companies considered that they could apply to one route, whilst bus companies generally thought they should be over an area.

3.53 However, ticket duration was more consistently viewed; with respondents accepting that both a day and monthly ticket could be an integrated ticket, as well as single and return tickets. Opinions appeared to be influenced by the type of market serviced. In rural areas a daily ticket was most important for infrequent trips (including the tourist market), whilst in densely populated areas the longer durations were favoured probably to meet the demands of the commuter market.

3.54 In summary then, the responses of stakeholders suggest that integrated ticketing schemes in Scotland:

- Should be multi-modal (at least in areas where more than one mode operates)
- Should include at least two bus operators
- Can include single, return, daily, weekly and monthly tickets, and the types of tickets included should target key local markets

3.55 The preferred form of administration for such a scheme was a co-owned company. However, some the opinion of rail operators was split with some considering the Scottish Executive should run the scheme (or a regional partnership), and others that there should be a separate administration company.

3.56 Most of the respondents considered that there was a business case for integrated tickets. There was a mixture of opinions on the commercial effects of such schemes, though on balance most local authorities and bus companies considered that the effect would be positive.

3.57 A number of barriers to the introduction of these schemes were identified. The one most frequently cited was managing revenue distribution, particularly amongst the sample of local authorities. The main concerns of bus and rail operators were the OFT rules and the competition act. Local authorities requested that current legislation is simplified and that the Scottish Executive applies pressure on operators to take part in them to assist in overcoming the barriers. Bus and rail operators wanted better consultation with stakeholders when forming such schemes.
CHAPTER 4: CASE STUDIES AND SCHEME PERCEPTION

INTRODUCTION

4.1 Case studies of four UK integrated ticketing projects were selected by TRL, in conjunction with the Scottish Executive, to obtain broadly-based information that would be applicable to the Scottish situation. It was intended that the schemes would provide examples of a range of valid modes, catchment area size, types of economic and social development and relative significance within the region.

4.2 A self-completion questionnaire was sent to participants involved in various aspects of each case study scheme. Full details of the methodology and the profile of respondents who returned questionnaires are contained in Appendix A.

4.3 The four case study schemes were:

- Network Ticketing Tyne & Wear Network Travelticket
- SPT ZoneCard
- GMPTE Travelcard
- ScotRail/CalMac Freedom of Scotland Travelpass

4.4 Case study questionnaires were also completed by representatives from the Office of Fair Trading (OFT) and the London Oyster Card Scheme. The OFT clearly has relevance to integrated ticketing schemes throughout the UK because of its regulatory and advisory role, while Oyster Card is a major integrated electronic ticketing scheme, although within a regulated area of the UK.

NETWORK TICKETING TYNE AND WEAR NETWORK TRAVELTICKET

Origins & Structure

4.5 The long-standing Network Ticketing TravelTicket scheme, launched in 1988, is administered by Network Ticketing, and has yearly administration costs of £1 million. Network Ticketing is a private, limited company, owned by all of the members, who are providers and operators of public transport in Tyne and Wear. One of these, Nexus, the local PTE, accounts for the largest market share of the providers: 36.69% in 2002/3 (Network Ticketing Limited, Market Share Calculation Report – Year Ended 30 June 2003. Clive Owen & Co.). Nexus acts as an agent in the sale of Network Ticketing Limited products and earns a commission from this. One operator believed incorrectly that the scheme was actually administered by Nexus.

Implementation & Administration

4.6 Opinions varied about the driving force behind the scheme. A bus operator claimed that the buses had driven the scheme forward and cited deregulation as an accompanying
improvement. The PTE respondent regarded the scheme as more of a co-operative effort and another operator acknowledged the PTE’s contribution, while the administrator’s representative thought deregulation had been the catalyst for the scheme.

4.7 Competition legislation did not appear to create any difficulties in the scheme’s introduction. The OFT was consulted in the development of the scheme and cleared the scheme in 1988 and again in late 2003/early 2004. Data Protection is a component of the administration of the scheme and the scheme is registered under the Act.

4.8 The administrator noted that there were conditions for new participants to join the ticketing scheme. These were:

- Sign agreement
- Provide certain information regarding services by set deadlines

4.9 The taxi/bus operator noted that electronic ticketing equipment was another condition and anticipated the advent of smartcard technology. However, no additional infrastructure was apparently required by the scheme. The administrator indicated a dynamic membership of the scheme with ‘many’ participants joining and leaving during the scheme’s history. Respondents were not aware of any reservations about joining.

**Operation & Effectiveness**

4.10 The scheme was not thought to have acted as a barrier to other companies entering the local transportation market. Revenue was apportioned via on-board surveys and market share determined by checking passengers’ journeys. Only the smallest operator gave an indication of the value of the scheme, estimating that the ticket represented 10% of the current fares market.

4.11 Other multi-journey tickets in competition in the area include:

- Go and Save, used on the bus, one bus operator
- Mega Rider, used on the bus, one bus operator
- Quick Saver, used on the bus, one bus operator
- Metro Saver, used on rail, ferry and other modes
- Explorer North East, used on bus, rail, ferry and other modes. It includes more than four operators and existed before the Network Travelticket scheme
- Explorer ticket, used on bus, rail and ferry and including more than four operators. Did not exist before this scheme
- Day Rover ticket, used on bus rail and ferry. It did not exist before the Network Travelticket scheme

4.12 Comments on how actively the scheme was marketed when introduced ranged between ‘aggressive, high profile’ and ‘some’ marketing. Responses indicated that the operators had sold the scheme more actively than the administrator or the PTE.
4.13 The administrator’s responses form the majority of the ‘good practices’ listed below. The smallest operator made the final point listed, which highlights scheme benefits for passengers. No bad practices were identified by any respondent.

<table>
<thead>
<tr>
<th>GOOD PRACTICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Membership is open to any transport operator</td>
</tr>
<tr>
<td>• Independence from any major or minor transport operator</td>
</tr>
<tr>
<td>• Apportionment of revenue on a market share basis</td>
</tr>
<tr>
<td>• Members have free and open access to their own data and information, but not to members’ details</td>
</tr>
<tr>
<td>• Impartiality</td>
</tr>
<tr>
<td>• Non profit-making company</td>
</tr>
<tr>
<td>• Passengers are able to travel on any operator in Tyne and Wear as ALL companies who operate in Tyne and Wear MUST accept the tickets</td>
</tr>
</tbody>
</table>

**GMPTE TRAVELCARD**

**Origins & Structure**

4.14 The Greater Manchester scheme is long-standing, having been introduced in 1975 and continuing after deregulation in 1986. In 1994, ownership and control of the scheme passed from GMPTE to a company that is jointly owned by the operators and in which GMPTE is a minority shareholder. The present administration consists of a board of directors, the composition of which proportionately reflects the relative size of the operating companies. Although the PTE led the initial scheme pre-deregulation, the bus companies appear to be the driving force behind the current scheme. Despite this, the researchers received the impression from a GMPTE respondent that GMPTE currently administers the scheme.

**Implementation & Administration**

4.15 The change in overall administration appears to have arisen from problems with the earlier GMPTE-administered set-up. An operator stated that these problems were “thrashed out” in arriving at a Joint Venture Agreement, which was the basis of the limited company now administering the scheme, in which operators exercise more control than the public sector.

4.16 There were apparently some difficulties involving the OFT after enactment of the current Competition Act because the scheme pre-dated that Act. Meetings were held with the OFT and with legal advisors to determine the detailed specifications of the Joint Venture Agreement. However, despite this agreement, the scheme did not appear to conform with Competition Act Block Exemption, since revenue apportionment is determined through surveys on the principle of revenue forgone, which is nevertheless regarded by a PTE representative as fair and equitable.
4.17 According to the operator representative, the annual administration costs of the scheme are £625,000, which represents 5.9% of revenue. Because the scheme was established some time ago, respondents now seemed generally unsure whether any market research was conducted before implementation, but a PTE respondent believed that the scheme was actively promoted when introduced.

4.18 Operators had reservations about joining the scheme, including concerns about potential loss of revenue and brand loyalty. The PTE was apparently influential in resolving these concerns, although a subsequent restriction of the influence of the PTE within the Scheme (i.e. the Joint Venture Agreement and a new general manager to maintain liaison), was also instrumental in keeping the operators within the scheme. According to the PTE, ten participants have joined the scheme since its start, whilst three have left, and the scheme has not acted as a barrier to other companies entering the local transportation market. Applicants to join the scheme need to pay a subscription fee and meet GMPTE conditions (unspecified), according to a PTE representative. An operator mentioned a requirement for adequate insurance, which might possibly be the basis of the conditions mentioned above.

**Operation & Effectiveness**

4.19 According to a PTE respondent, the scheme has increased patronage by 3% in Greater Manchester and increased revenue. An operator’s estimate was that the ticket represented 6% of the current fares market, but there was no confirmation of increased revenue, nor that the scheme had affected the market share of singles, returns and other existing multi-journey tickets. A PTE respondent noted that inner city regeneration initiatives could have affected patronage levels but there was no indication that the scheme had been introduced as part of an overall programme of public transport improvements.

4.20 The respondents provided varying, and in some cases, conflicting answers when asked if there were any multi-journey tickets in competition with the scheme.

**Respondent 1 (PTE)**
- There are no other multi-journey tickets in the area, other than a ten-journey ticket for the elderly for the concessionary flat fare.

**Respondent 2 (Operator)**
- SuperGem ticket, used on the bus - includes two bus operators
- Single Operator ticket, used on the bus - includes only one bus operator.

**Respondent 3 (PTE)**
- First Manchester ticket, used on the bus, includes only one bus operator, existed before the GMPTE scheme
- Stagecoach ticket, used on the bus, includes only one bus operator, existed before the GMPTE scheme
- North West Trains ticket, used on rail, includes only one operator, existed before the scheme
- Metrolink ticket, used other modes of transport, includes one operator, existed before the scheme.
4.21 The operator appeared to be anticipating the introduction of smartcards at some time in the future and noted that they would require infrastructural developments. Data protection does not seem to be a component of the administration of the scheme at present, but that might change if smartcards were introduced. Perhaps significantly, a PTE representative expressed overall optimism for the future of the scheme with the qualification ‘subject to minimal intervention’. It was not clear whether this indicated a laissez-faire attitude or perhaps anticipation of aggressive business actions by other parties.

4.22 The figure below indicates good practices associated with the scheme. The first two were noted by an operator, and the third by a PTE respondent, who also specifically noted that there were no bad practices. The same PTE respondent recommended that the travelling public should be consulted in the establishment of any similar schemes, although it was not clear how it was determined that the scheme enjoyed the ‘confidence of the travelling public’. No bad practices were identified.

<table>
<thead>
<tr>
<th>GOOD PRACTICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Detailed specification of how the scheme works in the Joint Venture Agreement</td>
</tr>
<tr>
<td>• Control by operators, not the public sector</td>
</tr>
<tr>
<td>• Confidence of travelling public</td>
</tr>
</tbody>
</table>

**SPT ZONECARD**

**Origins & Structure**

4.23 The scheme was introduced specifically as a ticketing initiative in May 1989 and did not from part of any overall programme of improvements to public transport. The driving force behind the scheme’s introduction had been the PTE and the scheme is currently administered by SPT. An SPT respondent estimated the annual administration costs at £350,000, approximately £250,000 of which was taken from the revenue pool. The source of the remainder was not explained and an operator who estimated the administration costs at just £250,000 agreed that SPT took this money from the revenue pool, but seemed unaware of further costs.

4.24 An operator reported that a market research survey had been carried out in 1988 before the introduction of the scheme, but SPT could not provide further details of this.

4.25 Various aspects of the administration were reported to the OFT at the time of the scheme’s introduction, which asked for minimal changes to make the scheme compliant.
Implementation & Administration

4.26 Two operators expressed significant concerns about revenue allocation, and this was also mentioned by the SPT respondent:

“All reservations concerning the ZoneCard were with regard to a fair revenue distribution. We have tried, and continue to try, to be as equitable as possible with the revenue allocations to participant operators. This is always an ongoing situation... We have, and will continue to have, dialogue with the participant operators with regard to revenue allocation methodology”.

4.27 This problem was addressed by an independent assessment (by means of surveys) to calculate the distribution and to audit the scheme. However, a major operator remarked,

“Fair allocation of revenue will always be an issue until Smartcard technology is available to record every journey on every vehicle participating in the scheme.”

4.28 New participants must provide written acceptance of the scheme rules of participation (guidelines). Approximately 120 operators have joined the scheme during its history, and about 50 have left. The SPT respondent described the situation as follows:

“Over the years operators have come and gone, some have been taken over by the bigger operators and some have just gone out of business.”

4.29 Infrastructure requirements associated with the scheme’s introduction appeared to have been minimal. A bus operator reported that no new infrastructure was required for the scheme. The largest bus operator confirmed that nothing new was required because the ticket was shown to the driver upon boarding the bus, whereupon the passenger was recorded by the driver on the Wayfarer ticket machine. The SPT respondent agreed that the scheme required virtually no new infrastructure, being based on a flash card which could be validated at subway barriers via a magnetic stripe. However, a local authority respondent remarked that new ticket machines were needed in that area and that the supply of these had been funded by SPT.

4.30 SPT and the large operator agreed that Data Protection was a component of the administration of the scheme and they understood that SPT was compliant with the legislation. The other respondents appeared to have no knowledge of the matter, but one operator asserted that data protection was not a component of the scheme.

4.31 Comments on initial marketing activity differed according to the perspective of the respondent. The SPT and operator respondents agreed that marketing had been ‘high profile’/‘aggressive’, but the local authority representative reported a relative low-key operation.
Operation & Effectiveness

4.32 Revenue allocation is based on a one-week self-completion travel diary survey carried out twice a year and complemented by additional passenger and on-vehicle surveys where required. Revenue allocation statistics are compiled by the University of Strathclyde after an independent audit of survey figures. There appears to be some concern from operators that the survey results are variable and possibly inaccurate, and consequently, that levels of revenue distribution are inconsistent. One operator commented that there was, “possibly too much support given to small (poor quality) operators”.

4.33 The SPT respondent agreed that revenue apportionment was an issue that “would take time” to discuss and the same major operator repeated that,

“It can only be apportioned correctly with Smartcard technology on every vehicle operating the scheme.”

4.34 The respondents unanimously agreed that the scheme had not acted as a barrier to other companies entering the local transportation market, but there was no agreement that it had increased overall revenue. The SPT respondent was most positive and suggested that the ticket had broadened passengers’ range of modal choices, which had led to increased revenue. One operator remarked that the scheme had been in place too long to look back at any relevant data to assess trends.

4.35 The SPT respondent estimated that ZoneCard accounted for approximately 3% of all ticketing within Strathclyde. A major bus operator put the current fares market at 2%, another guessed at less than 5%, and a rail operator estimated that the ticket represented approximately 2.4% of the rail market in Scotland.

4.36 The respondents reported that changes had occurred during the life of the ticket that might have affected travel patterns, including inner city regeneration programmes, a new out-of-town shopping centre, and in rural areas, reduction in quality of some buses and in the reliability of services.

4.37 Referring to multi-journey tickets in competition with the scheme, the SPT respondent remarked,

“There are numerous bus, rail and subway multi-journey tickets available that could be classed as competition, or could be deemed to be complementary to public transport ticketing in our area. ZoneCard has lived alongside these tickets since it was introduced, but over the past three or four years the single mode bus tickets have been marketed more vigorously.”

4.38 A local authority respondent cited the All-Day bus ticket provided by FirstGroup, as an example of a multi-journey ticket in competition with the scheme, which was apparently introduced after the SPT ZoneCard scheme.
4.39 Various good and bad practices within the scheme were mentioned by respondents and are shown in the table below. SPT regarded revenue allocation as a difficult issue that was being addressed positively, but the local authority representative was not convinced it was being dealt with as effectively as it might be. However, this respondent was complimentary about the multi-modal choice and level of integration offered to passengers and appeared to be looking forward to future developments. One of the operators welcomed the level of co-operation and mutual promotion, and the support of public funds.

4.40 Looking to the future, the SPT respondent referred to the review of the SPT ticketing strategy. Depending upon the outcome of that review, the scheme was expected to continue to be the mainstay of SPT multi-modal ticketing.

4.41 A local authority respondent identified three main considerations that should inform the ticket’s future development:

- More use of the ticket should be encouraged
- Cost should be more competitive for single-mode journeys.
- Existing zoning penalises cross-conurbation travel which is becoming more common.

<table>
<thead>
<tr>
<th>GOOD PRACTICES</th>
<th>BAD PRACTICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• “The major aspect of any ticketing scheme is revenue allocation. SPT has always taken operators’ views on board and has striven to continually improve the methods.”</td>
<td>• Insufficient number of ticket outlets</td>
</tr>
<tr>
<td>• Cooperation and promotion</td>
<td>• Not cost effective for single-mode journeys</td>
</tr>
<tr>
<td>• Support of public funds</td>
<td>• User figures not accurate enough</td>
</tr>
<tr>
<td>• Can be used on all modes and by all operators</td>
<td>• Tickets not very high-tech – there has been no change in format for many years</td>
</tr>
<tr>
<td>• Ideal for multi-modal journeys</td>
<td></td>
</tr>
<tr>
<td>• No need to issue other form of ticket at time of journey</td>
<td></td>
</tr>
</tbody>
</table>
SCOTRAIL/CALMAC FREEDOM OF SCOTLAND TRAVELPASS

Origins & Structure

4.42 Only one questionnaire response was received for this scheme (from ScotRail). ScotRail was reported as being the driving force behind the scheme and presently administers the scheme at a cost of about £20,000 per annum. The triple role of ScotRail as instigator, operator and administrator probably contributed to the fact that no problems were encountered in determining responsibility for the administration for the ticket. The introduction of the scheme appears to have been independently executed and to have proceeded smoothly without the involvement of the OFT. The scheme was not part of any other series of improvements to public transport and no additional infrastructure was required by the scheme for its introduction.

4.43 However, before the scheme was introduced, customer demand surveys were conducted which ascertained that customers wanted more inclusive travel for touring. The scheme was actively promoted in a high profile marketing campaign when it was introduced.

Implementation & Administration

4.44 There was no indication of reservations about joining the scheme and there do not appear to be any conditions of joining. Accordingly, no participants have left during the scheme’s lifetime and three new participants have joined.

4.45 Revenue apportionment within the scheme is decided according to “agreements based on surveys”.

Operation & Effectiveness

4.46 The ticket is estimated to represent approximately less than 1% of the current fares market, but it is credited with a growth in patronage on tourist routes and an increase in overall revenue. Its effect on the market share of other existing tickets has been “marginal” and it is believed not to have acted as a barrier to other companies entering the local transportation market.

4.47 Another multi-journey ticket operating in the area is the Highland Rover ticket, which permits travel on bus, train and ferry and includes three bus operators. This ticket preceded the Scotrail/CalMac scheme and covers part of the SPT area as well as the Highland Region, and was described as a regional variant of the Freedom Pass.

4.48 The following good and bad practices were identified:
OFT & LONDON OYSTER CARD

4.49 In addition to the case studies, two supplementary versions of the questionnaire were created especially for the Office of Fair Trading (OFT) and the Oyster Card. The information received is provided below.

OYSTER CARD

Origins & Structure

4.50 Oyster Card was introduced in 1998 and was conceived as a seventeen year scheme in which TransSys, the Contractor, carries the risk of obsolescence and maintenance liability. The scheme is administered by TranSys, though costs are included in a whole service arrangement in a PFI Contract, in which TransSys carries the risk of management and retains ownership of the float and responsibility for revenue allocation. This was not thought to cause any difficulties at the time of agreement.

4.51 The Oyster scheme uses ISO14443 type A cards, but full migration to Integrated Transport Smartcard Organisation (ITSO) standard is expected to take some time. The need to protect the Oyster development programme was considered paramount, so no distractions (for instance, the development of alternative standards) were permitted. Convergence towards ITSO compliance is planned and intended, but no funding arrangements or timescales have been set as yet.

Implementation & Administration

4.52 The Oyster Card is a contactless smart card, based upon Phillips Mifare technology, using a 1K memory chip. The contactless technology was chosen for its speed and convenience, while the specific card was chosen by the contractor to deliver the requirements of the contract at an economic price that would guarantee supply.

4.53 The main technical features required of the card were:

- Contactless (up to 5cm from target)
- Sufficient memory to store journey and ticket information
- Ability to maintain a purse for stored value ticketing.

4.54 The primary technical specifications required of the card itself were:

- Complete transaction within 200 msec at gates, on buses and at validators
- Transactions within 100 msec at vending devices
• Contactless operator up to 5cm from target
• Storage of sufficient information as specified by Transport for London (TfL).

4.55 These card specifications were required for the following reasons:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Transaction speed</td>
<td>To minimise user failure</td>
</tr>
<tr>
<td>2. Transaction distance</td>
<td>To minimise user failure</td>
</tr>
<tr>
<td>3. Data storage</td>
<td>To improve customer service</td>
</tr>
</tbody>
</table>

4.56 The primary technical specifications required of the system were:

• Card management system/central office data system
• Card readers on all devices (16,000 plus on all modes)
• Credit card facilities at passenger-operated retail devices
• Ability to track and hot-list, i.e. stop cards
• Ad hoc load (automatic ticket renewal) at customer-nominated card readers

4.57 These system specifications were required for the following reasons:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card management system</td>
<td>To control use and status of cards</td>
</tr>
<tr>
<td>Central data system</td>
<td>To provide detailed management information</td>
</tr>
<tr>
<td>16,000+ card readers</td>
<td>To integrate London’s ticketing</td>
</tr>
<tr>
<td>Credit card facilities</td>
<td>To improve customer service</td>
</tr>
<tr>
<td>Hot-listing</td>
<td>To reduce fraudulent activity</td>
</tr>
<tr>
<td>Ad hoc load</td>
<td>To offer easier ticket purchase</td>
</tr>
</tbody>
</table>

4.58 Legislation was a concern when the scheme was being drawn up. Legislative issues were resolved as indicated in the table below. The OFT was not consulted, or otherwise involved, in the development of the scheme.

<table>
<thead>
<tr>
<th>Legal Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Under FSA rules, the need for applying a Waiver was examined</td>
<td>It was agreed that the e-money application did not require a waiver</td>
</tr>
<tr>
<td>2. Data protection rules over handling of personal data</td>
<td>Strict adherence to data protection legislation</td>
</tr>
<tr>
<td>3. Health and Safety rules regarding new equipment</td>
<td>Consultation with Health and Safety bodies to ensure approvals</td>
</tr>
</tbody>
</table>
Operation & Effectiveness

4.59 The card stores up to three concurrent/consecutive tickets, the history of the last eight journeys, an e-purse, sales transaction information and details regarding corporate travel scheme and personal discounts. Basic personal information can be stored, although this is not used except to allow customers to hold more than one ticket and to store money in a “purse” for pre-pay (pay as you go) travel, and to permit recent journey history to be examined.

4.60 Each transaction is stored and recorded sequentially, highlighting any lost data. Data are stored in host devices until confirmation of receipt is sent, confirming that data can be overwritten in the local device. The main data centre has a full, cold, back-up site in case of need for disaster recovery.

4.61 In operation, data are transferred, for example between the bus and a central administrator, by local devices such as station and garage computers, which send information to a Data Gathering Centre through area-wide networks. The above procedures protect against, avoid, or recover from, data loss and/or corruption.

4.62 Revenue is apportioned according to the results of surveys, or according to bi-lateral agreements. It is considered too early to determine the revenue effects of the scheme, and there is no conclusive evidence of any change in patronage yet. However, although it is too soon to quantify the effects, fare evasion is considered to be more easily identifiable.

4.63 It is thought that 20-25% of all London journeys now take place on Oyster and about 10% of single Underground tickets have transferred to Pre-Pay since it became available in January 2004. This percentage is steadily increasing.

4.64 The following good practices have been identified within the scheme. No bad practices were identified.

<table>
<thead>
<tr>
<th>GOOD PRACTICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>• More convenient for customers, and staff, for example by reducing queues for ticket purchases</td>
</tr>
<tr>
<td>• Improved revenue protection</td>
</tr>
<tr>
<td>• Links bus and Underground ticketing systems</td>
</tr>
<tr>
<td>• Improved management information</td>
</tr>
</tbody>
</table>
OFFICE OF FAIR TRADING

Origins & Structure of Schemes

4.65 In contrast to the answers received from the service providers it was stated by the OFT that passengers are the driving forces behind the introduction of most integrated ticketing schemes. Most schemes are administered by operators directly, or by operator-led bodies specifically established for the purpose.

4.66 The OFT is aware of reservations about joining schemes, particularly among bus operators, who are afraid of falling foul of competition law. In order to address this, competition law (and in particular, the block exemption that allows certain ticketing schemes) has been explained to bus operators, either via seminars or in writing. The respondent noted that “in almost all cases, ticketing schemes can meet competition law, either without change, or with minor changes”, but it appears that “competition law seems to have been used as an excuse by operators not wishing to join schemes for commercial reasons”.

Implementation & Administration of Schemes

4.67 The OFT believes it is generally consulted about scheme development, particularly whether a scheme complies with competition law. Although the OFT agrees that current legislation does present some difficulties with the introduction of integrated ticketing schemes, it asserts that a lack of understanding of the law is the difficulty, rather than the law itself. Even where the law was understood, it was argued, some operators seemed to have used it as an excuse not to enter a scheme.

4.68 In order to address this, the OFT offers free, informal advice for all ticketing schemes. Published guidance is also available and presentations can made to any actual or potential participant. Dedicated telephone, e-mail and postal advice services are available for potential scheme members and guidance has been sent to each operator in the country on the subject of competition law and ticketing schemes. Because the advice is often informal and given anonymously, data protection is not a day-to-day concern of the OFT and the OFT is not involved in the data protection aspects of the schemes on which it advises.

Operation & Effectiveness of Schemes

4.69 The Public Transport Ticketing Scheme block exemption is currently being reviewed by the OFT. Operators and local authorities were consulted on the operation of the block exemption in 2003, and will be given the opportunity to comment again in 2004. The respondent did not see integrated ticketing schemes as any kind of deterrent to other companies entering a local transportation market so long as competition law requirements were met.
4.70 The promotion of integrated ticketing schemes is considered a worthwhile objective when such schemes benefit passengers and do not restrict competition unnecessarily.

4.71 Good and bad practices for integrated ticketing schemes were identified:

<table>
<thead>
<tr>
<th>GOOD PRACTICES</th>
<th>BAD PRACTICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Good practices, as far as competition law is concerned, are contained in the OFT guideline for making ticketing schemes compliant with competition law&quot;</td>
<td>Fixing the price of tickets and sharing markets where not indispensable to the operation of the scheme</td>
</tr>
<tr>
<td>(<a href="http://www.oft.gov.uk">www.oft.gov.uk</a>)</td>
<td>Apportioning revenue from a scheme to operators in such a way there is an incentive for those operators to raise the prices of their single tickets</td>
</tr>
<tr>
<td></td>
<td>Initiating a scheme which has the effect of excluding a competitor from the scheme without an objective, non-discriminatory reason</td>
</tr>
</tbody>
</table>

4.72 The OFT identified changes it would like to see in its interactions with stakeholders interested in developing integrated ticketing schemes:

"Although we give advice on many schemes and potential schemes every month, we occasionally still hear of a scheme which may not go ahead because of perceived fears about competition law. We almost always find that these fears could have been addressed by operators contacting the OFT for advice."

"The OFT will continue to provide free, informal advice, give presentations to interested parties, and publish guidance. In return, we would like to see operators asking us for advice on competition matters, rather than making assumptions about what competition law says”.

4.73 Finally, the representative asserted that the OFT would like to be busier!

4.74 Expectations for the future included:

- Creation of many more schemes
- Increasing reliance on Smartcards
- The OFT helpline (020 7211 8140) and email enquiry service (oftbusenquiries@oft.gov.uk) to be even busier.
IMPLICATIONS OF CASE STUDIES FOR FUTURE INTEGRATED TICKETING SCHEMES IN SCOTLAND

4.75 The responses from the case study schemes, the OFT and Oyster Card were examined for general lessons that could be applied to future scheme selection and design.

Importance of Passengers

4.76 It was interesting that while the case studies all identified operators and PTEs as scheme instigators, only the OFT claimed that it was passengers’ needs that lay behind scheme development. Some of the case studies indicated that market research had preceded the introduction of the scheme, and varying levels of marketing activity were also reported. However, the number of respondents indicating that they did not know what market research/activity had been conducted in relation to their scheme might suggest that attention to passengers and their requirements had perhaps not played as big a part in the design of the schemes as one might have expected.

4.77 It was also unclear whether the market research mentioned had focussed solely on the journeys that passengers actually make, or whether it also included those they would like to be able to make.

4.78 Future schemes would benefit from adopting a more systematic approach to researching and reacting to customer needs.

Competition Law

4.79 In all three large schemes studied, the OFT had been consulted or otherwise involved to ensure compliance with competition law. No real barriers to these schemes in terms of competition law were perceived by the OFT. Perhaps the OFT is correct that the apparent failure to understand is actually an excuse to defend a commercial reluctance to become involved. If that is so, the anticipated benefits of participation must be more clearly presented in order to present a convincing commercial argument.

4.80 There are probably practical ways in which operators might be persuaded of the lack of legislative obstacles and the real benefits of exploiting a wider market. Attention to other aspects of running schemes, such as effective and efficient revenue apportionment and concerted marketing campaigns, could help to achieve this.

Revenue Distribution

4.81 It was noteworthy that the subject of revenue apportionment loomed large in the responses received from the SPT ZoneCard scheme compared with the information received from the other two large schemes (Tyne & Wear and GMPTE). The ZoneCard scheme is administered by the PTE, whereas the other two big schemes are administered by independent bodies, although admittedly the major stakeholders are heavily represented in those. SPT’s stated objective was to take operators’ views on board and to strive
continually to improve methods, but it appeared that operators were dissatisfied with the information upon which revenue apportionment was based and hence with their receipts. Strong pleas were made for the introduction of electronic ticketing systems to provide more accurate travel audits.

4.82 The stakeholders in the other two big schemes appeared more satisfied with their systems, although these also obtained revenue apportionment data from surveys. However, the actual distribution was decided by organisations in which the operators were either directly represented, or which worked within the confines of an agreement which they had helped to draft. Indeed, one of the good points of the Manchester scheme, which was run under the Joint Venture Agreement, was said to be operator rather than public sector control.

4.83 The Newcastle arrangement, where both public and private stakeholders were represented in the controlling company may be a better compromise. It is possible that the passenger-mile data on the basis of which the revenue was apportioned in those schemes were no more reliable that those from Glasgow, but the greater ownership of the process perceived by the Newcastle and Manchester operators helped to make them more contented with that aspect of their schemes.

**Scheme Promotion**

4.84 Attention to passenger requirements in the design and promotion of schemes was mentioned above. Throughout the studies, although no attempt was made to quantify the effort invested in promotion, it was noted that the operator respondents reported higher profile marketing than the PTEs, and much higher than local authority respondents. It was not entirely clear whether the marketing typically focussed on the provisions of entire schemes, or on particular operators’ contributions to the schemes, although the latter was implied.

4.85 Clearly, if passengers are to perceive a scheme as truly integrated, it needs to be promoted as such. Scheme branding is a useful way of conveying this initial impression of integration so that passengers can recognise the facility easily. If operators really commit to a scheme, they must be prepared to adopt at least some aspects of the brand identity and to advertise the benefits of the entire scheme, even if some other parts are provided by their competitors rather than themselves.

**Smartcards**

4.86 None of the schemes examined had fully implemented electronic ticketing, although both Tyne & Wear and GMPTE respondents anticipated moving towards smartcards and operators in Strathclyde saw it as the answer to many of their problems, particularly in relation to revenue apportionment. Interestingly, although there appeared to be a general acceptance of electronic ticketing (beyond simple magnetic stripe cards), that seemed to be based on the expectation that smartcards would provide better operational data, rather than other potential benefits and applications. An exception to this was a comment from the
Oyster Card representative that the card was more convenient for passengers and staff because it reduced queuing.

4.87 It appears that scheme administrators and particularly operators, including some of the bigger players, are already convinced that smartcards would bring them operational and business benefits. It may have been more difficult to persuade them to adopt electronic systems solely on the basis of, for example, passengers’ convenience. Smartcard systems imply integrated operations and this conviction of a commercial benefit from integrated ticketing is a vital plank on which to build an integrated transport strategy. This finding somewhat contradicts the OFT suggestion that operators are seeking excuses to avoid integrated schemes and could be emphasised more.

4.88 Regarding the technical aspects of smartcard schemes, the London Oyster information included a quantity of specific system data, but also described key features which are potentially transferable to other schemes, including:

- The whole scheme was conceived as a long-term project with a defined lifespan
- The project began with a clearly defined long-term objective
- The route to the eventual objective was similarly defined
- The scheme had clearly designated managers
- The system specification aimed for the long-term, with progressive implementation
- A holistic approach was taken to development, management and administration
- The project has been specifically branded and marketed
- Most of the project risk has been contractually transferred away from the principal client.

4.89 The London regulatory situation is presently unique in mainland Britain and this has simplified certain aspects of the implementation of the Oyster scheme. For instance, it was not found necessary to involve the OFT at all. However, some of the implementational experience presently being hard-won in London can probably be used to ease the progress of any technologically similar schemes elsewhere. Moreover, the points listed above are generally applicable for any other scheme.

Management

4.90 Responses from the GMPTE and Tyne & Wear respondents both indicated confusion over their administration. It was difficult to understand who was in charge of the scheme. Similarly, it was difficult to determine who was the driving force behind the schemes at the outset and the motives for their implementation. Both schemes appear to have once been wholly PTE-controlled, although both are now controlled by separate arrangement, largely under the operators. Operator-control is perceived by the operators as an attractive feature of these schemes. However, especially in Tyne & Wear, there still seems to be considerable and widespread confusion as to whether the PTE still administers the scheme.

4.91 While it may not matter whether there is a general understanding of which body administers any scheme, scheme capability must be intelligible and well-communicated so that passengers can identify an appropriate service. In the Manchester study, for instance,
knowledge of competing tickets within the GMPTE area varied significantly. It is important that there is overall direction within a scheme, and management towards a commonly-acknowledged objective by a mutually-recognised route. The OysterCard consultation gave the impression of an overall effort of coordination and leadership of this kind.

4.92 The need for a scheme champion has been identified elsewhere in this research. Although it was not explicitly mentioned in these case studies, the lack of such overall direction was clear. While this may be difficult to remedy in a long-established scheme, this principle needs to be established at the outset in a way that will enable the scheme to respond to changing needs in a focussed and responsive manner.

**Scheme Success**

4.93 The difficulty of producing conclusive evidence of commercial success was confirmed by the case studies. Although some respondents could provide estimates of the market share of the ticket, none of these appeared particularly exact (although they appeared similar in the Strathclyde example) and many respondents were unable to give even a rough estimate. Indications of actual revenue benefits were even harder to come by, probably partly because of the reluctance of operators to disclose income figures.

4.94 A comment that the SPT ZoneCard had ‘lived alongside’ competing tickets since it was introduced summed up the overall level of success of these schemes, with all contributing to modest levels of revenue increase and market growth. Respondents’ comments suggested there is a need for better data collection, data management and/or access to results within future schemes.

4.95 Significantly, when asked to comment on the good and bad points of the schemes, few respondents were really negative and many found good things to report, or made constructive comments. While the primary identified problem was revenue apportionment, reports of scheme membership changes generally indicated that more operators joined schemes than left them.

4.96 The overall impression is that operators would rather be inside integrated ticketing schemes than outside them. This significant point supports the finding that operators envisage benefits in electronic ticketing. However, the case studies indicate that these schemes are presently not as well-structured, or as well-run as they might be. With better organisation and direction, they could prove more appealing to operators.

4.97 An integrated ticketing scheme is a potentially large and complex project that needs a defined objective, a design and resource assessment, a work-plan, risk assessment and management, implementation, delivery and evaluation. Many current schemes have evolved over time without the benefit of overall planning and management. However, any new scheme would benefit from a more controlled approach to implementation to ensure maximum benefit for all stakeholders, including the travelling public.
SUMMARY OF FINDINGS

4.98 Based on findings from the above, we would make the following observations and recommendations:

Observations

- Communication and mutual understanding between stakeholders are important in any scheme.

- Many operators appear willing to join integrated ticketing schemes if the terms are acceptable, but mutually acceptable terms need to be agreed between stakeholders at the outset.

- Operators appear to prefer schemes to be independently managed, or to be involved in management, rather than being managed by a PTE.

- Revenue apportionment is a prime concern for operators and a potential problem for administrators.

- Operators appear to perceive potential operational benefits from smartcards.

- Operators and administrators would welcome efficient and accurate travel data management.

- All schemes require strong overall direction, management and leadership.

- Current competition law need not constitute a barrier to new schemes.

- The OFT perceives difficulties in understanding current competition law.

- The OFT is willing to assist scheme participants with the competition law that applies to integrated ticketing schemes.

- The scheme must be readily understood and easily used by the public.

- When implementing expensive and innovative ticketing schemes, it may be possible to contract much of the financial and technological risk away from the PTE, local authority and operators, and hence to protect the public.

Recommendations

- A new integrated ticketing scheme should begin with a clearly-defined ultimate objective.

- The scheme should be planned and executed as a long-term project, with resources, structures and plans in place to facilitate this.
• Schemes should deliver the public’s travel requirements and realise their reasonable expectations.

• New schemes should begin by assessing local travel needs and plans.

• Schemes should be clearly defined, and actively and consistently promoted.
CHAPTER 5: BARRIERS AND SOLUTIONS

INTRODUCTION

5.1 The purpose of this chapter is to discuss each of the barriers to integrated ticketing that have been identified from the literature, from surveys and from detailed case studies. Thereafter, it will move on to discuss potential solutions to each of these barriers.

5.2 The report will also discuss whether barriers are “real” or only “perceived” by various actors; and it should also be made clear from the outset that, where the study team feels it is appropriate, radical solutions to real barriers have been proposed.

PERCEPTIONS OF BARRIERS

5.3 A telephone survey of 30 operators, transport authorities and policy groups was used to establish key barriers to the implementation of Integrated Ticketing schemes in Scotland. All bar one of the respondents were based in Scotland.

5.4 Figure 5.1 depicts the barriers perceived by respondents to be significant in implementing Integrated Ticketing Schemes. These have been used as a basis for a keyword literature trawl and review, highlighting documented experience of similar barriers, and identifying their solutions.

Figure 5.1 Barriers to implementing Integrated Ticket Scheme

5.5 In addition to the barriers identified by operators and other respondents to the survey, three further sources have been drawn upon: firstly, the household survey, which has particular relevance to pricing of tickets; secondly, the literature review, which
contains information on the barriers to the use of integrated ticketing technology as perceived by passengers; and, thirdly, the case studies, which add further depth to the research on operators’ perceptions of integrated tickets.

5.6 The principal barriers to the wide adoption of integrated ticketing, in order of the number of interviewees and questionnaire respondents that mentioned each barrier, are discussed in the following paragraphs of this section. Indicative solutions are discussed as appropriate to each barrier, and summarised in the conclusion to the chapter.

**BUY-IN AND SCHEME MANAGEMENT**

5.7 Achieving some level of buy-in from the different parties involved in the scheme in order to make it work was seen to be very important by respondents to the telephone interviews. Whilst the Transport (Scotland) Act 2001 and equivalent English legislation permits local authorities to require operators to enter into joint ticketing schemes, in fact all such schemes that exist in the UK to date are voluntary – not one local authority has yet used this power.

5.8 Voluntary schemes require co-operation between parties and some degree of trust has to develop. For example, no revenue allocation scheme can be absolutely perfect and so compromise will be required to agree on a suitable mechanism. In addition, discussions on integrated ticketing schemes may sometimes find bus companies whose relationship is normally highly confrontational. Thus setting up such schemes – and to an extent their maintenance - will only work if the parties involved (primarily the operators) feel that they have some degree of “buy-in” to or ownership of the scheme. If any party at any time feels that they are likely to lose out to a greater extent than another party to the scheme, they may withdraw from it.

5.9 “Buy-in” is also essential because schemes have administration and other operating costs. These have to be borne by the revenue from ticket sales, or otherwise from a subsidy from participating operators and other parties (e.g. PTEs). This reduces the effective revenue pot for allocation to operators to cover the costs of carrying passengers using the ticket. In financial year 2003/04, the operators participating in OneTicket received approximately 80% of the revenue received. The remainder was spent on administration (12%) and on ticket agents’ costs.

5.10 Clearly, then, the benefits of participating in a scheme have to be perceived to be greater than the costs of running it, if it is to be successful. If the scheme is facilitated by staff who are skilled at achieving buy-in then it will be easier to secure the financial commitment of participants to a limited period of effective subsidy of scheme operating costs, at least during the start-up phase.

5.11 The need for “buy-in” to schemes is a barrier that is based on perceptions that each party to a scheme may have of the others involved. In this way, it is a “perceived” barrier. However, it is very real in the sense that if there is a perception that the scheme is not being implemented or maintained in an even-handed manner, or if participants feel that they will get very little out of it, then the scheme will founder or at least be less effective. Buy-in cannot be guaranteed, but ways in which it can be made more likely are discussed
below. Potential for solving issues surrounding buy-in, or the lack of it, varies dependent upon conditions.

5.12 Before bus deregulation, PTEs such as SPT commonly operated integrated bus, rail and (where applicable) underground/Metro ticketing schemes since, prior to 1986, they were the primary operators and regulators of these services. After 1986, integrated tickets were maintained in most PTE areas, although with some operators participating only intermittently, and with - in some cases, such as Greater Manchester and Tyne and Wear - the administration of the scheme moving from the PTE itself to an operator consortium, including the PTE as a member. This was because the PTE had been the largest bus operator in its area pre-deregulation and so was still perceived in some cases to have too close links to that bus operator, even if it had divested itself thereof.

5.13 These long-established schemes share problems in common with new schemes, such as periodic mistrust between operators, arguments over revenue allocation mechanisms, and difficulties in securing the participation of all operators. However, established schemes enjoy considerable advantages in addition, including:

- At the time that the schemes were set up, PTEs had control over fares scales. Thus these could be rendered consistent across the PTE area, prior to the introduction of the scheme. This was the case in Tyne and Wear and Strathclyde, for example. In many instances these consistent fare scales have survived into the post-deregulation era, making revenue allocation much easier because, in the broad generality, each operator would be reimbursed roughly the same for a journey of the same length. This is not the case for new schemes, where different operators may have widely differing fares scales, which cannot be made consistent; the revenue allocation system must then try to take this into account. However, OFT rules state that reimbursement must be on the basis of passenger miles travelled on each participating operator’s services as a percentage of the total miles travelled in the scheme, and not on the basis of revenue foregone (since to use the latter would act as incentive for operators to increase fares). Thus operators whose cash fares are particularly high (e.g. First Edinburgh on the Linlithgow to Edinburgh corridor) may be reluctant to participate if the scheme cannot be modified to take their particular circumstances into account.

- Established administration and revenue allocation mechanisms which have some credibility with all concerned.

- “Grandfather” rights in relation to OFT rules, which has meant that established schemes have not run quite as much risk that they are in breach of the Competition Act. If they were, participating operators could be fined up to 10% of local turnover – several millions of pounds in the case of a major operator such as FirstGroup or Arriva.

- The fact that PTEs are signatories to their local rail franchises and consequently can ensure the participation of local train operators in their integrated ticketing schemes.

5.14 In the situation where an entirely new integrated ticketing scheme is to be set up outwith a PTE area, it clearly does not have the same status as an existing scheme – in particular, it is starting from the basis of zero market share. To ensure operator buy-in,
therefore, is an even more difficult process than in the case of maintaining a scheme that was set up prior to 1986.

5.15 The OneTicket scheme is referred to as a case study in this chapter on several occasions, for two main reasons: firstly, it can be considered to be a large-scale scheme, in its geographical and modal coverage; and, secondly, it is one of only a handful of large scale schemes that has been set up since deregulation in 1986. Insofar as it covers two rail operators and the services of four major bus operators, it is perhaps unique in scale amongst the “post-1986” generation of integrated ticketing schemes.

5.16 Buy-in was seen to be important in the OneTicket scheme from the outset. The company that set up and administers the scheme was structured in a way that was an attempt to make all of the participating operators feel that they have equal representation. The fact that the scheme obtained £300,000 in Public Transport Fund monies from the Scottish Executive to resource start-up costs also assisted the process of establishing buy-in, in that participating operators could see that this was a project that had Central Government support. Withdrawing from the scheme (perhaps before it had even started) might lead to loss of face with government which operators might to a greater or lesser extent be anxious to avoid.

5.17 Buy-in was also maintained during the set-up phase through the perseverance of two main actors who were consistent in their support of the idea and thus actively negotiated in order to see it through. Because these two actors – one representing SESTRAN authorities, and one a bus operator – were relatively well-trusted by other parties, this trust, combined with their negotiating skills, allowed them to see the project through. The role of champion(s) in the formation of an integrated ticketing scheme in a voluntary environment is very important, therefore. The fact that very few large scale integrated ticketing schemes have been set up in a voluntary environment suggests that there may be a shortage of such champions and/or that their presence is not enough to ensure that the scheme is implemented; some requirement on operators to participate (and one that is more effective, or is used more effectively, than the enabling power in the Transport (Scotland) Act 2001) may be necessary if such schemes are to be more widely adopted.

5.18 Buy-in follows from establishing and developing trust and a sense of ownership. The administrator of such scheme must be someone who is seen as relatively independent and who is trusted by all parties. This is absolutely vital if buy-in is to be secured and maintained. As discussed in Chapter three, the preferred option among stakeholders in Scotland appears to be for schemes to be administered by co-owned companies.

REVENUE ALLOCATION

5.19 Allocating the revenue equitably, or (at the very least) in a way that is perceived as being equitable by the participating operators is absolutely critical to a scheme’s success. By their nature, multi-operator ticketing schemes mean that the operator who takes the revenue from a passenger may not be the same operator with whom that passenger makes the majority of their trips. Revenue allocation is the means of ensuring that the proportion of the total revenue from integrated tickets that an operator receives is similar to the total proportion of travel by integrated ticket holders that is made on that operator’s service,
within a ticketing scheme area. Some mechanism of redistributing (allocating) revenue is required.

5.20 The principal barriers to accurate revenue allocation are the lack of a perfect methodology and cost. The Office of Fair Trading (OFT) regulations in relation to the competition act state that revenue allocation must take place on the basis of passenger miles travelled on the services of each operator participating in the scheme. It is not possible to use the revenue foregone – that is, the revenue that the passengers using the integrated ticket would have paid if they had no integrated ticket – as the basis of revenue allocation since, it is argued, this would act as an incentive to put up fares to claim a greater proportion of the revenue pot.

5.21 Passenger miles cannot at present be measured using smartcards in most modes of transport since these only record when a passenger boards, not when they alight⁴. Thus the current preferred methodology for calculating passenger miles is large sample surveys, where passengers are interviewed to find out the details of their trip. Even where such surveys cover several thousand passengers per year, this is a small proportion of the total number of trips made on a larger operator’s services, and is consequently subject to a considerable amount of sampling error. For smaller operators, such sampling errors on, say, a month by month basis can lead to large fluctuations in their income where a high proportion of passengers uses integrated tickets, and this may in fact deter such operators from taking part in integrated ticketing schemes.

5.22 Revenue allocation is also a barrier for those operators whose fares are generally above the average per passenger mile on some or all of their routes in a ticketing area. For such an operator there is a risk that, depending on the mechanics of the scheme, they may be reimbursed at a lower rate per passenger mile for carrying passengers who are using the integrated ticket.

5.23 The cost of revenue allocation surveys is significant. In the early 1990s, surveys in London to allocate travelcard and concessionary revenue between bus operators cost more than £1 million per year, or about 0.25% of total bus passenger revenue. The revenue allocation survey carried out in Oslo to allocate revenue between the local public transport operator, the regional transport authority and the national rail company (i.e. excluding revenue allocation between buses, trams, metro and local ferry) costs €250,000 per year (Oslo Sporveier, personal communication, 2004).

5.24 Most large scale integrated ticketing schemes in the UK PTE areas rely on surveys that are commissioned by the PTEs to estimate ridership by (and therefore revenue foregone from) concessionary passengers. Other areas of the UK do not have the resources to conduct such regular surveys as the basis of concessionary fares reimbursement, and so claims by operators go largely unaudited. Since such surveys are not carried out elsewhere, this makes revenue allocation for anything but the smallest scheme in non-PTE areas quite a problematic issue.

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⁴ The issue of requiring alighting information to determine fare is addressed in the London Oystercard scheme by requiring ‘Touch In / Touch Out’ for use of the London Underground. Such a procedure would be unworkable in bus operations. Consequently, the Oyster scheme requires only ‘Touch in’ for use of London buses. An identical approach is adopted in the Hong Kong Octopus Card scheme.
5.25 Revenue allocation is a very real barrier to the wider implementation of integrated ticketing. If a scheme fails to allocate revenues in a way that satisfies all participants, then one or more of them is likely to leave the scheme, as they will feel that their “bottom line” is threatened if they remain as a participant. If the scheme fails to meet OFT regulations on revenue allocation, it is open to legal challenge, perhaps by a non-participating operator.

5.26 The barriers specific to revenue allocation are summarised as:

- Keeping the costs of the process manageable.
- Ensuring a methodology that is perceived as equitable by all involved.
- Not disadvantaging those operators whose average fares per passenger mile may be above the average for the scheme area.
- Not breaching the conditions of the OFT’s Block Exemption.

5.27 Any solution intended to reduce barriers arising from the management of revenue allocation needs to address these issues. Once again, with regard to the first two bullet points above, OneTicket provides some useful lessons. It does not utilise surveys (with the exception of rail surveys on the North Berwick line, which have to date been carried out within the existing administration costs of the scheme). Instead, participating operators calculate a fare/distance relationship for their services. By using records of fares paid on (groups of) services, the average distance travelled can then be established. Numbers of OneTicket passengers using services are recorded by drivers on ticket machines, and the average distance travelled by all passengers applied to these OneTicket passengers. From this, the total mileage on the scheme for each operator can be derived and hence the revenue allocated on this basis.

5.28 In this system, passenger miles are derived from fares but, importantly, not from revenue foregone. Therefore the scheme meets the requirements of the OFT’s Block Exemption. It is also worthy of note that the scheme champions consulted with OFT at every important step in the set-up process to ensure that the conditions of the Block Exemption would be met. This demonstrates the point made later in this chapter, that the perception of the OFT as unapproachable is in fact just that, a perception.

5.29 Achieving acceptance of a revenue allocation mechanism such as that used by OneTicket cannot be guaranteed. It may be that at some point in the future one or more participants in the scheme withdraws their approval of the mechanism and seeks the adoption of survey based techniques. This may depend on the proportion of their overall business that is linked to OneTicket and therefore how important it is to their profitability. The fact that the mechanism has been accepted to date demonstrates the degree of buy-in by participants that has been secured for OneTicket.

5.30 If a survey-based revenue allocation system is the only one that participants in an integrated ticketing scheme are willing to accept, there may be no alternative but to subsidise the survey and administration costs, at least for a start-up period, if the scheme is to become a reality. One Ticket’s current sales income is approaching £600,000 per year – its break even point. The administration costs of OneTicket are about £40,000 per year. If it doubled these costs to include revenue allocation surveys, it would also have to double
its sales in order to cover the survey costs. PTE schemes are effectively subsidised in this way as survey costs are normally met from the concessionary fares administration budget.

5.31 Smartcards potentially offer a long term solution to revenue allocation difficulties by providing an accurate record of every journey made. However, they can only provide a record of the length of every journey if they record exits from a vehicle as well as entries to that vehicle. Currently, no smartcard-based system (other than those with controlled exits, such as London Underground, or where a smartcard is used in conjunction with paper ticketing\(^5\)) attains this level of recording since contactless smartcard readers cannot read at a distance through a passenger’s clothing or bags. A potential drawback of a contact smartcard is that it increases boarding times on buses compared with a paper-based photo-ID equivalent, with a knock-on effect on journey times and operating costs. This has been observed on Lothian Buses in the move from paper to smartcard season tickets, and in early experiments with smartcards on London Transport Buses in the early and mid 1990s.

5.32 For operators whose fares are higher per mile than the scheme-wide average but only in part of a scheme area, there is the possibility of creating a special zone to cover that sub-area, and to charge higher prices for an integrated ticket for that zone. Where their fares are significantly higher on average right across the scheme area, there is little that can be done to recompense them, and this could threaten their participation.

5.33 On the continent, revenue allocation is becoming a more important issue as more public transport systems move, in response to probable European legislation, to a system of competitively-awarded franchises, privately-operated but controlled and regulated by a public transport planning body. This is similar to the situation in London and could be a model for quality contracts, so is of relevance to the Partnership Agreement.

5.34 Were quality contracts to become more widespread in Scotland, as suggested by the Partnership Agreement, then the form of allocation of revenue from integrated ticketing could be critical in influencing small operators’ thinking on whether or not to bid for contracts, and could also drive up bid prices from larger operators, were integrated ticketing revenue to be an important part of total revenue and allocated to operators on the basis of surveys. Surveys conducted for the Scottish Executive show that on buses in Edinburgh over 60% of passengers use some form of integrated ticket (weekly or longer season, concessionary pass or dayticket) which is obviously a sizeable proportion of total revenue.

5.35 However, revenue allocation becomes unnecessary if a public authority takes the revenue risk and simply pays operators to run buses, finding other ways – other than revenue risk – to provide incentives to operators to run high quality services. This is precisely what has happened in London, where TfL initially kept all revenue from Travelcard, the integrated ticket (gross cost contracts). In an attempt to provide operators with an incentive to run high quality services, it then moved to net cost contracts where operators took the revenue risk and consequently revenue from Travelcard had to be

\(^5\) The Translink Smartcard System (‘Smartpass’ and ‘Smartlink multi journey’) is used to identify passenger entitlement, and acts as means of payment in conjunction with issuing a traditional ticket with identified end point (limit of travel).
allocated, as precisely as possible, to the operators. This deterred small operators from bidding, which drove up bid prices; this effect was compounded as the remaining operators tried to reduce their revenue risk by bidding more. Consequently, TfL has moved back to a gross cost contract regime, but with sophisticated performance based contracts which have also driven up service quality.

5.36 Personal communication conducted for this research with regional transport bodies in Oslo, Madrid, Copenhagen and Karlsruhe shows that a mixture of techniques are being used for revenue allocation – passenger counts, and surveys – and that operators are reimbursed on the basis of both revenue and passenger miles (it should be noted that fares in all these regions are publicly regulated). In general these regions have not moved to a situation of net cost tendering for tram and bus services and so very micro-scale allocation for these modes, with its attendant expense, is not required.

OFT REGULATIONS

5.37 Related to the issue of revenue allocation, ensuring that the scheme is not in breach of what are perceived by operators and local authorities to be quite draconian regulations as set out by the Office of Fair Trading (OFT) is seen as important barrier to the wider implementation of integrated ticketing. There is a perception that the OFT regulations on the relationship between integrated ticketing schemes and the Competition Act are so complex and the potential punishments so draconian that participation is not worth the effort to put together an integrated ticketing scheme.

5.38 Lawson & Steinmetz (1997) argued that the competitive, deregulated environment disinclines transport operators to co-operate in integrated ticketing schemes, although the present preponderance of the largest bus operators may make integration more likely. Moreover, in the rail industry, relatively short-term franchises discourage investment and commitment in such schemes, especially at a time when ticketing is not the rail industry’s highest priority.

5.39 One of the first concerns of operators and local authorities in the UK is likely to be whether any integrated scheme that they may be contemplating is compliant with the recent transport Acts (see below). In the case of bus operations, is the scheme likely to pass the scrutiny of the Office of Fair Trading (OfT)? Where rail services are concerned, will the proposed fares be accepted by the Strategic Rail Authority (SRA) and its successor bodies? The roles of the OfT and the SRA (prior to July 2004) are not directly comparable, but each exerts a controlling influence over its respective sector of the public transport industry.

5.40 For the purposes of this Review as it relates to buses, most of the relevant legislation is contained within the Competition Act 1998, the Transport Act 2000 and the Transport (Scotland) Act 2001 (OfT, 2003b). Recognising that this is a difficult area and yet is likely to be frequently encountered, the OfT has made guidance information available to operators and local authorities, which makes specific reference to integrated ticketing schemes (OfT, 2003a, b & c). In OfT (2003c), the Chairman is quoted as follows:
“Travelcards, through tickets and quality partnerships, which may specify minimum standards for local services, are beneficial for passengers and can help reduce congestion. Today’s guidance will help LTAs realise the benefits of such schemes for consumers without unnecessarily harming competition.”

5.41 An extract from the guidance (OfT, 2003c) reads as follows:

“Under the Transport Acts, LTAs are permitted to set up quality partnership schemes [...] and ticketing schemes in conjunction with transport operators, in order to implement local plans and policies for transport facilities and services. The competition test assesses whether a scheme has a significantly adverse effect upon competition and, if so, whether that effect is justified by counterbalancing benefits to consumers. It applies to quality partnership[s], ticketing schemes and tenders for subsidised services under the Transport Acts.

Where a scheme has no significant adverse effect on competition it will satisfy the competition test and can proceed. A scheme which does have an adverse effect on competition may still satisfy the competition test if it can be justified by:

- securing improvements in the quality of vehicles or facilities by, for example, providing better access for disabled passengers
- securing improvements of substantial benefit to users of services such as shorter journey times or more reliable and frequent services
- reducing or limiting congestion and pollution.

Providing the effect on competition of the scheme is proportionate to the benefits it achieves, such a scheme may go ahead.”

5.42 Of particular relevance to integrated ticketing schemes involving buses is the ticketing scheme block exemption from Competition Act provisions, which may be applicable to:

- Multi-operator Travelcards – valid for unlimited travel for a set period.
- Multi-operator individual tickets (MIT) (return tickets that are valid for return travel on the services of any operator on that route).
- Through tickets so that re-booking is not required when interchanging between services on a point to point trip.
- Long and short distance add-ons, such as local bus ticket add-ons to longer distance rail fares.

5.43 The block exemption for ticketing schemes was introduced because, prior to this, any scheme that sought approval would have to make an individual application for exemption, at a cost of £10,000 (something of a deterrent). There are specific prescriptions and prescriptions that apply to these exemptions (OfT, 2003a). A qualifying ticket scheme must:

- Be open to all operators to join, unless there is an objective, transparent and non-discriminatory reason why not.
• Allow money to ‘lie where it falls’ if the scheme is an MIT (that is, the operator that takes the money, keeps the money – there is no re-allocation of revenue).
• Remunerate operators on the basis of ‘passenger miles’, if the scheme is a travelcard (unless it is not ‘reasonably practical’ to do so).
• Allow operators to make independent commercial decisions about number of vehicles, headways, timings etc (except where this is necessary for onward connections).
• Be accompanied by ‘own brand’ singles and/or returns if it is an MIT.

5.44 On the other hand, a ticketing scheme must not:
• Limit the variety or number of individual routes offered by individual operators.
• Limit the price or availability of any single operator ticket.
• Limit the frequency or timing of any service operated by individual operators (except where this is necessary for onward connections).
• Facilitate an information exchange between parties, except where this information exchange is indispensable to the scheme and conducted in an open and transparent way.
• Allow price fixing for tickets, except travelcards (posted prices are allowed for through tickets and add-ons).

5.45 Although multi-operator ticketing schemes are allowed legal exemption from some aspects of competition law, as may be seen above, most operators and local authorities appear careful to heed the advice of the Office of Fair Trading (OfT, 2003b) to seek their own legal advice before coming to a final decision on any particular competition issue.

5.46 Discussions with and presentations by the OFT to the client team indicate that, to an extent, operators’ fears may be exaggerated as to how punitive the OFT may be if a ticketing scheme does not adhere to the rules of the block exemption. There is a common perception, which has been in fact refuted by the OFT, that a scheme that is in breach of the Competition Act risks a fine equivalent to 10% of the participating operators’ group turnover. The OFT has told the research team that the maximum fine is 10% of a participating operator’s turnover but only for the area of a scheme.

5.47 The perception of the OFT as unapproachable and draconian may be due in part to its publications; or, as the OFT themselves argued in response to the questionnaire in the case study section of this research, it may be because operators are trying to find excuses not to make ticketing schemes, and blaming the OFT may be one way of so doing.

5.48 However, the language used in OFT publications can be quite legalistic; because of this, it can appear rather unclear to the lay reader. This view is reinforced by the OFT’s own advice that anyone contemplating setting up a scheme should seek independent legal advice. The document Public Transport Ticketing Schemes Block Exemption (OFT 439, August 2002) at no point provides any specific bus-related point of contact at the OFT, nor invites such contact. The perception of some of the OFT from its public face may be one of an organisation that is seeking to set hurdles in the way of those wishing to set up integrated ticketing schemes, rather than seeking to facilitate them.
5.49 In fact, the experience of the project team in contacting the OFT directly in relation to this project and another issue on local bus services has been of an organisation that is pleased to provide informal advice and to facilitate integrated ticketing activities. Clearly, the questionnaire response from the OFT to the case study section of this research supports this view, in that it shows that the bus section of the OFT wish to be perceived as an approachable source of relatively informal guidance for those who are trying to set up ticketing schemes. From their response, OFT indicate that they wish to be seen as a facilitator of schemes, not a barrier to them.

5.50 However, whilst it is recognised that the OFT’s publications and website need to have a certain level of legal rigour, if they were a little more welcoming – perhaps by simply saying “Informal inquiries about any aspect of the ticketing scheme block exemption are welcomed” – then this might help to overcome the perceived barrier of the Competition Regulations and the image of the OFT. For example, in the OFT’s leaflet “The OFT and the Bus Industry”, which covers in relatively simple terms various competition issues related to the deregulated bus industry, it is only on the second page of sources of further information that it is suggested that contact can be made direct with the OFT. Furthermore, at no point in the text on this page (7) does it say that inquiries are welcomed; perhaps a simple change to the wording could make some difference here.

5.51 In addition to guidance from the OFT, the Department for Transport (DfT, 2004) has produced (in conjunction with the OfT) a series of guidance notes and templates. These cover topics such as pricing, revenue distribution, information exchange, block exemption, admission of new operators and termination of a scheme, and are intended to assist in setting up and managing a ticketing scheme in compliance with the law.

5.52 Whilst the guidance includes numerous caveats and disclaimers to ensure that its authors are not liable for the results of legal action arising from its misinterpretation, it is reasonable to assume that a scheme that is set up in accordance with the guidance is less likely to fall foul of the OFT’s block exemption than one that is not.

5.53 Key points of the guidance are as follows:

- It refers to bus-only schemes.
- An MTC should have a management committee with one representative of each participating operator on that committee. Their voting rights should, however, be determined in relation to operator market share as determined by each operator’s registered mileage as a proportion of total mileage in the scheme area.
- The committee should appoint a scheme manager who is responsible for its operation and administration.

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It suggests that revenue can most simply be allocated by allowing it to remain with the operator who takes the revenue from the passenger buying the ticket. It acknowledges that some form of revenue allocation may be desired instead and stresses that such mechanisms should be compliant with the requirements of the Block Exemption. It offers the following further considerations on this subject (DfT 2004 p 7):

- “How ticket sales made by each Participating Operator are to be recorded;
- How usage of the MTCs is recorded, if this forms part of the redistribution process;
- How often Participating Operators are required to pay revenue collected from ticket sales to the Scheme Administrator;
- What method of redistribution of revenue will be used that complies with the Block Exemption and related OFT Guideline and advice;
- How often redistribution of revenue to Participating Operators will occur. This must be as regularly as reasonably practicable to comply with the OFT Guideline.”

The management committee must agree prices for tickets. There is no specific statement to the effect that this price should not undercut the prices of individual operators’ own products; only that it should not limit the availability of such products.

A proportion of revenue must be set aside to cover administration costs. This is suggested as 2% - an interesting comparison with the 20% in the case of OneTicket.

5.54 As noted above, these new Guidance notes are not a guarantee of compliance with the Block Exemption. However, they are extremely helpful and should be publicised widely. In addition, such publicity should be accompanied by encouragement to potential schemes to contact the OFT and discuss their plans at every stage. In this way, the barrier of compliance with the Block Exemption and OFT regulations – a barrier that is, in part at least, perceived – should be reduced.

PRICING

5.55 Following on from the competition issues and barriers perceived to arise from OFT guidance, it is noted that a condition of the OFT Block Exemption for ticketing schemes states that a multi-operator ticket must not be cheaper than a single operator product. Thus, for example, the OneTicket bus only ticket for the Edinburgh zone costs more than the Lothian Buses Ridacard that is valid only on one operator’s services. In practice in a deregulated competitive environment, it is unlikely that any other situation would arise, since the rational operator will wish to ensure that their own products are not undercut by a ticket, the revenue from which they must share with other operators. Essentially, then, a multi-operator / multi-service ticket in the UK outside London is one for which the passenger is expected to pay a premium for two main benefits:

- being able to interchange between services, regardless of who operates them; and
• gaining a discount in relation to buying the individual single or travelcard fares on the various operators’ services that they use to make regular journeys. For example, in Edinburgh, buying a OneTicket for a trip from South Queensferry to the Royal Infirmary is cheaper than buying a season ticket for the South Queensferry to city centre leg on FirstBus and then again for the city centre to Royal Infirmary leg on Lothian Buses.

5.56 This is rather different from the situation in most of the rest of Western Europe, where integrated tickets are sold at a hefty price discount in relation to single fares on one operator, but also regardless of the number of operators on whose services they can be used. Thus in these situations an integrated ticket will secure a significant price saving for regular trips in comparison to the single fare even where these are taken with just one operator or one stage to the regular journey; but it will also provide a saving for multi-operator and multi-modal trips. For example, in Bologna, Italy, a single ticket costs €1 but a monthly ticket valid for unlimited use on all modes €24.

5.57 For the purposes of the British situation, the key question is the level of the premium that can be charged such that passengers will still perceive it to be worthwhile to buy the integrated multi-operator ticket. A review of the prices of multi-operator travelcards offered by PTEs, and single operator zonal season tickets by their main bus operators for a comparable area, shows that the premium charged is between 10% and 20% for the multi-operator bus only ticket. OneTicket in Southeast Scotland began with a premium of around 80% but after very disappointing sales restructured its prices to around a 20% premium, since which time its sales have been building to very close to break-even point. The multi-operator ticket in Oxford costs £14.00 for a week compared with £9.00 for a single-operator unlimited travel ticket covering the same area. Sales are not known.

5.58 The degree of market penetration achieved by multi-operator tickets in Britain is much less than their continental counterparts. The case studies conducted for this research found that PTE multi-operator tickets account for between 5% and 10% of the public transport journeys in their areas. For example, in West Yorkshire, in 2002/03 Metro (the PTE) received total income of £15.167m from sales of its integrated ticket, all of which it disbursed to operators (rail and bus) – showing that administration and survey costs were borne entirely by the PTE. An approximation of the total value of public transport sales in West Yorkshire can be made by multiplying the total number of local rail journeys (16.6 million) and local bus journeys (205.8 million) by average fares. Based on the research team’s knowledge of the local bus and rail market, these have been assumed to be £0.70 per single bus trip and £1.70 for rail. On this basis, the total value of travel can be calculated to be around £171 million per year, of which the PTE’s ticket represents 8.8% of the total market by value.8

5.59 In 2003/04 OneTicket was used to make just under 500,000 trips or around 0.3% of the total number of bus journeys made in Southeast Scotland. Research carried out for this study found that the respective market share (of passenger trips) for multi-operator season tickets in the regions around Madrid, Copenhagen, Oslo and Karlsruhe are 67%, 40%, 40-50% and 49%. If multi-operator multi-trip tickets (carnets allowing a time-limited single

8 All actual figures taken from WYPTE’s Annual Report and Accounts 2002/03, and LTP Progress Report 2002/03, available at www.wymetro.com
trip but with interchange, also offering a discount over the single cash fare) are included, the percentages are even higher. In the case of the “typical commuter” making 20 return trips per month, multi-operator season tickets provide a price-saving of between 30% and 50% compared with paying the walk-on single ticket price for each trip, regardless of the number of operators used. As the literature review has shown, the introduction of cheap multi-operator multi-modal season tickets has been credited with major public transport patronage growth and modal shift in cities such as Freiburg and Basel, when also coupled with investment in infrastructure and improved services.

5.60 It is further worth noting the results of the household survey conducted as part of this research project: the survey found that most respondents would not be prepared to pay anything other than a small weekly premium of £1 or £2 for such a ticket, while 1 in 5 (21%) of respondents would not be prepared to pay anything extra. This would suggest that such tickets need to be competitively priced - if multi-operator tickets cost more than single-operator tickets people may not buy them.

5.61 Solutions arising must be specific to value rather than cost. It is clear from the continental European perspective that multi-modal unlimited travel period season tickets achieve a very high market share partly because they have been deliberately priced to do so. In comparison with single journey tickets they offer significant price savings as well as the convenience of interchange and a single transaction for use on any number of operators’ services. Continental European public transport is regulated and price-controlled and between 30% and 60% of operating costs come from subsidy. Whilst this is a very different environment from that obtaining in Scotland, it is worth noting that the London Travelcard (including bus only versions) achieves a market share of trips similar to that of its continental European counterparts but that, between 1995 and 1999, London Buses were operating without any subsidy (other than fuel duty rebate). The basic price differential between the travel card and the cost of single trips in London is between 10% and 20% (based on the cost of a weekly card versus the price of ten single trips – the discount is much greater if each of the ten single trips includes interchange between or within modes (other than a trip changing between Underground or heavy rail lines)).

5.62 In the deregulated local public transport environment in Scotland, the key question in pricing integrated ticketing is not how much cheaper to make the ticket than single operator and single ticket alternatives, but the level of the premium that passengers will be willing to bear. The limited experience of OneTicket shows that an 80% premium is too much, but that at 20%, its market share is growing, albeit from a very small base. In practice the most that can be said about the premium is that it should be as low as possible, but that there will normally have to be one, in order to secure operator buy-in to the scheme.

MARKETING

5.63 Marketing the integrated ticket successfully was also identified by interviewees and in case studies as an important barrier to its wider success. The ticket needs to have a recognisable brand that distinguishes it – and its advantages - from single operator tickets. To achieve this, a marketing budget is required which will need to be funded from ticket
sales unless subsidy is forthcoming from elsewhere (e.g. a PTE). A sizeable proportion of the administration budget of OneTicket is spent on marketing.

5.64 Marketing multi-operator tickets can be done successfully, as PTE examples show. However, such marketing costs money. Tyne and Wear PTE (Nexus) spent £2.5 million on public transport “promotion and information” in 2002/03, according to its annual report and accounts. For West Yorkshire PTE, “service planning and promotion” totalled £5 million. The specific promotion of multi-operator tickets will be subsumed within these much larger figures. Large operators have similar sums available to promote their own single-operator products and have the advantage of every vehicle as a potential outlet and advertisement for such tickets, against which the multi-operator product must compete.

5.65 Very generally, it is possible to conclude that a new multi-operator integrated ticket can secure a market position, but that it needs sustained marketing to do this and in particular to establish the brand and its advantages in comparison to existing single operator tickets with which many public transport passengers may already be very familiar. Marketing – including selling the ticket through agents other than operators – requires a budget that in the start-up phase may cost in the region of 10% of total sales.

INCLUSION OF RAIL SERVICES IN INTEGRATED TICKETING SCHEMES

5.66 The attractiveness of integrated ticketing schemes is enhanced if they include all public transport modes. All PTE schemes in the UK, and the London Travelcard, include rail as an option, although a bus (or bus/metro/tram)-only ticket is normally cheaper than one that includes rail. For example, in the case of the area covered by West Yorkshire PTE, a weekly bus-only multi-operator ticket costs £13.40 but a bus and rail ticket £20.40 (52% more). Large scale multi-operator season ticket schemes set up since deregulation, such as OneTicket, Brighton and Hove (“Master Rider”), and Oxford’s Plus Pass either do not include rail at all, or include it on only a small scale.

5.67 The problem here is that, since rail fares are generally more expensive than bus and, since revenue must be reimbursed on a per passenger mile basis, rail operators will lose out more than bus operators by participating in a scheme, even where a premium rate is charged for a rail-available product (although the OFT block exemption does permit high rates of reimbursement per passenger mile for participating rail operators). Hence, fearing revenue loss, they do not want to participate and indeed could not be required to do so by the ticketing powers in the Transport (Scotland) Act 2001, which relate only to bus. This is why OneTicket is available on bus services right across Southeast Scotland but on rail only between Dalmeny, Dunbar and North Berwick.

5.68 Rail operators are unlikely to voluntarily participate in multi-operator season ticket schemes. In contrast, they are much more likely to participate voluntarily in ticketing add-on schemes, where a rail ticket is sold with a bus add-on (e.g. a day return Glasgow-Edinburgh by train with Plusbus day ticket included) because the one ticket can be sold at the combined price of the two tickets it replaces, and the revenue allocated accordingly.

http://www.stagecoach-oxford.co.uk/tickets/tickets_to_go_regular_travel.html#pluspass
The passenger gains a more convenient product and the operators do not lose revenue but benefit from additional marketing via the other operator(s). Bus-rail add-ons have also been negotiated voluntarily: for example, passengers on Brighton and Hove Buses can buy from the driver a bus ticket that includes a cheap day return rail ticket from Brighton to any Thameslink station. Where multi-operator season tickets (travelcards) do offer options including rail services, this is because the availability of these tickets on rail is written into franchise agreements and rail operators bid for those franchises on the basis of the expected revenue.

5.69 In view of these findings it is, from the point of view of encouraging the use of integrated ticketing, perhaps something of a missed opportunity that the potential ScotRail franchisees were required only to consider integrated ticketing (other than SPT’s Zonecard) in their recent bids, and not to bid on the basis of having to accept such tickets. This may be connected with the probability of such a condition driving up subsidy requirements, since it may be that rail operators increase the price of their bids if they are required to accept multi-operator season tickets. However, as evidenced by Travelcard in London, the multi-operator tickets in the PTE areas, and by experience from many continental cities, widespread acceptance of multi-operator tickets by rail operators is likely to occur only where they are required by regulation to do so.

PASSENGER PERCEPTIONS

5.70 The Literature Review and Household Survey found some evidence to suggest that passengers may be resistant to the use of smartcard-based integrated tickets, preferring instead the reassuring “normality” of paying in cash and receiving a paper ticket; or having a cardboard travelpass. Transport Informatics specialists, who might be expected to talk-up the use of smartcards (not least because they may work for a company that sells them) are cited in the Literature Review as arguing that on the European continent, passengers are happy to use smartcard-based tickets.

5.71 However, many of the integrated ticketing schemes that exist across the European continent began prior to the development of smartcards and were paper-based; many still are. As other parts of this chapter has shown, such tickets have achieved extremely high levels of market penetration in continental European cities.

5.72 This review of barriers concurs with York (1995) who argues that the greater the value that people perceive in their integrated ticket, the greater their propensity to use it. The value is perceived primarily in relation to the price differential between that ticket and single or return cash fares, although it may be enhanced through the ability to interchange freely between services and modes, and by the availability of add-ons (e.g. the purchase of non-transport goods with “money” on a stored-value ticket).

5.73 So, while marketing of an integrated ticketing may have some role to play in overcoming people’s resistance to it, (particularly to smartcard ticketing) perhaps the most important factor is to ensure that the ticket is perceived to be good value for money.
CONCLUSIONS AND RECOMMENDATIONS

5.74 The following conclusions can be drawn from this review of barriers and their potential solutions. The conclusions are framed as recommendations. It is recommended that, if the barriers to the wider implementation and use of integrated ticketing are to be minimised, then the following steps need to be taken:

• In order to help secure “buy-in”, scheme champion(s) should be found to take it through the set-up phase and preferably to act as an independent administrator once the scheme is up and running. The scheme champion(s) must be skilled negotiators, trusted by all parties involved.

• A formal structure for the scheme management committee that makes participants feel that they have a fair say in decisions that are made, and that ensures that decision-making is open and transparent, will also help to secure “buy-in”.

• **Revenue allocation** is one of the most important issues in any scheme. For the smallest schemes, it may be possible to allow revenue to “lie where it falls” i.e. to be retained by the operator who sells the ticket to the passenger. Where this is not acceptable, to comply with the OFT’s Block Exemption, revenue allocation should be on the basis of the number of passenger miles travelled using the ticket on each operator’s services as a proportion of the total miles travelled.

• **Revenue allocation** is normally carried out using surveys. These are expensive, however, and so an alternative may be to derive passenger miles from fare/distance relationships and fares taken on each operator’s services. Such an alternative is, however, subject to OFT approval and to the agreement of participating operators.

• **Administration costs**, including ticket agency commissions and marketing costs, can also be considerable. In the start-up phase, it may be more feasible for these to be subsidised by a public agency rather than to attempt to fund them from ticket revenues. In the longest running schemes in Britain (the PTEs), these costs are subsidised on an on-going basis.

• **Compliance with the OFT Block Exemption** cannot be guaranteed. However, the risks of a scheme not complying can be minimised by setting up the scheme in accordance with recent guidance issued by the DfT; and by consulting frequently with the OFT during the process.

• **Perceptions that the Block Exemption is an insuperable barrier** could be improved if the OFT’s publications and websites encouraged those who are considering schemes to contact the OFT to talk over their ideas, and to work with the OFT through the set-up process. The OFT perhaps needs to have a slightly more friendly “public face”, and to portray an image of a facilitator as well as a guardian of the law.

• **The price** of multi-operator tickets is, in a deregulated competitive environment, always likely to be higher than that of their single operator equivalents. This will limit their attractiveness – market shares in Britain outside London seem to be around 5-10% of the total for local public transport. If levels of market penetration similar to those found on the continent (40%+) are to be achieved then the price should be less than the single operator equivalent (if applicable) and the equivalent combination of single tickets required to make a regular journey. The experience of London shows that this price reduction need not necessarily be more than 10-20%.
• **The price** (differential) of multi-operator tickets is also the biggest determining factor in whether or not people perceive that they offer an advantage over conventional tickets. Thus any resistance to use of smartcards is likely to be overcome quickly if the ticket offers good value for money.

• The inclusion of **local rail services** will make an multi-operator season ticket more attractive. On a large scale it will only be achieved if acceptance of the ticket is required as a condition of the franchise.

• Multi-operator integrated tickets can achieve a **market presence** but to do this they require a marketing budget. In the start-up phase the budget required is likely to exceed that which can be funded from the ticket revenue.
CHAPTER 6: POTENTIAL TAKE-UP AND IMPACT OF INTEGRATED TICKETING IN SCOTLAND: SURVEY FINDINGS

INTRODUCTION

6.1 A key aim of the integrated ticketing research project was to examine the need and demand for integrated ticketing in Scotland. Who might use integrated tickets? What types of ticket would they be most interested in? What impact might integrated ticketing have on their journey patterns? TNS Social undertook a survey of 1,024 Scottish adults (aged 16 and over) in February and March 2004 to gather user feedback on the various options for integrated ticketing in Scotland.

6.2 The survey was carried out using a pen-and-paper questionnaire administered face-to-face in peoples’ homes by trained interviewers from TNS. All interviewers working on the study received a full briefing from a member of the research team. The interview took around 25 minutes to complete.

6.3 This chapter presents findings from the Household Survey, providing detailed analysis of the results relating to current travel behaviour, perceptions of public transport and the potential take up of Integrated Ticketing in Scotland. Full details of the survey methodology and sample characteristics (including comparisons of the sample with census profiles) are provided in Appendix A.

6.4 The Survey focused on five ‘travel-to-work’ areas (TTWAs) in Scotland. Travel-to-work areas are areas where:

- of the resident economically active population at least 75% actually work in the area, and
- of everyone working in the area at least 75% actually live in that area.

6.5 The areas included in the survey were all areas where there was deemed to be good potential for introducing or expanding integrated ticketing schemes based on their current transport infrastructure. Different types of areas (urban, rural, mixed, medium-sized town) were also selected. The final areas were as follows:

1. **Aberdeen TTWA** (261 interviews), which includes Aberdeen City and encompasses Aboyne in the West, Inverurie and Pitmedden in the North and Stonehaven in the South. At the time the survey was carried out, this area did not have a developed integrated ticketing scheme, although there were several schemes in development which might be adopted, amended or expanded if the area were thought suitable for a pilot scheme.

2. **Edinburgh TTWA** (258 interviews), which encompasses Edinburgh, Midlothian, East Lothian and West Lothian. Although the ‘One-ticket’ scheme was already in operation in Edinburgh and surrounding areas at the time of the survey, the initial stakeholder consultation suggested that take-up was not yet particularly high. Further, while the ticket offers good bus coverage, very few rail services were included at the time of the survey. It was therefore felt that it would be worthwhile
including the Edinburgh ‘travel-to-work’ area in order to assess levels of awareness of ‘One-ticket’ and to explore the scope for amending/expanding the scheme.

3. **Perth TTWA** (245 interviews), which includes Perth and extends to Dunkeld in the North, Glenlarg in the South, Errol in the West and Methven in the East. Perth was included to ensure that the perspective of people living in or near a medium-sized urban settlement were covered by the survey.

4. **Oban TTWA** and **Islay and Mull TTWA** (260 interviews). These adjacent TTWAs were included in order to assess the need and demand for integrated ticketing in a rural area. Findings for the two areas are presented together throughout this chapter.

6.6 The chapter is structured around survey findings in the five sampled TTWAs relating to the following topics:

- **Respondents’ current travel patterns** – what types of trips they make and how; how much they currently spend on transport

- **Respondents’ use of and attitudes towards public transport** – how do they rate services in their area? Are they willing to use public transport? Are they able to do so? Why do some respondents travel by car? What would encourage people to use public transport more? How important is integrated ticketing in encouraging greater use?

- **Awareness of existing integrated ticketing and other schemes**

- **Potential demand for integrated ticketing** – to what extent do respondents currently make multi-operator or multi-modal trips? How interested would they be in buying multi-operator or multi-modal tickets? Would they pay a premium for these over single-operator tickets? What types of respondents might buy a “fully” integrated ticket and what types of trips would they use it for?

- **Views on practical aspects of ticketing** – where do people prefer to buy tickets from? What types of tickets are people interested in?

6.7 “Key findings” boxes are interspersed throughout the chapter to highlight the most important points for the reader. Tables and figures containing key results are included in the body of this chapter, with additional tables and figures included as Appendix D.

6.8 In addition to the analysis presented in this chapter, Chapter 7 applies findings from the Household Survey to the likely take-up of integrated tickets to develop a model to predict the likely demand for Integrated ticketing across Scotland.
CURRENT TRAVEL PATTERNS

6.9 In order to be able to assess the potential impact of integrated ticketing on respondents’ future journey patterns, it is important to understand their current travel patterns, including their current levels of car use and what types of journeys they currently make. This section profiles the current travel patterns of Household Survey respondents, which information is used later in the analysis of potential take-up of integrated ticketing to demonstrate the extent to which such tickets might affect modal shift.

Figure 6.1 – Proportion of single-car commuters by area (%)

Availability and use of cars or vans

6.10 Seventy-nine per cent of respondents had a car or van available for their household to use, with 30% having two or more cars or vans available (Figure 6.2). Respondents in Perth were more likely than respondents in Edinburgh to have a car or van available, and were also more likely to have multiple cars, reflecting usual urban/rural patterns of car ownership.
Figure 6.2 – Number of cars or vans available to household by area (%)

Bases: Aberdeen = 261; Edinburgh = 258; Perth = 245; Oban, Mull & Islay = 260; ALL = 1,024

6.11 The vast majority (98%) of respondents who had a car or van available to their household used a car either as a driver or a passenger. Thirty-nine per cent of these respondents estimated their annual mileage (as a driver or a passenger) to be under 5,000 miles, while 31% said it was between 5,000 and 10,000 miles and 28% said it was 10,000 miles or over. Although there were some variations in reported annual mileage by area, these were too small to be significant.

Single car commuters

6.12 The sample included 217 ‘single-car commuters’ – that is, individuals who drive to work and do not take any passengers. This represents 21% of the total sample and 36% of all employed respondents. In addition, 78% of those who drive to work are single-car commuters.

6.13 Single-car commuters represent a key target for Scottish Executive policies aiming to encourage modal shift. The single car commuters who took part in the survey were more likely than the rest of the sample to be male, young (25-44 years-old) and to come from multi-car households. The survey included proportionally more single-car commuters from Aberdeen and Perth compared with Edinburgh, Oban, Mull and Islay (Figure 6.1).
Journeys made in a ‘typical week’

6.14 In order to provide a basis for assessing the impact of integrated tickets in terms of changes to journey patterns or encouraging respondents to make trips they would not have made previously, respondents were asked a series of questions about the trips they made in an ‘typical week’. A ‘trip’ was defined as a single journey to or from a particular destination – so if respondents reported travelling to and from work on 5 days a week, this would count as 10 trips. Overall, respondents made an average of around 20 trips a week for various purposes, with the most common type of trip being journeys to and from work. Retired or economically inactive respondents made fewer trips on average than respondents in work or education (see Appendix D, Table D-1).

6.15 Table 6.1 shows the main types of transport respondents said they used for each type of trip they made in a typical week. Travelling by car as the driver was the most common form of transport mentioned for each kind of trip. However, 1 in 10 respondents mentioned getting the bus to or from work, while a similar proportion used the bus for grocery shopping, leisure day trips, visiting friends and relatives and entertainment trips. Just under a quarter of respondents (23%) said they walked when they did grocery shopping, while 1 in 5 (21%) walked when visiting friends and relatives.

**Table 6.1 – Types of transport used for different kinds of trips (% of all respondents)**

<table>
<thead>
<tr>
<th></th>
<th>Car driver</th>
<th>Walk</th>
<th>Car passenger</th>
<th>Bus</th>
<th>Taxi</th>
<th>Train</th>
<th>Not applicable (don’t make this type of trip in typical week)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To/from work</td>
<td>32</td>
<td>14</td>
<td>6</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>46</td>
</tr>
<tr>
<td>Business</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>*</td>
<td>1</td>
<td>88</td>
</tr>
<tr>
<td>To/from education</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>-</td>
<td>*</td>
<td>90</td>
</tr>
<tr>
<td>Accompanying or taking other people places</td>
<td>22</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>*</td>
<td>*</td>
<td>71</td>
</tr>
<tr>
<td>Grocery shopping</td>
<td>54</td>
<td>23</td>
<td>16</td>
<td>11</td>
<td>3</td>
<td>*</td>
<td>12</td>
</tr>
<tr>
<td>Leisure day trips</td>
<td>37</td>
<td>8</td>
<td>13</td>
<td>12</td>
<td>1</td>
<td>3</td>
<td>44</td>
</tr>
<tr>
<td>Visiting friends/relatives</td>
<td>46</td>
<td>21</td>
<td>16</td>
<td>14</td>
<td>1</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>Entertainment</td>
<td>27</td>
<td>15</td>
<td>10</td>
<td>12</td>
<td>9</td>
<td>1</td>
<td>48</td>
</tr>
</tbody>
</table>

*Other modes of transport, such as ferries or bicycle, were mentioned by a small proportion of respondents (fewer than 2% in each case) and are not included in this table.

*Respondents could give more than one answer if they used combinations of transport or varied the transport they used.*
6.16 Respondents were then asked to describe in more detail how they usually make each of the kinds of trips they mentioned, including the number of journey stages made by different types of transport. Their responses were analysed to examine (a) the combinations of private and public transport used and (b) whether journeys made using public transport involve multiple modes or multiple stages – discussed in the section on ‘potential demand for integrated tickets’, below.

Table 6.2 – Usual journey patterns for different kinds of trips (% of respondents who make that kind of trip in a typical week)

<table>
<thead>
<tr>
<th></th>
<th>Car only</th>
<th>Public transport, cycling or walking only</th>
<th>Combinaton of car/motorbike and public transport</th>
<th>Taxi only</th>
<th>None of these combinations</th>
<th>BASES (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To/from work</td>
<td>58</td>
<td>30</td>
<td>4</td>
<td>1</td>
<td>7</td>
<td>557</td>
</tr>
<tr>
<td>Business</td>
<td>82</td>
<td>9</td>
<td>4</td>
<td>-</td>
<td>5</td>
<td>128</td>
</tr>
<tr>
<td>To/from education</td>
<td>39</td>
<td>56</td>
<td>4</td>
<td>-</td>
<td>1</td>
<td>103</td>
</tr>
<tr>
<td>Accompanying or taking other people places</td>
<td>73</td>
<td>20</td>
<td>1</td>
<td>-</td>
<td>5</td>
<td>293</td>
</tr>
<tr>
<td>Grocery shopping</td>
<td>69</td>
<td>22</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>903</td>
</tr>
<tr>
<td>Leisure day trips</td>
<td>71</td>
<td>18</td>
<td>7</td>
<td>-</td>
<td>5</td>
<td>571</td>
</tr>
<tr>
<td>Visiting friends/relatives</td>
<td>64</td>
<td>26</td>
<td>3</td>
<td>*</td>
<td>7</td>
<td>785</td>
</tr>
<tr>
<td>Entertainment</td>
<td>54</td>
<td>30</td>
<td>4</td>
<td>4</td>
<td>11^12</td>
<td>534</td>
</tr>
</tbody>
</table>

6.17 With the exception of travel to or from education, car was the dominant mode of transport used for each type of trip (Table 6.2). However, there were some significant differences between areas. For example, while overall 58% of respondents reported travelling to work by car only, this figure varied from 49% of respondents who usually made this type of trip by car only in Edinburgh TTWA to 68% in Perth TTWA. Conversely, 41% of respondents in the Edinburgh TTWA reported making trips to or from work by public transport, cycling or walking only, compared with 24% in Perth TTWA.

6.18 These findings are supported by patterns found in the 2001 Census on travel to place of work or study. Table 6.3 shows the main means of travel to work or study for the Aberdeen City, Aberdeenshire, Argyll and Bute, City of Edinburgh and Perth and Kinross Council areas. A much higher proportion of adults in Perth and Kinross (54%) and Aberdeenshire (59%) compared with adults in Edinburgh (36%) drive to work.

^12 For entertainment, 4% of respondents reported making trips using a combination of car or motorbike and taxi while a further 4% combined public transport and taxi to make this kind of trip.
Conversely, 26% of Edinburgh adults get a bus, minibus or coach to their place of work or study, compared with 9% of adults in Perth and Kinross Council area. While the travel-to-work areas used for the Household Survey do not correlate with Council boundaries, the Census findings do suggest that the patterns found in the Household Survey are a genuine reflection of differing travel patterns between areas.

Table 6.3 – Usual means of travel to place of work or study from 2001 Census (% of adults aged 16-74 in employment or studying)

<table>
<thead>
<tr>
<th>Area</th>
<th>Driving a car or van</th>
<th>On foot</th>
<th>Passenger in a car or van</th>
<th>Bus, minibus or coach</th>
<th>Train</th>
<th>Other</th>
<th>Work or study mainly from home</th>
<th>BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberdeen City</td>
<td>47.32</td>
<td>19.91</td>
<td>6.45</td>
<td>15.30</td>
<td>0.39</td>
<td>5.85</td>
<td>4.76</td>
<td>120,529</td>
</tr>
<tr>
<td>Aberdeenshire</td>
<td>58.82</td>
<td>11.66</td>
<td>7.92</td>
<td>6.94</td>
<td>0.75</td>
<td>5.89</td>
<td>8.02</td>
<td>120,942</td>
</tr>
<tr>
<td>Argyll &amp; Bute</td>
<td>48.18</td>
<td>19.41</td>
<td>7.85</td>
<td>5.46</td>
<td>4.20</td>
<td>4.79</td>
<td>10.12</td>
<td>44,894</td>
</tr>
<tr>
<td>Edinburgh, City of</td>
<td>36.06</td>
<td>20.81</td>
<td>4.79</td>
<td>26.24</td>
<td>1.34</td>
<td>5.82</td>
<td>5.82</td>
<td>252,414</td>
</tr>
<tr>
<td>Perth &amp; Kinross</td>
<td>53.96</td>
<td>16.38</td>
<td>7.57</td>
<td>8.77</td>
<td>0.94</td>
<td>3.18</td>
<td>9.19</td>
<td>68,258</td>
</tr>
<tr>
<td>Scotland</td>
<td>50.03</td>
<td>14.07</td>
<td>8.29</td>
<td>13.95</td>
<td>3.45</td>
<td>4.14</td>
<td>6.07</td>
<td>2,510,494</td>
</tr>
</tbody>
</table>

6.19 Analysis of possible reasons for the high proportion of Perth TTWA respondents who commute to work by car suggests that it is not connected solely to rurality (since fewer respondents in Argyll and Bute commute to work by car), but may be connected with actual or perceived practical barriers to travelling by public transport. These findings are discussed further in the sections on “Views on public transport as a practical alternative” and “Reasons for travelling by car rather than by public transport”, below.

**Current travel costs**

6.20 Respondents were asked how much they spend in an average week on day-to-day car costs (petrol and car parking) and on public transport and taxis (see Appendix D, Tables D-2 and D-3). Respondents who use cars spend an average of £16.56 on petrol and car parking each week, while overall respondents spend £3.07 on average on public transport and taxis. Car users in Perth, Oban, Islay and Mull TTWAs spend slightly more on car costs on average than car users in Aberdeen and Edinburgh TTWAs. Respondents in Edinburgh spend significantly more on average than respondents in other areas on public transport and taxis, probably reflecting their higher levels of use of public transport, discussed above. Non-car users spend on average £5.61 a week on public transport, compared with £2.33 for car users.

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13 Defined as those who said they had a car or van available to their household and that they used this vehicle, either as a driver or a passenger.
CURRENT USE OF AND ATTITUDES TO PUBLIC TRANSPORT

6.21 Understanding respondents’ current views on public transport and car use is crucial to helping predict whether new initiatives such as integrated ticketing are likely to be successful and who they might attract. For example, for respondents who strongly prefer travelling by car, even if public transport is good, integrated ticketing might be expected to have a relatively limited impact.

6.22 The Household Survey included a number of questions designed to measure respondents’ current views of, and orientation towards, car use and public transport, including:

- asking respondents to rate the bus, train and other services in their local area
- questions designed to establish willingness to use public transport
- questions designed to establish ability, in practice, to use public transport for journeys respondents currently make by car
- questions examining the reasons for travelling by car rather than by public transport, and
- questions examining factors that may encourage increased public transport use, including integrated ticketing.

Rating of public transport in the local area

6.23 Respondents were asked to rate different public transport services in their area (See Appendix D, Tables D-4 to D-6). The questionnaire did not distinguish here between quality and availability, so services may be rated as poor because they are infrequent or limited rather than because the services which are available are poor quality. Overall, respondents are more likely to rate bus services than train services as ‘very’ or ‘fairly good’ – 54% compared with 25%. However, a significant proportion of respondents (33%) said that there were no train services in their local area, while 21% did not know how to
rate them, suggesting a lack of access to or experience of local train services. When respondents who did not know how to rate services or said there were no services in their area are removed from analysis, 52% said that train services in their area were ‘very’ or ‘fairly good’, compared with 62% who rated bus services as good.

6.24 There were some significant differences in the ratings given to bus services by area – for example, 42% of respondents in the Oban, Mull and Islay TTWAs rate bus services in their areas as ‘very’ or ‘fairly good’ compared with 62% of respondents in Perth TTWA. These differences did not emerge for train services. Finally, respondents in Oban, Mull and Islay appear to rate other public transport services in their area particularly highly, with 70% rating these as ‘very’ or ‘fairly good’. Given the wide provision of ferries in this area, it is likely that this assessment relates primarily to these services.

6.25 There were also some differences in the ratings given to local bus services by single-car commuters and car users compared with other respondents. Forty per cent of single car commuters rated local bus services as ‘very’ or ‘fairly good’ compared with 57% of other respondents. Similarly, 48% of all car users rated bus services as good compared with 71% of non-car users. While it may be that people are more likely to use cars in areas where the local bus service is perceived to be poor, it is worth noting that 13% of car users compared with just 2% of non-car users said they did not know how to rate their local bus service, suggesting a lack of knowledge or experience of public transport among some car users.

Orientation towards public transport and car use

6.26 In a recent report on *Attitudes to car use and modal shift*, as measured by the Scottish Social Attitudes Survey, Anderson and Stradling draw a useful distinction between *ability* and *willingness* to shift to public transport. Ability to shift can be thought of as the extent to which a person could, in practice, make at least some of the journeys they currently make by car by public transport instead. The Household Survey attempted to measure respondents’ ability to shift via questions on whether bus or train would be a practical alternative for journeys currently made by car, discussed below. Willingness to shift indicates the extent to which a person would like to use public transport more often, if this were possible. The Household Survey asked respondents to agree or disagree with two statements intended to measure respondents’ willingness to shift from car use:

- “Where possible, I prefer to travel by public transport rather than by car”, and
- “Even if the public transport in my area was really good, I would still prefer to travel by car most of the time”

6.27 Table 6.4 shows a cross-tabulation of responses to these two statements. The agreement between the two is strong, although not perfect (a small proportion of respondents appear to agree that they would prefer to travel by car most of the time and also agree that, where possible, they prefer to travel by public transport, and vice-versa). Overall, 21% of all respondents appear to be strongly car dependent (they agree strongly that they would prefer to travel by car even if public transport were really good and

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disagree strongly that, where possible, they prefer to travel by public transport). On the other hand, 7% appear to have a strong preference for public transport.

Table 6.4 – Level of agreement or disagreement with statements about car use and public transport (% of all respondents)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Agree strongly</th>
<th>Tend to agree</th>
<th>Neither</th>
<th>Tend to disagree</th>
<th>Disagree strongly</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Where possible, I prefer to travel by public transport rather than by car”</td>
<td>1</td>
<td>1</td>
<td>*</td>
<td>5</td>
<td>21</td>
<td>28</td>
</tr>
<tr>
<td>“Even if the public transport in my area was really good, I would still prefer to travel by car most of the time”</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>15</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Neither</td>
<td>*</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Tend to disagree</td>
<td>1</td>
<td>9</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Disagree strongly</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>17</td>
<td>9</td>
<td>28</td>
<td>37</td>
<td>100</td>
</tr>
</tbody>
</table>

6.28 A scale ranging from 0 to 8 was constructed based on responses to the two statements above, where 0 indicates the respondent is strongly “pro-car” and 8 indicates they are strongly “pro-public transport”. Mean scores were then plotted for different groups of respondents to establish which factors are most strongly associated with different orientations towards public transport and car use. There were no significant differences between men and women or between respondents in different socio-economic classes. Mean scores differed somewhat between areas, with Edinburgh appearing to be the most “pro-public transport” (see Appendix D, Figure D-1). Age also appeared to make some difference, with those in the 45-59 year-old age group the most “pro-car” (see Appendix D, Figure D-2).

6.29 Orientation towards car use and public transport varies more significantly by the number of cars in the household (see Appendix D, Figure D-3). Households with one or more car are much more likely than car-less households to disagree that they prefer to travel by public transport where possible and to agree that even if public transport were really good, they would still prefer to travel by car most of the time.

6.30 However, interestingly, a quarter (24%) of respondents in one-car households and 14% of those in households with two or more cars agree they prefer to travel by public transport where possible (see Appendix D, Table D-7). Similarly, around 3 in 10 respondents from one-car households and quarter (23%) from two or more car households disagree that they would prefer to travel by car, even if public transport were really good (see Appendix D, Table D-8), suggesting that a significant proportion of respondents in households with cars are willing to use alternative modes where practical.

6.31 Conversely, around 3 in 10 respondents in households without cars disagree that they prefer to travel by public transport where possible, while a similar proportion agree that they would prefer to travel by car most of the time. For these respondents, not owning
a car does not appear to be associated with any preference for public transport – in fact, they would prefer to travel by car if this were possible.

6.32 Orientation towards public transport also varies significantly among employed respondents by the distance they travel to work, with those travelling five or more miles appearing to be more “pro-car” than those travelling two miles or less (see Appendix D, Figure D-4).

6.33 Finally, single car commuters were significantly less likely than other respondents to agree that, where possible, they prefer to travel by public transport. However, 15% of single-car commuters did in fact express a preference for using public transport, suggesting some willingness to shift away from car use. Single car commuters were also more likely to agree with the statement “Even if the public transport in my area was really good, I would still prefer to travel by car most of the time” (72% compared with 50% of other respondents), although again a significant proportion (22%) disagreed with this statement.

VIEWS OF PUBLIC TRANSPORT – KEY FINDINGS

- Overall, respondents are more likely to rate local bus services than local train services as ‘very’ or ‘fairly’ good (54% compared with 25%), though part of this difference may relate to a lack of local train services in some areas.
- Based on their responses to two preference statements about cars and public transport, 21% of all respondents appear to be strongly car dependent, while 7% appear to have a strong preference for public transport.
- A quarter of respondents in one-car households and 14% of those in households with two or more cars agree that they prefer to travel by public transport where possible. Fifteen per cent of single-car commuters also agreed they preferred to travel by public transport where possible. This suggests a significant proportion of car-users may be willing to use alternative modes where practical.
- Conversely, the findings suggest that around 3 in 10 respondents in car-less households would in fact prefer to travel by car if this were possible.

Views on public transport as a practical alternative to car use

6.34 Respondents who said they made different types of trip by car as a driver or a passenger were asked whether it would be “practical” for them to use buses and trains for these types of journeys, in order to provide some measure of respondents’ ability to use public transport (see discussion of ability versus willingness above). If public transport is not seen as a practical alternative to car use, the ability of integrated ticketing to encourage modal shift will be limited.

6.35 In general, respondents were more likely to view public transport as a practical alternative for trips made for leisure purposes such as leisure day trips, visiting friends and
relatives and entertainment – 44%, 39% and 45% respectively said that it would be practical for them to make these kinds of trips by bus (see Appendix D, Table D-9). Respondents were least likely to view public transport as a practical alternative for business trips and for accompanying or taking other people places. Twenty-nine per cent said that they could make the trip to or from work by bus and 3% that they could do this by train. Trains were not seen as a practical alternative to car use for many trips, with the exception of leisure day trips and visiting friends and relatives, where 24% and 12% respectively said they could make these trips by train.

6.36 It is likely that trips made for leisure purposes are less time-critical than travel to or from work or business trips – it may be less essential that travellers arrive at their destination for a specific time, or that they are able to make the trip relatively quickly. It may be that public transport is more likely to be viewed as a practical alternative in this context. Conversely, where trips are time-critical travellers may be less willing to view public transport as a practical option. It is possible that some respondents may also prefer to make leisure trips by public transport so that they can consume alcohol.

6.37 Views on the practicality of travelling to work by bus vary considerably by area. Respondents in Edinburgh TTWA were much more likely than respondents in other areas to say that it would be practical for them to use the bus to travel to/from work – 50% of Edinburgh respondents who currently travel to or from work by car said that bus would be a practical alternative, compared with 29% in Aberdeen, 27% in Perth and 13% in Oban, Islay and Mull.

6.38 There were further variations within areas by distance travelled to work (see Appendix D, Table D-10). For instance, Perth respondents travelling more than 10 miles to work were much less likely than Aberdeen respondents to say that it would be practical to commute to work by bus. As discussed in paragraphs 6.17 to 6.19, Perth respondents were much more likely than Edinburgh respondents to say they travel to work by car only. These findings may suggest that part of the reason for this difference is that Perth respondents perceive more practical barriers to travelling by bus, particularly for longer-distance commutes. Without further data on transport availability in the different areas, it is difficult to say whether this is simply a perception or whether Perth commuters do in fact face more practical barriers to travelling to work by bus.

6.39 Young people were also more likely to view bus travel as a practical alternative – 43% of 16-24 year olds said it would be practical for them to travel to work by bus, compared with 33% of 25-44 year-olds and 22% of 45-59 year-olds.

6.40 Single-car commuters were somewhat less likely than other respondents to view bus travel as a practical alternative to travelling to work by car – 24% of single-car commuters said bus travel was a practical alternative, compared with 35% of other respondents. It is also worth noting that among the 57 single-car commuters who said the bus would be a practical alternative for travelling to work, almost two-thirds agreed or strongly agreed with the statement “Even if the public transport in my area was really good, I would still prefer to travel by car most of the time”. Thus bus travel may be viewed as a practical, but not necessarily a desirable, alternative for many single-car commuters.
Reasons for travelling by car rather than public transport

6.41 In terms of understanding the potential impact of a new transport initiative on modal shift, it is crucial to understand the reasons why people choose to travel by car rather than by public transport. If the initiative does not tackle these factors, it may be less successful in encouraging people to leave their cars at home. The most common reason respondents gave for choosing to travel to work or education by car rather than public transport was that car travel was the quickest method (see Appendix D, Table D-11), which may support the suggestion above that, where journeys are time-critical, public transport is not generally viewed as practical. Around a quarter of respondents said that public transport was not available for them to travel to work or education, while 22% of those who travel to work and 29% who travel to education by car said that public transport was too infrequent. Seventeen per cent of those who travel to work by car said they needed their car at work. Other commonly cited reasons were that car travel was the cheapest method, convenience, that respondents had too much to carry to use public transport and that respondents needed to drop someone else off on their way to or from work.

6.42 It is worth noting that, with the exception of potentially reducing interchange times, integrated ticketing in isolation is unlikely to have much impact in terms of reducing these types of barriers to using public transport.

6.43 There are some interesting differences in the reasons respondents gave for commuting by car by area (Appendix D, Table D-12). Fewer respondents in Perth and also Oban, Mull and Islay reported that they travel to work by car because it is the quickest method, while a much higher proportion in these areas state that it is because public transport is unavailable. A third of Perth TTWA respondents who commute to work by car do so because public transport is too infrequent, compared with 23% in Oban, Mull and Islay, 21% in Aberdeen and just 14% in Edinburgh. This may suggest that in more rural areas decisions about car use are more likely to be related to a lack of alternative options, while in urban areas the decision is more likely to be related to judgements about the advantages of cars over alternative options.

VIEWS ON THE PRACTICALITIES OF PUBLIC TRANSPORT – KEY FINDINGS

- Respondents were much more likely to view public transport (bus or train) as a ‘practical’ alternative for trips made for leisure purposes, such leisure day trips, visiting friends and relatives and entertainment – possibly because these types of trips are less time-critical than travel to or from work or business trips.

- The most common reason respondents gave for choosing to travel to work by car rather than public transport was that it is the quickest method (48%). A quarter said public transport was unavailable, while 22% said that it was too infrequent. With the exception of potentially reducing interchange times, integrated ticketing in isolation is unlikely to reduce these barriers.
Factors that may encourage increased public transport use

6.44 The main factors that might encourage respondents to use public transport more often were associated with service provision (Table 6.5). Forty-three per cent of respondents said they would use public transport ‘a bit’ or ‘a lot more’ if there were more frequent services in their area. Thirty-eight per cent of respondents said they would use public transport more often if there were more direct services, while 35% would use it more if services were more reliable.

Table 6.5 – Whether would use public transport more often if … (% of respondents)

<table>
<thead>
<tr>
<th>Service Feature</th>
<th>Would use a lot more</th>
<th>Would use a bit more</th>
<th>Would use it about the same amount</th>
<th>Don’t know/not applicable$^{15}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>More frequent services in your area</td>
<td>13</td>
<td>30</td>
<td>50</td>
<td>8</td>
</tr>
<tr>
<td>More direct services in your area (that is, services where you don’t need to change)</td>
<td>13</td>
<td>25</td>
<td>49</td>
<td>14</td>
</tr>
<tr>
<td>More reliable services</td>
<td>13</td>
<td>22</td>
<td>55</td>
<td>10</td>
</tr>
<tr>
<td>Cheaper public transport</td>
<td>12</td>
<td>21</td>
<td>53</td>
<td>14</td>
</tr>
<tr>
<td>Integrated ticketing across different transport modes (e.g. buses, trains and ferries)</td>
<td>11</td>
<td>23</td>
<td>54</td>
<td>12</td>
</tr>
<tr>
<td>Integrated ticketing across different bus companies (e.g. First Bus and Stagecoach)</td>
<td>8</td>
<td>18</td>
<td>56</td>
<td>18</td>
</tr>
<tr>
<td>Better information about which services to use</td>
<td>8</td>
<td>23</td>
<td>57</td>
<td>11</td>
</tr>
</tbody>
</table>

6.45 These findings reflect the findings above on the reasons people gave for travelling by car rather than public transport to work or education, where issues relating to service provision featured strongly. Among respondents who said they travelled to work or education by car because public transport was too infrequent, 64% said they would use public transport more if there were more frequent services in their area.

Relative importance of integrated ticketing in encouraging public transport use

6.46 A third (34%) of respondents thought that they would use public transport more if they could buy integrated tickets for use across different types of transport, while just over a quarter (26%) thought they would use it more if they could buy a travel-card for use across different bus companies.

$^{15}$ Some people felt that some of these statements did not apply to them since there were no services in their area so, for example, they would not be able to use a travel card with different bus companies.
Respondents with an apparent preference for public transport (who agreed that “Where possible, I prefer to travel by public transport rather than by car”) were more likely than those who did not express such a preference to say they would use public transport more if they could buy either one of these tickets (Figures 6.3 and 6.4). However, there did not appear to be any significant differences in the responses of car users and non-car users – car users were no more or less likely than non-car users to say they would use public transport more if they could buy either of these tickets.

**Figure 6.3 – Whether would use public transport more often if could buy a travel-card you could use with all bus companies by attitude to public transport (% of respondents agreeing or disagreeing with statement “Where possible, I prefer to travel by public transport rather than by car”)**

![Bar chart showing responses to the question about using public transport more if a travel-card could be used with all bus companies.]

Bases: Prefer PT = 268; No preference for PT = 711
Figure 6.4 – Whether would use public transport more often if could buy a travel-card you could use with all kinds of public transport by attitude to public transport (% of respondents agreeing or disagreeing with statement “Where possible, I prefer to travel by public transport rather than by car”)

<table>
<thead>
<tr>
<th>Would use a lot more</th>
<th>Would use a bit more</th>
<th>Would use it about the same amount</th>
<th>Not applicable</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefer PT</td>
<td>No preference for PT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18%</td>
<td>9%</td>
<td>24%</td>
<td>48%</td>
<td>7%</td>
</tr>
<tr>
<td>7%</td>
<td>2%</td>
<td>58%</td>
<td>7%</td>
<td>2%</td>
</tr>
</tbody>
</table>

BASES: Prefer PT = 268; No preference for PT = 711

6.48 There were also some interesting differences in the predicted impact of the two types of ticket on behaviour by area. Respondents in Edinburgh TTWA were most likely to say they would use public transport more often if they could buy a travel-card for use on all bus companies (31%, compared with 22% in Oban, Mull and Islay), whereas respondents in Oban, Mull and Islay were more likely than Edinburgh respondents to say they would use public transport more if they could buy a travel-card for use on all kinds of public transport (43% compared with 27% in Edinburgh). This may indicate that different types of integrated tickets are required for different types of area (urban areas with multiple bus operators and good routes vis-à-vis rural areas where journeys may be more likely to involve multiple modes).
<table>
<thead>
<tr>
<th>You could buy a travel-card that could be used on all kinds of public transport (e.g. buses, trains and ferries)</th>
<th>Aberdeen</th>
<th>Edinburgh</th>
<th>Perth</th>
<th>Oban, Mull and Islay</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A lot more</td>
<td>6</td>
<td>9</td>
<td>10</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>A bit more</td>
<td>26</td>
<td>18</td>
<td>23</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>About the same</td>
<td>56</td>
<td>57</td>
<td>61</td>
<td>43</td>
<td>54</td>
</tr>
<tr>
<td>Don’t know/Not applicable</td>
<td>12</td>
<td>16</td>
<td>5</td>
<td>14</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>You could buy a travel-card you could use with all bus companies (e.g. First Bus and Stagecoach)</th>
<th>Aberdeen</th>
<th>Edinburgh</th>
<th>Perth</th>
<th>Oban, Mull and Islay</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A lot more</td>
<td>6</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>A bit more</td>
<td>18</td>
<td>21</td>
<td>19</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>About the same</td>
<td>61</td>
<td>52</td>
<td>66</td>
<td>48</td>
<td>56</td>
</tr>
<tr>
<td>Don’t know/not applicable</td>
<td>14</td>
<td>18</td>
<td>6</td>
<td>31</td>
<td>18</td>
</tr>
</tbody>
</table>

BASES | 261 | 258 | 245 | 260 | 1,024 |

6.49 It is also interesting to look at differences between areas in terms of the priority given to integrated ticketing compared with other factors that might encourage greater public transport use (Appendix D, Tables D-13 to D-15). In both Edinburgh and Aberdeen the two tickets are less likely to increase their public transport use than any of the other factors respondents were asked about. However, in Oban, Islay and Mull the availability of multi-modal travel cards is the second most likely factor (after more frequent services) to increase public transport use. In Perth, the availability of multi-modal tickets also appears higher up the list of factors that might encourage greater public transport use, although the proportion is more similar to that in Edinburgh and Aberdeen.

6.50 These findings appear to suggest that while the availability and appropriateness of physical service provision remains the key factor affecting people’s decisions to use public transport, integrated ticketing could have a positive impact on the transport decisions of a significant minority of travellers, including car users. The findings also suggest that integrated tickets may have more of an effect in encouraging people with an existing preference for using public transport to use it more compared with people without such a preference, and that multi-modal tickets could have a positive impact in increasing public transport use in rural areas like Oban, Islay and Mull where those wishing to travel by public transport may need to use more than one mode (e.g. ferry and bus).

6.51 It is also worth noting that 98% of those who said they might use public transport ‘a lot’ or ‘a bit’ more if one of these travel-cards were available also mentioned at least one other factor, not related to ticketing, which might encourage them to use public transport more often – more frequent services, for example. This suggests that while integrated ticketing on its own may have some impact on people’s travel choices, it will be more effective if it is introduced in conjunction with other service improvements.
FACTORS INFLUENCING USE OF PUBLIC TRANSPORT – KEY FINDINGS

- A small but significant proportion of respondents said they would use public transport more often if they could buy multi-modal (34%) or multi-operator (26%) tickets. However, 98% of those who said they might use public transport more if these tickets were available also mentioned at least one other factor, not related to ticketing, which might encourage them to use public transport more often.

- Taken together, these findings underline the importance of integrated ticketing schemes being accompanied by other improvements in service provision in order to maximise the chance of achieving modal shift.

- Among Edinburgh and Aberdeen respondents, the two integrated tickets are less likely to increase respondents’ public transport use than any of the other factors included. However, in Oban, Islay and Mull, the availability of multi-modal travel cards is the second most likely factor to increase public transport use. Multi-modal tickets may have a more positive impact in rural areas where travelling by public transport is perhaps more likely to necessitate more than one mode.

AWARENESS OF INTEGRATED TICKETS AND OTHER SCHEMES

6.52 Awareness and use of existing integrated ticketing and other related schemes was low among survey respondents. Respondents in Edinburgh were more likely to have used the Lothian Buses ‘Day saver’ ticket, which allows you to travel on any Lothian Bus for as many journeys as desired on the day of purchase, than either the Lothian Ridacard or the One-Ticket (which is the only one of the three which could be called an ‘integrated ticket’ in the sense used in this report). Very few respondents in Aberdeen TTWA had heard of either Aberdeenshire Connect or Ellon Through-ticket, which is again perhaps unsurprising as the former is relatively new and, at the time of the survey, had not been fully rolled-out, while the Ellon Through-ticket is only available in a specific area.
Table 6.7 – Whether heard of or used different types of ticket (% of respondents in areas where the ticket applies)

<table>
<thead>
<tr>
<th></th>
<th>Use it at least once a week</th>
<th>Use it at least once a month</th>
<th>Use less than once a month</th>
<th>Have used in the past but do not use now</th>
<th>Heard of but never used</th>
<th>Never heard of it</th>
<th>Don’t know</th>
<th>BASES (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-ticket</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>22</td>
<td>71</td>
<td>-</td>
<td>503&lt;sup&gt;16&lt;/sup&gt;</td>
</tr>
<tr>
<td>Lothian Buses Ridacard</td>
<td>8</td>
<td>3</td>
<td>3</td>
<td>13</td>
<td>50</td>
<td>23</td>
<td>-</td>
<td>258&lt;sup&gt;17&lt;/sup&gt;</td>
</tr>
<tr>
<td>Lothian Buses ‘day saver’</td>
<td>13</td>
<td>10</td>
<td>8</td>
<td>16</td>
<td>40</td>
<td>13</td>
<td>-</td>
<td>258&lt;sup&gt;18&lt;/sup&gt;</td>
</tr>
<tr>
<td>Aberdeenshire Connect</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>89</td>
<td>5</td>
<td>261&lt;sup&gt;19&lt;/sup&gt;</td>
</tr>
<tr>
<td>Ellon Through-Ticket</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>13</td>
<td>83</td>
<td>2</td>
<td>261&lt;sup&gt;20&lt;/sup&gt;</td>
</tr>
<tr>
<td>Plus Bus or Railbus tickets</td>
<td>-</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>14</td>
<td>82</td>
<td>2</td>
<td>1,024</td>
</tr>
<tr>
<td>Season tickets on buses</td>
<td>1</td>
<td>*</td>
<td>*</td>
<td>7</td>
<td>65</td>
<td>24</td>
<td>2</td>
<td>1,024</td>
</tr>
<tr>
<td>Season tickets on trains</td>
<td>*</td>
<td>*</td>
<td>1</td>
<td>6</td>
<td>64</td>
<td>27</td>
<td>2</td>
<td>1,024</td>
</tr>
<tr>
<td>Season tickets on ferries</td>
<td>-</td>
<td>*</td>
<td>2</td>
<td>2</td>
<td>32</td>
<td>62</td>
<td>2</td>
<td>1,024</td>
</tr>
</tbody>
</table>

6.53 These findings highlight the need to increase awareness of existing integrated ticketing schemes. The importance of marketing integrated tickets has already been noted in this report (e.g. in the Barriers Review). It is worth noting that of the 147 respondents in Edinburgh and Perth who said they would use public transport ‘a lot’ or ‘a bit’ more if they could buy a travel card for use with all bus companies three-quarters had never heard of One-Ticket. Similarly, over 80% of the 153 respondents in Edinburgh and Perth who said they would use public transport ‘a lot’ or ‘a bit’ more if they could buy a travel-card for use on all kinds of public transport had never heard of One-Ticket. This suggests that a significant proportion of potential users of One-Ticket are unaware of it as an option.

6.54 Respondents in the Edinburgh TTWA were more likely than respondents in the Perth TTWA to have heard of One-Ticket (35% of Edinburgh respondents had heard of or used it, compared with 22% of Perth TTWA respondents), which is perhaps unsurprising given that the Perth TTWA extends somewhat beyond the Perth One-Ticket zone. Further

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<sup>16</sup> All respondents in Edinburgh and Perth TTWAs
<sup>17</sup> All respondents in the Edinburgh TTWA
<sup>18</sup> All respondents in the Edinburgh TTWA
<sup>19</sup> All respondents in the Aberdeen TTWA
<sup>20</sup> All respondents in the Aberdeen TTWA
analysis of levels of awareness of One-Ticket among different groups of respondents did not reveal any particularly striking differences between groups – single-car commuters were no more or less likely to have heard of it than other respondents, for example. This suggest a need to raise awareness across all types of travellers, although targeted marketing of particular groups may, of course, be more effective in attracting those groups and more desirable in policy terms if there is a wish to increase take-up among specific groups.

### AWARENESS OF INTEGRATED TICKETS AND OTHER SCHEMES – KEY POINTS

- Awareness and use of existing integrated ticketing schemes was low among survey respondents, highlighting the need to increase awareness of existing schemes.
- The findings suggest that there may be an ‘un-tapped’ market for the One-Ticket scheme - over 80% of Edinburgh and Perth respondents who said they would use public transport ‘a lot’ or ‘a bit’ more if they could buy a multi-modal travel card had never heard of One-Ticket.

### POTENTIAL DEMAND FOR INTEGRATED TICKETS

6.60 The Household Survey generated a range of information that can be used to indicate likely demand for and take-up of integrated ticketing in Scotland, including:

- Details of the extent to which respondents currently make trips by public transport using multiple operators or multiple modes (which provides an indication of the extent to which integrated tickets might be useful to existing public transport users, rather than the extent to which they would encourage modal shift)
- Levels of interest in multi-operator and multi-modal tickets, including what, if any, premium people might be willing to pay for these
- Potential take-up of a “fully” integrated ticket (multi-modal and multi-operator).

6.61 This section discusses findings on these topics to provide a basic picture of levels of interest and potential take-up for integrated ticketing. The following chapter applies some of the findings on potential take-up of a “fully” integrated ticket to provide a more detailed model of potential take-up of integrated ticketing in different areas of Scotland.

### Current multi-operator and multi-modal trips

6.62 Figure 6.5 shows the extent to which respondents currently use multiple operators or modes for different types of journeys made by public transport based on their descriptions of how they usually make those kinds of trips. The vast majority of trips respondents make using public transport involve a single stage and a single mode of public transport. A small proportion of respondents for each type of trip reported journeys involving more than one
stage by the same sort of transport (e.g. 2 stages by bus), while very few respondents said that any of these kinds of trips normally involved using more than one mode of public transport.

Figure 6.5 – Number of stages/modes in trips involving public transport (% of respondents who make that kind of trip in a typical week)

BASES: Travel to/from work = 557; Business = 128; To/from education = 103; Accompanying = 293; Grocery shopping = 903; Leisure day trips = 571; Visiting friends/relatives = 785; Entertainment = 534.

6.63 In addition to asking respondents to describe how they usually make different types of trips, the questionnaire asked directly about use of different operators and modes (Appendix D, Figure D-5 and Table D-17). Of the 366 respondents who reported ever making journeys by bus, 37% said that they had a choice of more than one operator to make these trips. This figure varied across the four areas – 24% of respondents in Perth reported having a choice of bus or coach operator, compared with 29% in Oban, Mull and Islay, 36% in Aberdeen and 50% in Edinburgh.

6.64 Among respondents who stated that they did have a choice of operators, 39% (5% of all respondents) stated that they made journeys using transport run by different companies21 once a fortnight or more, while 64% (8% of all respondents) indicated that they ever made multi-operator journeys. Respondents in Edinburgh were most likely and respondents in Oban, Islay and Mull least likely to report making journeys using multiple operators.

6.65 Three-quarters of all respondents said they never made journeys using multiple modes of public transport, although this figure varies from 66% in Oban, Islay and Mull to 81% in Edinburgh TTWA (Appendix D, Table D-17). The most common combination of modes was bus and train, although 22% of respondents in Oban, Islay and Mull made journeys using bus and ferry services. Although taxis may be considered on the margins of ‘public’ transport, a small proportion of respondents in each case did mention making

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21 For example, changing from a First Bus to a Stagecoach bus or using a different company to return home.
journeys combining travelling by taxi with bus, train or ferry. These findings appear to support the views of stakeholders on ‘essential’ and ‘possible’ modes for inclusion in integrated ticketing schemes – bus and train were the modes most commonly cited as essential, with stakeholders in rural areas also mentioning ferries, but stakeholders also mentioned other modes, including taxis, which could be included (See Chapter 3, paragraph 3.20).

**Level of interest in multi-operator tickets**

6.66 Overall, 18% of respondents said they would find a ticket you could use on all bus operators within their area ‘very useful’, while a further 24% said they would find it ‘fairly useful’ (Table 6.8). Respondents in Oban, Mull and Islay TTWAs were least likely while respondents in Edinburgh TTWA were most likely to say they would find such a ticket ‘very useful’. This probably reflects the differences between areas in whether respondents have a choice of bus-operators, discussed above. In general, respondents who reported having a choice of bus-operator to make journeys were more likely to say they would find this type of ticket useful. Since fewer respondents in Oban, Mull and Islay TTWAs reported having such a choice, it is unsurprising that fewer would find such a ticket useful.

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very useful</td>
<td>15</td>
<td>27</td>
<td>22</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Fairly useful</td>
<td>33</td>
<td>26</td>
<td>24</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Not very useful</td>
<td>28</td>
<td>16</td>
<td>23</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>Not at all useful</td>
<td>20</td>
<td>23</td>
<td>31</td>
<td>60</td>
<td>34</td>
</tr>
<tr>
<td>Don’t know</td>
<td>5</td>
<td>8</td>
<td>*</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>BASES (n)</td>
<td>261</td>
<td>258</td>
<td>245</td>
<td>260</td>
<td>1,024</td>
</tr>
</tbody>
</table>

6.67 Respondents who appeared to express a preference for public transport (who agreed with the statement “Where possible, I prefer to travel by public transport rather than by car”) were also more likely than respondents who did not express such a preference to say they would find this type of ticket ‘very’ or ‘fairly useful’ (54% compared with 38%). However, there were no significant differences in the responses of single-car commuters – 38% said they would find such a card useful, compared with 43% of other respondents. Forty-nine per cent of non-car users compared with 39% of car users said they would find this kind of ticket useful, suggesting that although multi-operator tickets appeal more to non-car users, a significant proportion of car-users might also find them useful.
Level of interest in multi-modal tickets

6.68 Overall, respondents appeared to rate the notion of a ticket that can be used across different modes of public transport as being more useful than a ticket that can be used across different bus operators. Fifty-four per cent said they would find such a ticket useful, with 26% saying this would be ‘very useful’. This is interesting, given that three quarters of all respondents said they did not currently make journeys involving more than one mode of transport. Respondents who already made journeys using multiple modes of public transport were more likely than those who did not to say that they would find such a ticket useful (71% ‘very’ or ‘fairly useful’). However, a significant proportion (48%) of respondents who stated they did not make journeys using more than one type of public transport also indicated that they would find such a ticket useful, suggesting that there is some scope for encouraging additional multi-modal journeys through integrated ticketing.

6.69 Again, responses to this question differed by area, with 35% of respondents in Oban, Islay and Mull saying they would find this type of ticket ‘very useful’, compared with 17% in Aberdeen and 26% in each of Edinburgh and Perth respectively (Table 6.9). This contrasts with the findings on multi-operator bus tickets, where respondents in Oban, Islay and Mull were least likely to say they would find these ‘very useful’. Again, this probably relates to the extent to which respondents in different areas make multi-modal trips already – as discussed above, 34% of respondents in Oban, Mull and Islay reported ever making trips involving multiple modes of public transport, compared with just 19% in Edinburgh. The analysis again indicates that different types of integrated ticket are required to respond to the needs and travel-patterns of residents in different types of area.

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very useful</td>
<td>17</td>
<td>26</td>
<td>26</td>
<td>35</td>
<td>26</td>
</tr>
<tr>
<td>Fairly useful</td>
<td>31</td>
<td>24</td>
<td>29</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Not very useful</td>
<td>26</td>
<td>16</td>
<td>22</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>Not at all useful</td>
<td>20</td>
<td>26</td>
<td>22</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>Don’t know</td>
<td>5</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>BASES (n)</td>
<td>261</td>
<td>258</td>
<td>245</td>
<td>260</td>
<td>1,024</td>
</tr>
</tbody>
</table>

Table 6.9 – Usefulness of a ticket you could use on all public transport (bus, rail and ferries) (% of respondents)
Amounts respondent would be willing to pay for integrated tickets

6.70 Respondents who indicated that they would find a ticket they could use on all buses in their area useful were then asked how much extra they might be prepared to pay for this type of ticket, compared with one only valid on services run by one company (Figure 6.6). Most respondents would not be prepared to pay anything other than a small weekly premium of £1 or £2 for such a ticket, while 1 in 5 (21%) of respondents would not be prepared to pay anything extra. This would suggest that such tickets need to be competitively priced - if multi-operator tickets cost much more than single-operator tickets people may not buy them. However, as discussed in the Barriers Review (Chapter 5), this may be problematic in the current Scottish context, where multi-operator tickets must charge a premium over single-operator tickets in order to abide by OFT guidelines on pricing and to secure operator buy-in.

Figure 6.6 – Top amount extra prepared to pay per week for a travel card for use on all bus companies, compared with one only valid on services run by one company (% of respondents who would find a ticket for use on all bus companies ‘very’ or ‘fairly useful’)

<table>
<thead>
<tr>
<th>Amount Extra</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>£1 more</td>
<td>27%</td>
</tr>
<tr>
<td>£2 more</td>
<td>35%</td>
</tr>
<tr>
<td>£5 more</td>
<td>6%</td>
</tr>
<tr>
<td>Would not pay extra</td>
<td>21%</td>
</tr>
<tr>
<td>Would not use</td>
<td>9%</td>
</tr>
<tr>
<td>Don’t know</td>
<td>1%</td>
</tr>
</tbody>
</table>

Base = 429
6.71 Respondents appeared to be willing to pay a slightly higher premium for a ticket for use on all public transport compared with a ticket for use on all buses – 26% said they would be prepared to pay £5 or more extra per week for this type of ticket (Figure 6.7). Willingness to pay does not appear to vary significantly as income increases, suggesting that perceived value for money, rather than income, is the key driver for whether people will pay extra for a multi-modal ticket.

Figure 6.7 – Top amount extra prepared to pay per week for a travel card for use on all public transport, compared with one you can use on all buses (% of respondents who would find a ticket for use on all public transport ‘very’ or ‘fairly useful’)

<table>
<thead>
<tr>
<th>Amount Extra</th>
<th>0%</th>
<th>5%</th>
<th>10%</th>
<th>15%</th>
<th>20%</th>
<th>25%</th>
<th>30%</th>
<th>35%</th>
</tr>
</thead>
<tbody>
<tr>
<td>£1 more</td>
<td>17%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>£2 more</td>
<td>33%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>£5 more</td>
<td>18%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>£10 more</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>£15 more</td>
<td>3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would not pay extra</td>
<td>14%</td>
<td>8%</td>
<td>3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Would not use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t know</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Base = 554

**PRICING OF INTEGRATED TICKETS – KEY FINDINGS**

- Respondents appeared to be prepared to pay a (small) premium for multi-modal tickets over single-mode tickets, but were not prepared to pay much more for multi-operator tickets over single-operator bus tickets.

- As discussed in the Barriers Reviews, this may be problematic in the current Scottish context, where multi-operator tickets must charge a premium over single-operator tickets in order to abide by OFT guidelines on pricing and to secure operator buy-in.

- Interestingly, willingness to pay extra for multi-modal tickets did not appear to vary significantly with income – suggesting that perceived value for money may be a more important driving factor in take-up than income.

**Potential purchase of ‘fully’ integrated ticket**

6.72 Respondents were asked to imagine a new public transport ticket was available in their area. The ticket would be valid on all buses, trains and ferries, on any bus operators and for any number of journeys per week. They were asked whether they would buy the...
ticket at Cost A per week, where Cost A approximated their current weekly spend on transport based on their estimated petrol and car parking costs plus their estimated public transport and taxi costs. Respondents who would not buy the ticket at this price were asked if they would buy it at Cost B per week, where Cost B was half their current weekly transport costs.

Who would buy this ticket?

6.73 Overall, 40% of respondents said they would buy this ticket, with 27% indicating they would buy if it cost the same as their current weekly spend on transport. Respondents in Oban, Islay and Mull TTWAs were most likely to say they would buy the ticket (50%) and respondents in Aberdeen were least likely to indicate that they would buy it (33%).

Table 6.10 – Whether would buy ‘ideal’ integrated ticket (% of respondents)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>At Cost A (total amount respondent currently spends on petrol, car parking, public transport and taxis each week)</td>
<td>20</td>
<td>26</td>
<td>27</td>
<td>35</td>
<td>27</td>
</tr>
<tr>
<td>At Cost B (half cost A)</td>
<td>13</td>
<td>14</td>
<td>11</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Would not buy at either cost</td>
<td>61</td>
<td>55</td>
<td>60</td>
<td>47</td>
<td>56</td>
</tr>
<tr>
<td>Don’t know</td>
<td>7</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>BASES (n)</td>
<td>261</td>
<td>258</td>
<td>245</td>
<td>260</td>
<td>1,024</td>
</tr>
</tbody>
</table>

6.74 Respondents in the youngest age group (16-24 years-old) were most likely to indicate that they would buy the ticket at either price (65%, compared with 42% in the 25-44 and 45-59 year-old age groups and 24% of those aged 60 or older). It is unsurprising that those over 60 are less willing to buy the ticket, given that new concessionary fare arrangements entitle everyone aged 60 and older to free off-peak travel on all local buses.

6.75 Single-car commuters were less likely than other respondents to say they would buy the ticket (26% compared with 43%), as were car users compared with respondents who did not use a car (36% compared with 52%). Further, respondents who already make journeys using combinations of public transport modes were more likely than other respondents to say they would buy this type of ticket at either price (55% compared with 35%).

6.76 Further analysis of the types of people who might buy this ticket and the implications of this for take-up of integrated ticketing schemes across Scotland is provided in Chapter Seven.
Barriers to purchasing the ticket

6.77 The most common reason for not buying the ticket at either price was that respondents find the car more convenient or more comfortable (31% of those who would not buy this ticket), while 21% said they did not use public transport enough to justify the cost or that they had no use for it. Around 1 in 5 of those who would not buy the ticket (12% of all respondents) said this was because they already had a travel pass, while 18% said that public transport was too inconvenient or unreliable, or that it takes too long. Eight per cent stated they would not buy it because they need to use their car for work (Appendix D, Figure D-6).

6.78 These findings underline the need for other improvements to public transport in addition to integrated ticketing to attract travellers – many travellers will not be attracted to integrated tickets while they continue to perceive public transport as inconvenient, uncomfortable, unreliable and slow.

### DEMAND FOR ‘FULLY’ INTEGRATED TICKET – KEY FINDINGS

- Overall, 40% of respondents said they would buy a ‘fully’ integrated ticket if it cost either the same as their weekly transport costs (27%) or half this amount (13%). However, previous studies on predicted and actual take-up of transport initiatives would suggest that this figure is likely to be an over-estimate.

- Younger respondents (16-24 years-old) were more likely to buy this ticket, as were respondents who already make journeys using combinations of public transport modes. Single car commuters were less likely than other respondents to say they would buy it (26% compared with 43%).

- The most common reason for not buying the ticket were that respondents find the car more convenient or comfortable (31%), while 18% said public transport was too inconvenient or unreliable or that it takes too long. Again, this underlines the need for additional improvements to public transport to attract travellers.

Impact of purchase on current journey patterns

6.79 Among respondents who said they would buy the ticket at either Cost A or Cost B (n = 407), 58% (23% of all respondents) said they would change the way they currently make journeys if they bought the ticket, while 37% would not and 5% did not know if they would change their travel patterns. Car users were more likely than non-car users to say they would change the way they would make journeys (62% compared with 48%), which suggests that for some car users the ticket may promote modal shift, whereas for those who do not use cars it might simply make existing trips more convenient.
6.80 However, it is also worth noting that 46% of those who said they would buy the ticket and that they would make journeys differently if they did so also agreed with the statement “Even if public transport in my area was really good, I would still prefer to travel by car most of the time”. This somewhat counter-intuitive finding seems to suggest that while purchase of the integrated ticket might have some impact on the car use of these respondents, this impact may be fairly minimal given their stated preference for using their car most of the time. It is, of course, possible that if car users are persuaded to use public transport even slightly more by initiatives such as integrated ticketing, their attitudes towards using public transport may be changed by their experience of using it. However, this will depend on whether such experiences are deemed positive, which in turn depends on the ability of public transport to deliver frequent, reliable, comfortable services.

6.81 Figure 6.8 shows the types of trips respondents thought they might make differently if they bought this integrated ticket. The most commonly mentioned types of trips were trips for leisure purposes – e.g. leisure day trips (62%), visiting friends or relatives (53%) and entertainment (35%). A quarter of respondents who indicated that they would change the way they made some journeys if they bought this ticket said that they would change the way they travelled to work (6% of all respondents, or 9% of employed respondents). This figure was considerably higher among single-car commuters who (a) would buy the ticket and (b) thought this would change the way they made some journeys, with 64% stating they might change the way they travel to work. However, because of the lower proportion of single-car commuters who would buy the ticket at all, this only represents 11% of the single-car commuters who took part in the survey.
6.82 Table 6.11 shows how respondents anticipated making these trips in the future, if they bought the ticket for the trips most respondents suggested they would make differently. As the numbers of respondents are relatively small in some cases, caution should be applied in interpreting these results.
Table 6.11 - Anticipated journey patterns for different kinds of trips (% of respondents who said they would make that trip different if they bought ticket)

<table>
<thead>
<tr>
<th></th>
<th>Combinat ion of car/motor bike and public transport</th>
<th>Public transport – single mode, number of stages unclear</th>
<th>Public transport – single stage &amp; mode</th>
<th>Public transport – single mode, multi-stage</th>
<th>Public transport – multi-mode</th>
<th>None of these</th>
<th>BASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>To/from work</td>
<td>4</td>
<td>4</td>
<td>67</td>
<td>14</td>
<td>9</td>
<td>9</td>
<td>57</td>
</tr>
<tr>
<td>Grocery shopping</td>
<td>6</td>
<td>3</td>
<td>69</td>
<td>11</td>
<td>6</td>
<td>11</td>
<td>64</td>
</tr>
<tr>
<td>Leisure day trips</td>
<td>4</td>
<td>3</td>
<td>37</td>
<td>10</td>
<td>51</td>
<td>3</td>
<td>146</td>
</tr>
<tr>
<td>Visiting friends/relatives</td>
<td>3</td>
<td>1</td>
<td>56</td>
<td>16</td>
<td>31</td>
<td>5</td>
<td>126</td>
</tr>
<tr>
<td>Entertainment</td>
<td>4</td>
<td>2</td>
<td>65</td>
<td>7</td>
<td>22</td>
<td>4</td>
<td>83</td>
</tr>
</tbody>
</table>

6.83 Given that the ticket is intended to provide flexibility between modes and stages, it is interesting that over two-thirds of respondents (n = 38) who would change the way they travel to work would envisage this involving a single-mode, single-stage trip (primarily bus only). The Case Studies chapter (Chapter 4) and the Barriers Review (Chapter 5) both raise issues about whether integrated tickets can be cost-effective and can compete with single-operator tickets for these types of journeys. This finding suggests these issues may need to be addressed if integrated tickets are targeted at the commuter market. As discussed in the Barriers Review, it is possible that integrated tickets in Europe achieve a high market share partly because they have been deliberately priced to do so.

6.84 The predicted travel patterns among leisure travellers tended to be more complex. Half (51%) of those who would make leisure day trips differently anticipated this involving multi-modal trips, while a further 10% anticipated this involving multi-stage trips by a single mode (e.g. two bus journeys). Around a third (31%) of those who would make trips to visit friends and relatives differently said this would involve multiple modes, while a further 1 in 8 (16%) said it would involve a single mode but multiple stages. This may suggest that in terms of marketing integrated tickets to leisure travellers, who would appear to be the biggest market for such tickets, the focus should be on the way in which they can help make complex journeys more simple.

6.85 Of the 146 respondents who said they would make leisure day trips differently if they bought the ticket, 80 (54%) said they usually made such trips by car as driver or passenger, 15 travelled by bus and 6 took the train. Forty-six respondents who said they would change their travel patterns for leisure day trips did not report making this kind of trip in a “typical” week, suggesting that these respondents would use the integrated ticket for leisure trips only infrequently.

6.86 Figure 6.9 shows the proportion of respondents who stated they would make various trips differently if they bought the integrated ticket who previously made these trips by car, either as driver or passenger. Again, the base sizes are relatively small in some cases so
caution should be applied in interpreting these results. However, this figure does show that
among respondents who said they would travel to work differently if they bought the
ticket, over two-thirds (n = 39) currently travel to work by car as a driver or passenger.
Among all respondents who would now make the journey to or from work differently,
Table 6.11 shows that the majority would plan to make the journey by public transport
only, while a small proportion would combine car use with public transport. Thus for
around two-thirds of the 57 respondents indicating they would travel to or from work
differently, this would represent a modal shift from commuting by car to using public
transport.

6.87 For leisure day trips, visiting friends and family, and grocery shopping over half of
those who said they would make these type of trips differently usually make this trip by
car, while around a third of those who said they would make entertainment trips
differently usually made these trips by car. Again, the majority of these respondents would
plan to make these trips via public transport, suggesting that if they did buy and use the
tickets it would encourage some modal shift for these types of journeys.

Figure 6.9 - Respondents who currently make this type of trip by car as driver or passenger
(% of respondents who said they would make that trip differently if they bought ticket)\(^{22}\)

![Chart showing percentages of respondents who currently make different types of trips by car.]

BASES: Travel to/from work = 57, Leisure trips = 146; Grocery = 64; Entertainment = 83; Visiting friends/relatives = 126

Impact of purchase – generated trips

6.88 Forty-five per cent of respondents who would buy the new ticket said there were
journeys that they did not make at the moment that they might make if they bought the
ticket. Thirty-eight per cent of those who would buy the new ticket said they would make
more leisure-related trips, including days out, while 12% said they would make (more)
trips to visit friends and relatives. There were some differences in response between those
in different socio-economic groups, with those in groups D and E more likely to say that

\(^{22}\) Based on respondents descriptions of how they usually make this type of trip. They were only asked this if they said they did make
this kind of trip in a typical week. In some cases, they may have used more than one mode of transport – so they may have made
journeys partly by car and partly by public transport.
they would make more of these kinds of trips if they bought the new ticket than respondents in groups ABC1. This suggests that integrated ticketing may have a positive impact in terms of increasing opportunities to take part in leisure activities, particularly for those in socio-economic groups D and E.

Table 6.12 –Other journeys do not make at the moment but might make (more often) if bought new ticket by socio-economic class (% of respondents who would buy ticket)

<table>
<thead>
<tr>
<th></th>
<th>AB</th>
<th>C1</th>
<th>C2</th>
<th>DE</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>More leisure/entertainment trips/days out</td>
<td>33</td>
<td>30</td>
<td>44</td>
<td>45</td>
<td>38</td>
</tr>
<tr>
<td>Visit friends and relatives</td>
<td>3</td>
<td>10</td>
<td>13</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>Don’t know if would make any other journeys</td>
<td>10</td>
<td>13</td>
<td>7</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>BASES</td>
<td>58</td>
<td>135</td>
<td>86</td>
<td>127</td>
<td>407</td>
</tr>
</tbody>
</table>

IMPACT OF INTEGRATED TICKETS ON TRAVEL PLANS – KEY FINDINGS

- Fifty-eight per cent of respondents who would buy a ‘fully’ integrated ticket (23% of all respondents) said they would change the way they currently make some journeys if they bought it.

- The most commonly mentioned trips respondents might make differently were for leisure purposes (leisure day trips, visiting family and friends and entertainment). Respondents were likely to anticipate using multiple modes to make these trips in the future.

- These findings have implications for both the marketing of integrated tickets and their potential impact in terms of modal shift, given that respondents make leisure trips less frequently than other types of trips. Marketing might be directed at the tourist/leisure market, based around making complex multi-modal trips more simple.

- A quarter of those who might make journeys differently (6%) of all respondents said they would change the way they travelled to work. Around two thirds of these respondents currently make the trip to or from work by car, suggesting that if they bought the ticket it might encourage modal shift in this group.

- However, it is worth noting that the majority of those who said they would travel to work differently anticipated making single-stage, single-mode bus trips. There is some evidence in the Case Studies and Barriers Review to suggest that integrated ticketing is not cost-effective for these types of trips.

- Integrated ticketing may have a positive impact in terms of encouraging people to make more social and leisure trips than they would otherwise. Respondents in socio-economic groups DE were particularly more likely to state that they would make more of these trips if they bought the ticket.

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23 In the survey, respondents were classified into one of the six social grades commonly used in survey research. These are based on the current or previous occupation of the chief income earner in the household. Grades A, B and C1 relate to non-manual occupations, while D and E relate to manual occupations and state pensioners.
Overview of findings on take-up

6.89 Overall, these findings suggest that integrated ticketing may encourage a significant minority of people to change the way they currently make some trips. However, caution is required in interpreting these results. Similar studies which have examined how people say their behaviour will change as a result of new transport initiatives have tended to find a gap between predicted change and actual change. For example, Holm and Oorni (1999), cited in the Literature Review found that while two thirds of respondents said they did not expect their habits to change as a result of a new travel smartcard, three quarters eventually reported no change. Thus we would expect that the figures on take-up and modal shift reported above will represent over-estimates of the likely impact of introducing such tickets.

6.90 The findings also suggest that respondents are more interested in using integrated tickets for journeys for leisure purposes, rather than travel to or from work, business travel or travel to or from education. As discussed, it is possible that public transport is generally viewed as a more practical option for trips made for leisure purposes compared with trips to and from work or business trips. However, given that respondents on average reported making fewer trips for leisure purposes, such as leisure day trips or entertainment, compared with the number of trips made travelling to or from work or for grocery shopping, this is likely to have implications for the actual impact of such schemes on overall modal shift in addition to having implications for the design and marketing of such schemes.

VIEWS ON PRACTICAL ASPECTS OF TICKETING

6.91 In addition to exploring views on integrated tickets in general, the Household Survey also included questions on the more practical aspects of ticketing, such as where people prefer to buy their tickets and what formats of tickets they prefer. The results of these questions are intended to help inform decisions on the appropriate format and marketing for future tickets.

Different ways of buying tickets

6.92 The most common way in which respondents had bought tickets for journeys in Scotland was on the bus, train or ferry on which they were travelling (77%), followed by buying the ticket at the bus, train or ferry station (68%). A third of respondents had bought tickets from a travel office, while 17% had bought them over the phone and 16% had bought them on the Internet. Respondents’ preferences for purchasing tickets largely appeared to reflect the most common methods of purchasing them – 55% preferred buying them on the train, bus or ferry, 36% at the station or terminal, 11% from a travel office, etc (Appendix D, Table D-18).

6.93 The survey also included a question to assess interest in various new ticket types the Scottish Executive and others are considering as potential means of delivering integrated tickets to customers. Just over a third of all respondents said they would be interested in
‘Smartcard’ tickets where these work like a debit card. Fewer respondents (17%) were interested in credit-card type tickets.

6.94 It is worth noting that among respondents who said they would buy the “fully” integrated ticket, discussed above, 58% were not interested in the ‘debit-card style’ smartcards and 78% were not interested in the ‘credit-card style’ card. This may suggest that relying solely on smartcards to deliver integrated ticketing could deter some potential purchasers, although, as discussed in the Literature Review (Chapter 2) and Barriers Review (Chapter 5) it is possible that marketing and education will help overcome resistance to these new technologies. The Oyster Card Experience may also suggest that passengers are relatively quick to adapt to new technologies. However, this finding does suggest that resistance to smartcards ought to be taken into account when considering whether to base new schemes on smartcards. Passenger acceptance of smartcards will certainly require careful monitoring in relation to any new ticketing schemes which use this technology.

6.95 Around 1 in 5 respondents said they would be interested in using paper tickets that last for a set period of time, while the same proportion said they would be interested in using books of tickets. There were some variations in responses by age. Respondents aged over 60 tended to be less interested than younger respondents in any of these kinds of tickets, with the exception of the book of tickets (again, this finding probably relates to recent changes to concessionary fare arrangements for the over-60s). Interest in the credit-card type ticket appeared to decline with age, while respondents aged 16-24 were more likely than older respondents to state interest in using a paper ticket that last for a set period of time.
Table 6.13 – Proportion of respondents interested in different ticket types by age (Column percentages)

<table>
<thead>
<tr>
<th>Ticket Type</th>
<th>16-24</th>
<th>25-44</th>
<th>45-59</th>
<th>60+</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A “smartcard” which you pay money onto and then swipe each time you use a bus/train/ferry (a bit like a debit or switch card)</td>
<td>40</td>
<td>43</td>
<td>39</td>
<td>17</td>
<td>35</td>
</tr>
<tr>
<td>A card you swipe on and off as you use public transport and are then send a monthly bill for the journeys you make (a bit like a credit card)</td>
<td>26</td>
<td>21</td>
<td>18</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>A paper ticket that lasts for a set period of time (e.g. a day, a week or a month)</td>
<td>40</td>
<td>22</td>
<td>22</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>A book of tickets that you can use on different kinds of transport and with different companies</td>
<td>19</td>
<td>22</td>
<td>20</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>A ticket which can be sent to your mobile</td>
<td>9</td>
<td>9</td>
<td>4</td>
<td>*</td>
<td>5</td>
</tr>
<tr>
<td>A “paperless” ticket you buy on the Internet</td>
<td>13</td>
<td>13</td>
<td>11</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>None of these</td>
<td>9</td>
<td>17</td>
<td>22</td>
<td>50</td>
<td>26</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>BASES (n)</td>
<td>124</td>
<td>361</td>
<td>251</td>
<td>287</td>
<td>1,024</td>
</tr>
</tbody>
</table>

6.96 There were also some differences by current weekly spend on transport. For example, respondents who spent between £21 and £45 per week on transport were more likely than respondents who spent less than this to state they would be interested in using the debit-card style ‘smartcard’.

**Journey limited vs. time limited tickets**

6.97 Forty-five per cent of respondents said they would be ‘very’ or ‘fairly interested’ in buying a ticket you could use to make one journey by different types of public transport. A smaller proportion of respondents were interested in buying time-limited, rather than journey-limited, tickets. Just 15% were interested in buying a ticket that lasts for a number of hours, while around a third in each case were interested in daily, weekly or monthly travelcards and 26% were interested in yearly travelcards. This may suggest that the biggest market for integrated tickets is for single-journey tickets, perhaps reflecting the higher levels of interest in using integrated ticketing for leisure trips which are more likely to be infrequent or “one-off”. However, there is still clearly a small but important market for daily, weekly, monthly and even yearly travel-cards which integrated ticketing schemes should tap into.
Table 6.14 – Interest in buying different types of ticket (% of respondents)

<table>
<thead>
<tr>
<th>Type of Ticket</th>
<th>Very interested</th>
<th>Fairly interested</th>
<th>Not very interested</th>
<th>Not at all interested</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>A ticket you could use to make one journey by different kinds of public transport (e.g. bus then train)</td>
<td>13</td>
<td>32</td>
<td>16</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>A ticket that you can use on any public transport in your local area for a set period of time, e.g. four hours</td>
<td>3</td>
<td>12</td>
<td>21</td>
<td>61</td>
<td>3</td>
</tr>
<tr>
<td>A daily travelcard you could use on any public transport in your local area</td>
<td>8</td>
<td>24</td>
<td>19</td>
<td>47</td>
<td>3</td>
</tr>
<tr>
<td>A weekly travelcard you could use on any public transport in your local area</td>
<td>9</td>
<td>24</td>
<td>18</td>
<td>46</td>
<td>3</td>
</tr>
<tr>
<td>A monthly travelcard you could use on any public transport in your local area</td>
<td>8</td>
<td>24</td>
<td>18</td>
<td>48</td>
<td>3</td>
</tr>
<tr>
<td>A yearly travelcard you could use on any public transport in your local area</td>
<td>8</td>
<td>18</td>
<td>19</td>
<td>52</td>
<td>3</td>
</tr>
</tbody>
</table>

Base= 1,024

VIEWS ON THE PRACTICAL ASPECTS OF TICKETING – KEY FINDINGS

- Preferences relating to where respondents buy tickets largely reflect the most common current locations for purchasing them – 55% prefer to buy them on the train, bus or ferry and 36% prefer to buy them from a station or terminal. Fourteen per cent prefer to buy tickets over the Internet, indicating that this is a growing market.

- Respondents do not appear to be particularly interested in using new ticket formats, including ‘smartcard’ type tickets. While this may be something that can be addressed over time, through passenger education and publicity, it is an issue that needs to be considered and monitored if smartcard schemes are introduced in Scotland.

- Respondents appear to be more interested in single-journey, multi-modal tickets than time-limited travel cards. This may relate to the higher level of interest in using integrated tickets for leisure and other more infrequent trips, and again has implications for the design and marketing of integrated ticketing schemes.
CHAPTER SUMMARY

- TNS Social undertook a survey of 1,024 Scottish adults to explore the various options for integrated ticketing in Scotland.

- Respondents current travel patterns indicated high levels of car use – car was the dominant mode of transport for most types of trips with the exception of travel to and from education.

- Around 21% of all respondents appeared to be very strongly car dependent, while 7% had a strong preference for public transport.

- Public transport tended to be viewed as a ‘practical’ alternative for trips made for leisure purposes – possibly because these trips are less time-critical than travel to or from work or business trips.

- A small but significant proportion of respondents said they would use public transport more often if they could buy multi-modal (34%) or multi-operator (26%) tickets. The findings suggested that multi-modal tickets may have a more positive impact in rural areas where travelling by public transport is perhaps more likely to necessitate more than one mode.

- Awareness of existing integrated ticketing schemes was generally low among respondents. The findings suggested that there may be an un-tapped market for the One-Ticket scheme.

- Respondents indicated that they would pay a (small) premium for multi-modal tickets over single-mode tickets, but that they were not prepared to pay much more for multi-operator tickets over single-operator bus tickets.

- Overall, 40% of respondents said they would buy a ‘fully’ integrated ticket. However, previous studies indicate that this is likely to be an over-estimate of actual take-up.

- The most common reason for not being interested buying an integrated ticket is that respondents find the car more convenient or comfortable (31%), emphasising the need for additional improvements to public transport to attract travellers.

- Fifty-eight per cent of those who would buy a ‘fully’ integrated ticket said this would change the way the currently make some journeys. The most commonly mentioned trips people might make differently were for leisure purposes, though 6% of all respondents thought they might change the way they travelled to work.

- Respondents did not appear to be particularly interested in using new ticket formats, including ‘smartcard’ tickets. They also appeared to be more interested in single-journey, multi-modal tickets than time-limited travel cards. Both these findings have implications for the design and marketing of integrated ticketing schemes.
CHAPTER 7: DEMAND MODELLING

INTRODUCTION

7.1 One of the main tasks of this study was to give some idea of the potential take-up of any possible integrated ticket in Scotland and, in particular, to assess any favourable pilot areas for such a ticket. There are three issues that could be addressed as part of this objective:

- What kinds of people are most likely to buy such a ticket?
- Are there particular areas most suited to such tickets?
- How much are people willing to pay for such a ticket?

7.2 As part of the Household Survey, respondents were asked if they would buy an integrated ticket covering all modes of public transport and all companies if it cost a given sum. Two levels of pricing were put forward by the interviewer – the price they currently pay for all transport (car, public transport and taxi) and half this amount.

SOCIO-ECONOMIC ISSUES

7.3 To investigate what kinds of person were most likely to buy an integrated ticket, the relationships between the likelihood of buying a ticket for half their current cost of transport and respondents’ socio-economic characteristics were investigated, with particular emphasis on those variables that could also be obtained for the Scottish population as a whole.

7.4 On the basis of these results, and the type of variables available from the Scottish Census, a statistical model was constructed of the relationship between a respondent saying they would buy an integrated ticket (at 50% of their weekly travel cost) and the socio-economic characteristics of that person. Characteristics were added to the model in the order in which they best explained the variation in buying behaviour (Stepwise regression).

7.5 The most important variable was employment status with the self-employed and those permanently retired least likely to buy the ticket. There were small differences between the likelihoods of people in the other employment states buying the tickets, although persons ‘looking after family’ or in part-time employment were less likely to buy the tickets.

7.6 The second most important characteristic was the household car ownership. The probability of buying the ticket declined with increasing car ownership, with persons from one car owning households only half as likely to say they will buy a ticket as those from households with no cars available. Having two or more cars in the household cut the probability by 70%.
7.7 The next most important variable was an interaction between economic activity and car ownership. For students and the retired, for example, the probability of buying a ticket does not decline going from a no car household to a one car household.

Table 7.1 – Proportion willing to buy ticket at 50% of weekly travel costs by employment status/car availability

<table>
<thead>
<tr>
<th>Employment status</th>
<th>Cars available to household</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>*In full time education - college/university</td>
<td>0.556</td>
</tr>
<tr>
<td>Employed full time</td>
<td>0.776</td>
</tr>
<tr>
<td>Employed part time</td>
<td>0.538</td>
</tr>
<tr>
<td>In full time education - school</td>
<td>1.000</td>
</tr>
<tr>
<td>Looking after home or family</td>
<td>0.643</td>
</tr>
<tr>
<td>On a Government work or training scheme</td>
<td>1.000</td>
</tr>
<tr>
<td>Permanently retired from work</td>
<td>0.217</td>
</tr>
<tr>
<td>Permanently sick or disabled</td>
<td>0.600</td>
</tr>
<tr>
<td>Self employed</td>
<td>0.500</td>
</tr>
<tr>
<td>Student/also with employment</td>
<td>0.571</td>
</tr>
<tr>
<td>Unable to work because of short-term illness</td>
<td>1.000</td>
</tr>
<tr>
<td>Unemployed</td>
<td>0.706</td>
</tr>
<tr>
<td><strong>ALL</strong></td>
<td><strong>0.525</strong></td>
</tr>
</tbody>
</table>

Note: blank spaces are not represented in data-set

7.8 The fourth most important variable was the survey area. As the initial analysis of the data found, there are differences between the results from the four areas that are unlikely to be due to statistical reasons. Persons in Aberdeen were least likely to state they would buy the ticket and people in the Oban/Mull/Islay area most likely to buy such a ticket. There was no significant difference between the responses of people in the Edinburgh and Perth survey areas, once employment status and car ownership were included in the statistical model (however, see later).

7.9 As the analysis of the individual variables proved ‘Age’ is another important variable with persons under 25 more likely and person over 60 less likely to say they would buy a ticket than the ages groups between 25 and 60, although as noted in Chapter 6 this is fairly unsurprising and unimportant since those over 60 are entitled to concessionary fares.

7.10 The last variable included in the model that had a less than 5% chance of occurring by chance was an interaction between car-ownership and area. The main reason for the importance of this was the low proportion of persons in no-car available households in Edinburgh who stated that they would buy an integrated ticket. This may be because holders of concessionary passes in Edinburgh already obtained free travel within the area after 9.30 and so see no benefit in buying an integrated ticket (and many of them have no weekly public transport expenditure).

7.11 All the other socio-economic factors considered made less important improvements to the model. These factors included, gender, social status, household composition, mileage driven in a year and whether the person had a concessionary pass. This latter factor is important in itself but is highly related to the age of the respondent. The role of
non-socio-economic factors, or at least those factors not easily available at a national or local authority level will be discussed later.

**IMPLICATIONS ON A NATIONAL LEVEL**

7.12 A disaggregation between car ownership and employment status was available from the Scottish Census so, based on the first three factors in the statistical model (car ownership, economic status and the interaction between them), estimates of the number of persons over 17 that may take up the offer of an integrated ticket, based on the Household Survey were predicted for each local authority area. Table 7.2 below shows the results.

7.13 Given that this is based on the Household Survey, it is very likely to represent an over-estimation of what the actual take-up would be were such schemes introduced (see discussion in paragraph 6.89, above). However, it does give an indication of the areas in which take-up is likely to be higher or lower.
Table 7.2 – Estimate take-up of integrated tickets based on Integrated ticketing Household Survey and 2001 Census data

<table>
<thead>
<tr>
<th>Area</th>
<th>Area type</th>
<th>Population 16-74,000</th>
<th>Estimated take-up ,000</th>
<th>As percentage of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scotland</td>
<td></td>
<td>3731079</td>
<td>1630</td>
<td>44.3%</td>
</tr>
<tr>
<td>Aberdeen City</td>
<td>1</td>
<td>162653</td>
<td>72</td>
<td>45.4%</td>
</tr>
<tr>
<td>Aberdeenshire</td>
<td>1</td>
<td>164674</td>
<td>65</td>
<td>39.7%</td>
</tr>
<tr>
<td>Angus</td>
<td>3</td>
<td>79056</td>
<td>33</td>
<td>42.2%</td>
</tr>
<tr>
<td>Argyll &amp; Bute</td>
<td>3</td>
<td>66506</td>
<td>27</td>
<td>42.5%</td>
</tr>
<tr>
<td>Clackmannshire</td>
<td>4</td>
<td>35009</td>
<td>15</td>
<td>43.7%</td>
</tr>
<tr>
<td>Dumfries &amp; Galloway</td>
<td>4</td>
<td>107391</td>
<td>44</td>
<td>41.3%</td>
</tr>
<tr>
<td>Dundee City</td>
<td>1</td>
<td>108107</td>
<td>51</td>
<td>48.2%</td>
</tr>
<tr>
<td>East Ayrshire</td>
<td>4</td>
<td>87811</td>
<td>38</td>
<td>43.7%</td>
</tr>
<tr>
<td>East Dunbartonshire</td>
<td>2</td>
<td>79233</td>
<td>32</td>
<td>40.9%</td>
</tr>
<tr>
<td>East Lothian</td>
<td>4</td>
<td>64109</td>
<td>27</td>
<td>42.3%</td>
</tr>
<tr>
<td>East Renfrewshire</td>
<td>2</td>
<td>63882</td>
<td>26</td>
<td>40.8%</td>
</tr>
<tr>
<td>Edinburgh, City of</td>
<td>2</td>
<td>342431</td>
<td>159</td>
<td>47.4%</td>
</tr>
<tr>
<td>Eilean Siar</td>
<td>3</td>
<td>18949</td>
<td>8</td>
<td>42.4%</td>
</tr>
<tr>
<td>Falkirk</td>
<td>4</td>
<td>106989</td>
<td>45</td>
<td>42.4%</td>
</tr>
<tr>
<td>Fife</td>
<td>4</td>
<td>254713</td>
<td>107</td>
<td>42.7%</td>
</tr>
<tr>
<td>Glasgow City</td>
<td>2</td>
<td>430967</td>
<td>212</td>
<td>50.1%</td>
</tr>
<tr>
<td>Highland</td>
<td>4</td>
<td>152684</td>
<td>64</td>
<td>42.4%</td>
</tr>
<tr>
<td>Inverclyde</td>
<td>2</td>
<td>61658</td>
<td>28</td>
<td>45.8%</td>
</tr>
<tr>
<td>Midlothian</td>
<td>2</td>
<td>58789</td>
<td>25</td>
<td>42.8%</td>
</tr>
<tr>
<td>Moray</td>
<td>4</td>
<td>63191</td>
<td>26</td>
<td>42.0%</td>
</tr>
<tr>
<td>North Ayrshire</td>
<td>4</td>
<td>99061</td>
<td>44</td>
<td>44.6%</td>
</tr>
<tr>
<td>North Lanarkshire</td>
<td>2</td>
<td>237357</td>
<td>106</td>
<td>44.9%</td>
</tr>
<tr>
<td>Orkney Islands</td>
<td>3</td>
<td>13912</td>
<td>6</td>
<td>43.4%</td>
</tr>
<tr>
<td>Perth &amp; Kinross</td>
<td>4</td>
<td>97824</td>
<td>39</td>
<td>40.8%</td>
</tr>
<tr>
<td>Renfrewshire</td>
<td>2</td>
<td>127993</td>
<td>57</td>
<td>44.8%</td>
</tr>
<tr>
<td>Scottish Borders</td>
<td>4</td>
<td>77138</td>
<td>31</td>
<td>40.5%</td>
</tr>
<tr>
<td>Shetland Islands</td>
<td>3</td>
<td>15698</td>
<td>6</td>
<td>38.6%</td>
</tr>
<tr>
<td>South Ayrshire</td>
<td>4</td>
<td>81903</td>
<td>34</td>
<td>43.3%</td>
</tr>
<tr>
<td>South Lanarkshire</td>
<td>4</td>
<td>223181</td>
<td>96</td>
<td>43.3%</td>
</tr>
<tr>
<td>Stirling</td>
<td>4</td>
<td>63552</td>
<td>26</td>
<td>42.0%</td>
</tr>
<tr>
<td>West Dunbartonshire</td>
<td>4</td>
<td>68271</td>
<td>32</td>
<td>47.0%</td>
</tr>
<tr>
<td>West Lothian</td>
<td>4</td>
<td>116387</td>
<td>32</td>
<td>47.0%</td>
</tr>
</tbody>
</table>

Source: Scottish Census table KS09a Economic activity -All people aged 16 – 74 – see [www.scrol.gov.uk](http://www.scrol.gov.uk) for definitions of categories
7.14 One thing that is striking about the results is the general uniformity of the percentage take-up of the ticket. This uniformity reflects the general lack of variation at a local authority level in the percentage who are self-employed or retired or in the proportions with and without cars. Of the other significant variables found, the variations in the age distribution by local authority area will make little difference to these figures. The above table does not include the area factor apparent in the Household Survey data, where the Oban, Islay & Mull survey area were significantly more likely to buy an integrated ticket. Whether this was a function of other characteristics of the sample or inherent to the area is not certain and so extrapolation to other areas of Scotland has not been attempted. On the basis of these results, an analysis of socio-economic variations alone is not a good forecaster of suitable pilot areas and does not take account of the price of such a ticket.

WILLINGNESS TO PAY

7.15 One of the other major factors in the willingness of consumers to buy a product is its price. All other things being equal, as the price goes up so the likelihood of a respondent buying an integrated ticket should decline. It was possible within the Household Survey to ask two questions about the potential price - first, whether they would buy the integrated ticket cost if it cost the same as their weekly travel costs and second if they would buy it at half this amount. It was hoped that the data would be of such a form that a cross-sectional analysis of the results would help gain some idea of how people’s willingness to pay varied with ticket price.

7.16 Figure 7.1, below, shows how the proportion stating a willingness to pay for an integrated ticket varies with their weekly travel costs. In the cases of a ticket that costs 100% of their weekly cost of their travel (points labelled “ACCEPT”), there is good evidence that those not paying anything (Weekly travel cost is 0) are more willing to ‘buy’ a ticket than others. However, above this threshold there is little evidence of any relationship between willingness to pay for a ticket and the implied weekly cost of the ticket, with about 25% of respondents willing to pay up to 100% of their weekly travel costs.

7.17 When the price of the ticket falls to half the respondent’s weekly cost (points labelled “ACCEPT50”), a different relationship between cost and willingness to pay is evident. However, this relationship is not straightforward. Up to £15-£20 per week as the price of a ticket increases the willingness to pay falls, as might be expected but above £20 per week (i.e. where respondents would pay £10 for a weekly ticket), there is some evidence that the willingness to buy a ticket rises again. The lack of correspondence between the two sets of points show that such a cross-sectional analysis of willingness to pay is not ideal. Clearly factors other than total weekly transport expenditure are influencing the willingness to pay for those with high expenditures. Part of the reason for this would be the types of transport involved. Traveller’s sensitivity to price (and the related saving) will also depend on whether it is associated with a number of bus, rail or ferry trips.
7.18 When the focus shifts to the relationship between willingness to pay and the respondent’s weekly public transport expenditure, a clearer trend is evident (see figure 7.2 below). Considering only those willing to purchase a weekly ticket at 50% of their total weekly transport cost, this figure shows that those with no public transport expenditure are much less willing to pay for a ticket. In contrast, those having any public transport costs appear to have a nearly constant willingness to pay for a ticket (of about 60%), irrespective of the actual weekly public transport cost. Part of the explanation for this can be traced to the Edinburgh sample where many of those with concessionary passes do not pay for travel after the morning peak and so find little need for a ‘priced’ ticket. That is, those who are currently able to use public transport for free have a high resistance to paying anything for the ticket. This distinction between those with public transport expenditure and those without is much stronger than the car ownership and employment status factors used in the statistical model.
OTHER FACTORS

7.19 The preceding two sub-sections have shown that survey respondents’ willingness to buy an integrated ticket depends on a number of factors relating to the socio-economic characteristics of the person, and the also to respondents’ weekly travel costs in general and public transport costs in particular. However, by themselves, these results are not so useful in being able to identify which areas would be most suitable for a pilot area. In addition, the results show that there was a significant variation between the four study areas, with respondents in the Oban, Islay & Mull study area much more likely to be willing to pay for such an integrated ticket. This sub-section looks at a number of factors relating to the travel characteristics of the respondents that might shed light on these issues.

7.20 To test the importance of these other factors, they were added to those found significant in the statistical model developed earlier in this chapter and a revised model run. The factors included were:-

- ‘Price’ – half the total weekly cost of travel
- Multi types of Public transport – Did they ever make journeys by more than one form of Public transport?
- Public transport cost to nearest applicable centre (Aberdeen, Perth, Oban & Edinburgh), based on respondents’ perceptions of the total cost rather than the actual costs
- Whether used public transport
- Whether paid for public transport

7.21 Only those cases where the weekly cost of travel by Public transport and car were known and the costs to the nearest town was known were included (767 cases out of 1024)
7.22 The summary of the final statistical model is given below. Table 7.3 below summarises the importance of the factors considered. The factors in the table are those that have a significant effect on the outcome of a willingness to pay: i.e. there is a less than 5% chance that the results are random. Other information about the model has also been included. The degrees of freedom indicates the number of categories in each factor - for instance, there are four age categories but paying for public transport and making multi-stage trips are both simply a yes/no categories. Price and costs are entered as continuous variables. In general, it is easier to account for variation by having more categories. The amount of variation in the data explained by each factor is given under ‘Deviance’. This is approximately equivalent to the ‘sum of squares’ in a normal linear regression and the higher the values the more that factor explains the variation in the data. Altogether the five factors ‘explained’ about 14% of the variation in the data-set, which is very reasonable for a model of individual person’s behaviour.

Table 7.3 - The contribution of the significant factors to the final model of willingness to pay for an integrated ticket.

<table>
<thead>
<tr>
<th>Degrees of freedom</th>
<th>Deviance</th>
<th>Approximate significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pay for Public Transport</td>
<td>1</td>
<td>74.899</td>
</tr>
<tr>
<td>Age</td>
<td>4</td>
<td>27.289</td>
</tr>
<tr>
<td>Price</td>
<td>1</td>
<td>24.372</td>
</tr>
<tr>
<td>Reported cost to nearest centre</td>
<td>1</td>
<td>19.798</td>
</tr>
<tr>
<td>Multi-stages</td>
<td>1</td>
<td>4.177</td>
</tr>
<tr>
<td>TOTAL</td>
<td>758</td>
<td>890.269</td>
</tr>
<tr>
<td>TOTAL</td>
<td>766</td>
<td>1040.804</td>
</tr>
</tbody>
</table>

Note – a Binomial Logit model was assumed – the Deviance is approximately equivalent to the sum of squares in a linear/normal regression.

7.23 The detailed results of the model (not shown) indicate that willingness to pay increases:

- with paying for any public transport. This is a more important factor than simply using public transport. The main difference lies with pensioners who may use but not pay for public transport.
- as the distance/reported cost to a major centre increases
- with the use of more than one public transport mode

7.24 It also shows that:

- The young (under 25 years old) are much more likely to be willing to pay for an integrated ticket and the elderly much less so (which is unsurprising given concessionary fare arrangements for pensioners).
- Based on weekly cost data, as the price of the integrated ticket rises so the willingness to pay decreases. This shows that even taking out the ‘non-payers’ there is a price effect.

7.25 What is surprising is that some of the socio-economic factors are no longer significant. The area factor has dropped out because the Oban survey area has a large
proportion of its respondents with high reported costs of travel to Oban (>$10). This may be due to respondents counting the costs of car+ferry as a public transport cost. The inclusion of price and paying for public transport appears to have replaced the impact of economic status and car availability.

7.26 One the basis of these results the most suitable areas for a pilot appear to be where:-

- There is a variety of public transport modes
- High non-concessionary fare public transport usage
- Areas well away from the main centres

7.27 However this latter criterion may have undue influence due to the replies of respondents from the islands in the Oban survey area and would point to a type of area very different from that indicated by the other factors. These three factors would tend to point to areas such as Central Scotland around Stirling, Falkirk and Airdrie as promising areas for integrated ticketing since they have multiple modes available but are relatively far away from the major centres. An emphasis on the distance criterion would suggest pilot areas akin to Mull and Islay where ferries play a large role such as the Orkneys, Shetlands or Eilean Siar.

SUMMARY OF KEY POINTS

7.28 Modelling has been deployed to investigate the relative magnitudes of potential integrated ticket sales in different market segments and areas within Scotland. The approach taken was to examine the stipulated willingness of respondents within the Household Survey to purchase such a ticket according to their socio-economic group and the place they lived.

7.29 Initial analysis indicated that there were four main influences as to whether a person purchased an integrated ticket. In order of importance (greatest first) these were:

1. Whether the person was employed. There is an underlying inference that commuters (full-time employees) are most likely to purchase an integrated ticket.24
2. Car ownership. The less available a car the more likely a traveller is to buy an integrated ticket.
3. After taking into account the above factors, a combination of car ownership and economic activity was seen to be important. This was caused by both retired interviewees and students having the same probability of purchasing an integrated ticket irrespective of the availability of a car. Thus car availability is primarily an influence on employed or potentially employed persons.
4. Type of area. Respondents from the rural (coastal) areas appeared the most likely to purchase an integrated ticket.

24 N.B. the statistical analysis was not concerned with what trips they would use it for but only the likelihood of purchasing a ticket. It is not possible to say from this analysis whether commuters would use integrated ticketing for commuting or for other purposes. However, the Household Survey analysis presented in Chapter 6 suggests that while the most common use of integrated tickets would be for leisure purposes, 6% of all respondents might change the way they travelled to work.
7.30 Using this model it was possible to predict the uptake of an integrated ticket within different local authority areas. Unfortunately, the uniformity of car ownership and employment status throughout Scotland resulted in the predicted uptake only varying by at most 11% of the residents. No particular area or type of area, obviously suitable for a pilot study, could be isolated from this form of modelling.

7.31 Furthermore a relationship between willingness to pay and a person’s weekly public transport cost was investigated. This showed that provided a traveller did not have a (free) concessionary pass their willingness to purchase an integrated ticket was always the same.

7.32 Further modelling was conducted to delve into the underlying influences of whether a person would buy an integrated ticket. This built upon the previous model and looked for other influencing factors. This implied that the willingness to purchase an integrated ticket:

- Decreased with age
- Decreased with the price of the ticket
- Increased with the distance (and cost) of reaching a main town or city
- Increased with the ability to use different modes of public transport.

7.33 Combining the various results of this modelling suggests that the most successful integrated ticket scheme would be in an area with a combination of the following characteristics:

1. A number of different public transport modes available
2. Rural that is some distance from a town or city
3. A large number of commuters
4. A low car ownership
5. A low percentage of retired residents
CHAPTER 8: DISCUSSION OF INTEGRATED TICKETING PILOT AREA OPTIONS

INTRODUCTION

8.1 The research conducted during this project has led to a greater understanding of integrated ticketing – that is, what people understand by the term Integrated Ticket and what they expect from it. The project has also investigated the current extent of integrated ticketing schemes, and the possible difficulties and potential rewards associated with the introduction of new schemes. The aim of this discussion is to apply the most significant aspects of those findings to assist in the development of new ticketing schemes for Scotland. It is envisaged that any new scheme would begin with a pilot phase based in one or more towns or regions. This discussion is intended to inform and guide the selection and design of those pilots.

8.2 The chapter is structured as follows:

- the remainder of this section summarises the key considerations that should be taken into account in planning a new integrated ticketing scheme;
- issues around ticket format are discussed in the context of developments in the use of smartcard technology in Scotland;
- the key characteristics of a successful integrated ticketing scheme are summarised, based on the research findings; and finally
- recommendations are presented for pilot integrated ticketing schemes, incorporating discussion of the general types of areas that might be appropriate for pilot schemes and recommendations about the specific characteristics and requirements of these schemes.

8.3 One of the more significant findings of this project is that operators appear to regard integrated ticketing favourably because they expect business advantages to result from the introduction of smartcard ticketing schemes. Other research findings have both supported this expectation and indicated considerable potential benefits from smartcards for passengers and other stakeholders. The eventual possibility of working towards a mutually advantageous, electronically integrated scheme therefore appears realistic and attractive. However, the research has clearly indicated other considerations that must be applied to the planning of any new scheme, including the following:

- A suitable public transport network must be present. In particular, services must have reasonable journey times, appropriate frequencies and acceptable reliability.
- An integrated ticket must be underpinned by an integrated transport system. For example, a ticket valid on bus and rail is no use if the timetabled bus service arrives five minutes after the timetabled departure of the rail service.
- An integrated ticket should offer flexibility in the modes and types of journey for which it can be used in order to meet the travel needs of as large a customer base as possible.
• An integrated ticket should offer a range of durations, ideally permitting discounted frequent travel over defined short periods, or further discounts for longer term commitments (commuting, for example).
• Any proposed ticket should be actively marketed to generate widespread public awareness.
• It would be preferable to take advice from the OFT at an early stage and to convince the scheme stakeholders as soon as possible that competition law need not constitute a barrier to a scheme.
• The scheme should have a defined and visible champion, and consideration might be given to forming a co-owned company to administer the scheme.

TICKET FORMAT

8.4 Any proposed ticket should be presented in an appropriate format. Despite the recent trend towards electronic ticketing, a paper-based ticket may still be appropriate in some circumstances. For instance, the Literature Review indicated that where journeys are made infrequently, or the catchment area is small, a paper-based system may be comparatively quick and easy to implement, and more economically feasible. However, smartcard systems offer a much broader range of applications and advantages commensurate with their greater implementation requirements. Smartcards may therefore be more appropriate for large schemes where the potential revenue may support the investment. Moreover, once a smartcard system is in place, it may then be more economical to use the cards for all transactions, including occasional journeys, rather than maintaining a small-scale, parallel, paper-based system.

8.5 This project found no conclusive quantitative evidence of a business case for smartcard ticketing schemes. However, the Literature Review and the Case Studies both indicated a considerable expectation that business benefits would accrue from the improvements in efficiency, speed and reliability that smartcard systems could provide. Certainly, the lack of a conclusive business case has not prevented the introduction of electronic ticketing schemes across Europe and elsewhere in the world, where they are regarded as an essential component of a sustainable transport policy. The Literature Review provided several examples of the progressive introduction of multi-application smartcard systems in European cities. Their long-term objectives embrace not just integrated ticketing, but truly integrated, multi-modal transport as part of a comprehensive Urban Traffic Control system. The system can also provide access to other civic services and amenities and conventional purchasing capabilities. These cards have been termed city cards, but once established, they could clearly be extended beyond the cities (as indeed they were in some countries). They would then form part of a regional or national service network with specifically tailored local applications and options.

8.6 A card for Scotland, which will be called the National Citizen Card, is currently under development. If it is intended to make this card available to all citizens eventually, it seems advisable that the Citizen Card should be conceived from the outset as a multi-functional system, and that integrated ticketing should be pursued as an application on this card. This approach would enhance the stakeholder perception of the card and its business potential, improve its usefulness and appeal to the public, and increase the opportunities for recovery of the initial investment.
8.7 The Citizen Card is linked to the Citizen’s Account, which is a concept whereby each person’s transactions and civic enquiries (e.g. library loans) are linked in order to provide a co-ordinated personalised approach to services. A smartcard could provide secure access to this system and could remove the need for several different cards for different services. Because of their potential to co-ordinate access to services, smartcards form part of the Scottish Executive’s commitment to delivering improved public services, outlined in the Customer Relationship Management & Citizen Account Programme Initiation document “The Customer In Focus”.

8.8 Citizen (smart) Cards may offer a potentially cost-effective way of developing an integrated public transport ticket within Scotland. The overall implementation costs of a combination smartcard that includes a transport ticket can be offset by sharing across all the applications. However, some transport-specific infrastructure costs, including modifications to ticket machines, would still need to be funded.

8.9 Some ‘local’ Citizen Cards are already in existence, including examples such as the Aberdeen Accord, Dundee Discovery Smartcard and the Glasgow Young Scots Card. These are all aimed at either young people or pensioners. Their main function at present is to provide access to facilities and information, although the Aberdeen Accord Card also contains an electronic purse. If the Citizen Card builds upon these foundations, it may provide a facility for concessionary travel, but a more comprehensive card applied to a wider customer base would be needed if the card were to be aimed at other commercial applications. The usefulness of the Citizen Card as the basis for an integrated ticket will depend on the uptake of the scheme by local authorities and the people to whom the card is offered.

8.10 The Citizen Card is still in its planning stage and consequently its applicability as a flexible integrated ticket is not yet clear. However, if the development of the Citizen Card can incorporate an integrated transport ticket, it is recommended that it should include the following characteristics:

- **Contactless (proximity) card.** Most transportation smartcards are contactless owing to the improved transaction speed that these facilitate. Contactless cards reduce passengers’ boarding times and therefore assist in improving the speed and reliability of transport services.

- **Contain a purse.** Cards that contain electronic purses support a greater variety of flexible ticketing applications. They allow permits to travel, tokens and e-cash to be used to suit each scheme. Purse use will require compliance with financial services regulations, although this may be required for the Citizens Card in any case due to the scheme size and characteristics.

8.11 The Literature Review identified the requirement that any scheme should be easy to understand and easy to use. This applies both to the travel information that enables passengers to choose the most appropriate service for their needs, and to the actual procedures involved in making the journey. The Review found that seamless integration of journey stages was a prerequisite of any integrated transport strategy, and that electronic ticketing could assist many people with disabilities or infirmities, as well as simplifying routine transactions for all passengers.
OVERVIEW OF RESEARCH FINDINGS ON THE COMPONENTS OF A SUCCESSFUL SCHEME

Flexibility

8.12 Whether or not a smartcard ticketing system is adopted, a successful integrated ticket must meet certain requirements and fulfil travellers’ expectations. From a traveller’s perspective, one of the challenges for an integrated ticket in Scotland is to be sufficiently flexible to meet the wide range of travel needs within the country. Flexibility was a significant requirement emerging from the Stakeholder Surveys. An appropriately designed integrated ticket will be expected to realise the concept of seamless public transport for most journeys that people are likely to make.

The importance of tickets and fare structures providing the flexibility that the diversity of potential journeys requires was emphasised in the Literature Review. A range of ticket options should be available to allow travel by bus only, bus and rail, bus and ferry, or all modes, and by various routes, at various times. For example, compare the differing travel needs of two people requiring specialist medical care from a Glasgow hospital when one comes from Crianlarich and the other from Tobermory. Their consultant might regard both patients as coming from relatively remote rural areas, but they would require quite different tickets to keep a four o’clock appointment, because of the different modes that each would use, and their respective journey lengths that might require return ticket durations of more than one day.

Duration

8.13 The need for flexibility in the range of available durations was expressed by Stakeholders. In more rural areas, a daily ticket was considered to be generally sufficient owing to the relatively low frequency of the journeys being made. However, in the cities, there was a need for longer duration tickets that would appeal to the commuter market, but possibly more focused in terms of geographic scope. On the other hand, tourists might require a short duration ticket that permitted relatively wide-ranging and frequent travel.

Modes covered

8.14 The modes of transport required to make an integrated ticket appealing to users varied across the Household Survey areas. Responses appeared to be coloured by the modes currently available, as well as by individual travel needs. In the conurbations, respondents said that an integrated ticket should allow freedom of travel on all bus services, regardless of operator. In contrast, those in the most rural survey areas preferred a ticket that could be used on the various modes (bus, rail and perhaps, ferry) that they customarily relied upon to make longer trips. Overall, they required bus and rail to be included, with the additional requirement for ferry services within the west coast survey areas. Clearly, in rural areas without a ferry terminal, people would focus more on their local bus or train services into the nearest town. There was an apparent willingness to pay
for a multi-modal ticket, with approximately a quarter of respondents considering it worth an extra £5 or more per week.

8.15 As with Household Survey respondents, Stakeholders generally thought that any scheme should include most operators within an area and be valid across a range of modes. Their answers were also influenced by the modes available within their operational area, with multi-operator bus tickets being considered more acceptable in large urban areas, and rail and perhaps ferry services being included in the rural survey areas.

8.16 In relation to these findings, it is worth considering that people may often limit their stated travel requirements to those that can currently be easily fulfilled. However, when they discover that services have been enhanced to present new opportunities, they tend to explore that potential and may change their habits accordingly, leading to patronage increases and better social inclusion. For instance, an improvement in service coordination may enable parents to find a job, when they were previously unable to travel into town to work because they could not return in time to collect their children. Thus someone with no stated or previous requirement to travel into town, and no need for a ticket, could become a passenger with definite service requirements and an interest in integrated ticketing products.

Potential Impact

8.17 About a third of the Household Survey respondents thought they might use public transport more if an integrated ticket were available. It was not clear whether those trips would represent an actual modal shift, or simply existing travellers making free trips at the margin, but it does indicate that a new integrated ticket in Scotland might be expected to generate a patronage increase.

8.18 Appropriate design of a new scheme would be particularly important given the generally high level of car ownership within Scotland. The Household Survey found that 79% of respondents had access to a car, and the percentage was higher in rural areas. In Glasgow however, car ownership is lower, which may make it easier to attract passengers to a new public transport scheme. Nevertheless, a sustainable transport policy requires a general modal shift away from the private car, so any new scheme should be designed to promote public transport as a viable and realistic alternative to the car for currently-made journeys. The Household Survey respondents reported that more than half of them used the car to travel to work, and over a third did so for education purposes, even though many could have travelled by bus with the current service provision. Even in Edinburgh, where alternatives were often available, half of the respondents travelled to work by car. These people might be persuaded to shift to public transport if the services were good enough, although clearly that would depend on where they lived. Half of the survey respondents in Edinburgh were theoretically able to switch to the bus, compared with only 13% of those in Oban, emphasising the need for flexibility within scheme design to meet the varied requirements of different localities.
**Scheme establishment and administration**

8.19 Overall, both the Case Studies and the Barriers Review identified the need for a scheme to be led by a scheme champion, with unequivocal allocation of responsibility for management and administration. Stakeholders, particularly the operators, expressed a preference that schemes should be administered relatively independently, perhaps by a co-owned company. The London Oyster scheme also demonstrated that much of the risk of the project could be contracted out together with the technological implementation, which helps to protect other stakeholders and ultimately, the community.

**Marketing**

8.20 The Household Survey provided clear indications of the need to market any ticketing scheme effectively. Seventy one percent of respondents in the area where the ticket was valid stated that they had never heard of the SESTRANS One-Ticket scheme. Moreover, more than three-quarters of respondents in Edinburgh and Perth who claimed they would use public transport more if there were a multi-modal travelcard knew nothing about One-Ticket. The project Case Studies found that the SPT ZoneCard only accounted for approximately 3% of all ticketing within the Strathclyde transport area. Clearly, an energetic publicity campaign is required to promote any new ticketing scheme, and this would apply equally to any pilot schemes that might be introduced.

**Addressing perceived barriers**

8.21 Reasons most commonly cited in the Household Survey for not using the current public transport system were that the services were too infrequent, or that journey times were too long. Although not directly related to the introduction of an integrated ticket, such issues are clearly important to the success of any potential scheme. Therefore, a combined package of improved service provision and ticketing could address the concerns expressed by the survey respondents.

8.22 Among the Stakeholders, the main perceived barriers to integrated schemes were revenue distribution and competition law. It was believed that revenue distribution would need careful consideration, and that, in order to comply with competition law, it would need to be based on passenger miles. In fact, the OFT states that revenue distribution “must reflect ‘as far as is reasonably practicable’, the passenger miles travelled”. The OFT also states “It is likely that reliance will be placed on surveys ... to enable a representative sample of usage”. OneTicket shows that such a potentially expensive approach might not be needed. In that scheme, records of fares paid and fare/distance relationships are used to calculate the average distance travelled by passengers. Numbers of OneTicket passengers boarding are recorded on ticket machines, and the average distance travelled is applied to those figures. An estimate of passenger miles is thus derived from fares and not from revenue foregone.

8.23 Clearly, revenue apportionment could be a problem in areas with either numerous operators or modes, or both. It would be necessary to obtain the operators’ full support for
the revenue distribution mechanism adopted for any scheme, otherwise they might claim that the integrated ticket was overpriced, or aim to undermine the scheme by undercutting prices with their own tickets. The Barriers Review recorded that this situation had occurred in Edinburgh. Revenue apportionment also concerned operators within the Case Studies. The view was also expressed in the Case Studies that smartcards could be a solution to some of the concerns about revenue apportionment, although they could not be a panacea. Because of the infrastructure costs associated with the installation of smartcard schemes, they are most appropriate in areas where a correspondingly large revenue stream can help to offset the capital expenditure, unless social inclusion objectives, for example, justify the permanent investment. Alternatively, as has been suggested, a smartcard travel scheme could be introduced as part of another smartcard initiative, such as the Citizen Card.

8.24 Within the public transport industry, competition law is often regarded as a major obstacle. However, the Case Studies, Barriers Review and Literature Review all indicated that the law is not unduly restrictive. In particular, an OFT representative interviewed during this research emphasised that the OFT is willing to provide advice and information at an early stage of planning a scheme, and when required thereafter. The message from the OFT was that competition law need not stand in the way of a new scheme, and that help is available to ensure that the scheme terms remain compliant with the law.

8.25 The Literature Review identified certain stakeholders that are likely to be common to most schemes and whose commitment would be essential to their success, of whom passengers are the most obvious. Others included

- Overall policy & direction organisation
- Transport operators
- Administrative organisation
- Other contractors providing subsidiary services

8.26 The Literature Review also provided indications of the benefits that each might see in an integrated scheme and determined that stakeholders typically believed that a win-win situation was achievable, particularly if integrated ticketing were introduced as part of a novel and attractive improvement package. The main barrier to success, according to some sources in the Literature Review, lay in managing the expectations of the stakeholders. If those expectations could be realistically managed and effectively delivered, the success of the scheme could be both the stick and the carrot – stakeholders would be tempted by the prospect and reluctant to miss the opportunity.

PILOT SCHEME RECOMMENDATIONS

8.27 The following suggestions for the types of areas that might be suitable for piloting new schemes take account of the considerations discussed above, but they were also developed with reference to the Demand Modelling of the potential use of integrated tickets discussed in Chapter 7. The Modelling used the data obtained from the Household Survey to identify the main influencing factors, which also appeared intuitively correct. These factors were considered together with the predicted demand in each area to arrive at
conclusions which are now developed to suggest general types of area where a new integrated ticket might be constructively piloted.

8.28 The general characteristics of areas that might be appropriate for pilot schemes, including population density, available modes and travel patterns are discussed and the potential uptake of integrated tickets in different types of area (based on the demand prediction exercise) is considered. Finally, the probable characteristics of schemes in the three types of areas identified as appropriate for pilots are summarised, considering aspects of the schemes such as ticket format, changes to service provision to facilitate the success of the scheme and possible timescales for implementation.

Area types

8.29 The Modelling predicted that a successful scheme area could have some of the following characteristics:

- Several different public transport modes available
- Relatively rural area that is some distance from a town or city
- Large number of commuters
- Low car ownership

8.30 The last characteristic is important to a successful scheme, but does not assist in the choice of an area because published statistics show that the percentage car ownership generally does not vary greatly across Scotland, with a few conspicuous exceptions such as Glasgow. However, a combination of either distance from a town, low car ownership, or high levels of commuting implies a need to travel, although the details of distance, route and mode would clearly vary between areas.

8.31 The requirements of being some distance from a town or city, and having large numbers of commuters tend to be generally mutually exclusive. Thus, the Modelling indicates that the types of area in which a scheme might be considered should be either of the following, bearing in mind that the modal alternatives are generally more plentiful in the city:

- Rural Scheme: Based in a rural area using as many available modes as possible
- City Scheme: Based in a conurbation using as many available modes as possible

8.32 It might be supposed that the primary objective of a City scheme would be modal shift among commuters, but such a scheme could also have social inclusion objectives. In a Rural area, the main objective might be social inclusion. For example, the scheme could be structured so as to bring people to a local shop from remote hamlets, or to facilitate occasional travel for medical reasons. Encouraging tourism could also constitute a significant economic objective in some City and Rural areas.

8.33 In a medium-sized town or small city with both bus and rail services, perhaps surrounded by villages, some of the features and requirements of both City and Rural
types of scheme might be found. This third type of scheme might be designated as a Town scheme, incorporating both City and Rural characteristics.

**Modal coverage**

8.34 The Modelling also indicates that ideally there should be a choice of public transport modes available. Given the modes that may be typically available within the three area types, it is suggested that ideal scheme areas would be:

- Rural with bus, rail and ferry services
- Town with bus and rail services
- City with bus and rail services, and perhaps also underground and ferry.

8.35 It is also worth noting that demand responsive services, including licensed taxis and private hire vehicles and flexibly-routed minibuses, could also be useful links in any scheme. Demand responsive transport has the capacity to improve modal integration and to capture otherwise neglected pockets of demand in widely dispersed rural communities, as well as in urban areas. These services can be successfully incorporated according to agreed tariffs into either paper-based or smartcard integrated schemes.

**Ticket types**

8.36 The suggested area types might have particular travel patterns, which would require appropriate ticketing structures and formats to respond to local social and economic requirements. For instance, in a Rural example, residents of Mull might have to make occasional – perhaps quarterly – long journeys to Glasgow or Edinburgh, using buses, ferries and trains. They would need an economical, multi-modal return ticket. Alternatively, a typical resident of a City area, in Glasgow, for example, might make daily trips at peak time to work in Livingston, so a fully integrated bus and rail ticket for the Central Belt would be useful. Considering the Town example, residents of an Aberdeenshire village might only live a few miles from Aberdeen city centre, but they might be less dependent on private cars if they had a flexibly integrated bus ticket. They could then travel into work with one operator and return via the shops by a different route with another at convenient times and frequencies. These are hypothetical ticketing situations but they illustrate ways in which a scheme could be piloted in different types of area to test its effectiveness in quite different travel situations. However, the principles that would be applied to those particular situations, and the lessons that could be learned, would be transferable to other locations and circumstances, which would make the pilots extremely valuable.
Potential uptake

8.37 Clearly, the uptake of any integrated ticket depends upon the population within the ticket area. Table 8.1 shows the potential uptake of an integrated ticket for examples of each of the three types of area, based on the demand prediction modelling for these areas. It also shows the main transport modes present in each of the areas.

Table 8.1: Summary of uptake in example areas

<table>
<thead>
<tr>
<th>Area Classification</th>
<th>Examples of this type of area</th>
<th>Main public transport modes</th>
<th>Estimated take-up (,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>Orkney</td>
<td>Bus &amp; Ferry</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Argyll &amp; Bute (Oban &amp; Mull)</td>
<td>Bus, Train &amp; Ferry</td>
<td>27</td>
</tr>
<tr>
<td>Town</td>
<td>Stirling</td>
<td>Bus &amp; Train</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Perth &amp; Kinross</td>
<td>Bus &amp; Train</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Falkirk</td>
<td>Bus &amp; Train</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Dundee</td>
<td>Bus &amp; Train</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Aberdeen &amp; Aberdeenshire</td>
<td>Bus &amp; Train</td>
<td>137</td>
</tr>
<tr>
<td>City</td>
<td>Edinburgh</td>
<td>Bus &amp; Train</td>
<td>159</td>
</tr>
<tr>
<td></td>
<td>Glasgow</td>
<td>Bus &amp; Train &amp; Metro &amp; Ferry</td>
<td>212</td>
</tr>
</tbody>
</table>

8.38 The following areas cited in the table have reasonably high predicted uptakes of an integrated ticket and satisfy the main generation factors suggested by the Demand Modelling. These are intended as examples only, and are by no means the only areas that might be suitable for piloting integrated ticketing schemes.

- Rural: Oban, Mull & Iona; Coll & Tiree; Colonsay, Jura & Islay; *or* Orkney
- Town: Aberdeen and the surrounding area *or* Dundee and the surrounding area
- City: Edinburgh, Glasgow & the Central Belt conurbation.

8.39 Any, or all, of these postulated schemes would require extensive planning once the actual location had been chosen. Demand assessments would need to be carried out and existing service provision examined. The advice of the OFT would need to be sought. In each case, a review of current services would need to be carried out to ensure they were sufficient to meet the needs of a sustainable network, and operational terms would need to be agreed between operators, including revenue allocation agreements, that were compliant with competition law. Inter-connecting services between modes would need to
be co-ordinated and service adjustments made where necessary. Demand responsive services might be a relatively inexpensive way of fulfilling some of those needs.

DETAILED SCHEME CHARACTERISTICS

8.40 The typical characteristics of each suggested scheme type are discussed below and have been illustrated in Figures 8.1 to 8.3 at the end of this chapter.

Rural Scheme Characteristics

8.41 A Rural scheme could particularly aim to make long-distance, infrequent travel easier for residents in relatively remote areas, but could also make car-less residents of villages just off the beaten track feel less isolated. Social inclusion objectives could therefore be met in many highland and island communities. Such a scheme is likely to be paper-based, at least initially, because of the relatively low revenue to be expected, and the varied ticketing points within the scheme. However, it could eventually convert to a smartcard system, especially if it were amalgamated with a higher density scheme in an adjacent area.

8.42 The scheme would be based upon local bus, coach and ferry services (where available) and linked with long-distance rail services. It would be aimed primarily at residents within the catchment area, but in areas where tourism was important, that market might be productively explored. Market research would be necessary to determine the preferred travel patterns of both residents and visitors, but there would probably be relatively little middle-distance commuting and rather more long-distance travel with frequencies of weekly or less. Ticket types and fare structures would need to reflect travel needs, and the fact that living costs in such areas tend to be high, but not necessarily matched by incomes, which affects local fares elasticities.

8.43 Services in such an area might include inshore ferries. When such different modes as ferries and buses are integrated (so that one may even carry the other), especially in areas subject to severe winter weather, efficient and reliable operational and public travel information become particularly important. In a ferry-dependent region such as Orkney, the principle of ensuring the ‘last ride home’ identified in the Literature Review assumes a special significance.

8.44 Important aspects of a Rural scheme might include:

- Rural bus network may need enhancements, possibly including demand responsive transport
- Modal co-ordination may be required
- Review of interchange efficiency may be required
- Attention will need to be paid to competition law
- Cross modal revenue apportionment agreements will be required
• Most likely paper based with potential for linking to a more extensive smartcard scheme
• Relatively low cost and rapid implementation
• Social inclusion benefits, with potential for modal shift and tourism market development

8.45 Being paper-based, the required infrastructure would probably already be largely in place, but investment support in enhanced bus services and improved interchange facilities might be necessary. Initial capital outlay would therefore be relatively modest and providing operator commitment could be obtained, implementation of the scheme might be achieved within one or two years.

Town Scheme Characteristics

8.46 More Town scheme opportunities are likely to exist than the other two types. The examples previously quoted were Aberdeen and Dundee, but cities such as Perth and Stirling, or perhaps Inverness, might also be good examples (if they were not already involved in larger schemes). On a lesser scale, similar principles might apply to towns such as Crieff, Galashiels or Dumfries. Each of these examples constitutes a focus of travel within a surrounding catchment area, including rural and sometimes relatively remote communities that might depend upon the hub for work, education, medical and social services, shopping and leisure. The key to the success of such a scheme would therefore be the necessary flexibility to accommodate these various needs.

8.47 The scheme would probably be bus-based, perhaps with some rail services and might start with a paper format, although there might be scope for the introduction of an electronic system, especially if it could be linked to a bigger adjacent scheme. Indeed, electronic card systems are apparently under development in some of the examples quoted above (e.g. Aberdeen).

8.48 The aims of the scheme would be various – social inclusion in the villages could be improved, heavy car traffic flows through the high street could be lessened and bottlenecks could be eased, crime levels in particular neighbourhoods could be reduced, a workforce could travel to a new out-of-town factory etc. The success of the scheme would depend heavily on its ability to offer appropriate durations and fares, together with frequency and reliability over an effective network. A variable-route bus service might be appropriate in the villages, for instance, and the network could be county-wide, or might initially focus on a coastal corridor.

8.49 It would be expected that most of the urban bus network would already be sufficient to support such a scheme. However, it might be necessary to make improvements to the rural sections of the services, particularly on feeder services into the urban area. Clearly, integrated bus and rail services would be an essential part of this scheme, and several bus companies would probably be expected to cooperate. Satisfactory agreement between these stakeholders would need to be reached, and this would have to comply with competition law. As in the Rural case, for an integrated ticket to be fully functional, it will
be necessary for inter-connecting services between modes (for example links between rail and bus services) to be co-ordinated.

8.50 Important aspects of a Town scheme might include:

- Surrounding bus network may need enhancements, possibly including demand responsive transport
- Modal co-ordination may be required
- Review of interchange efficiency may be required
- Attention will need to be paid to competition law
- Cross modal revenue apportionment agreements will be required
- Most likely paper based with probability of linking to a more extensive smartcard scheme
- Fairly low cost requiring medium timescale to obtain agreements between all participants
- Social inclusion and modal shift benefits, with potential for economic development

8.51 Such a scheme would be relatively straightforward to set up if the local operators could be persuaded of the benefits. However, achieving this agreement might be more difficult in a Town scheme than in the others because there are likely to be relatively few operators, possibly in fierce competition with each other, and the potential rewards of cooperation might not be immediately obvious. Implementation of a smartcard system might help to resolve this difficulty because, as the Literature Review indicated, one of the most significant benefits of electronic systems may be the ability to identify untapped markets.

8.52 However, this scheme would almost certainly require help to prime the pump because sceptical or small local operators would be unlikely to provide the necessary initial capital outlay. Resolution of these issues would probably mean that even a paper-based system would take longer to implement than the Rural Scheme postulated above – perhaps two to three years, or longer if it were electronic. However, with accompanying service improvements, the scheme could make a significant and immediate contribution to the quality of life of the local residents, with the likelihood of regional economic benefits in the future.

City Scheme Characteristics

8.53 A City Scheme (such as might cover the central lowland conurbation) could present more challenges than the Rural or Town types owing to the number of modes and operators that would need to reach agreement, but would offer greater potential benefits in terms of passenger uptake, modal shift and business opportunities. Indeed, were such a scheme to be successfully established in the Central Belt, it would have the potential to be not only the hub of public transport in Scotland, but an international model of integrated public transport service. The primary aim would probably be to achieve modal transfer among commuters, but such a scheme would have the capacity to make an impact in the other beneficial ways identified in the Literature Review, such as social inclusion, economic regeneration and environmental quality improvements. A scheme of this sort
would benefit greatly from smartcard technology, preferably contactless. Although this would involve substantial initial planning and investment, the scope for seamless integration, efficient data handling and revenue distribution, enhanced management capability and interoperability potential would almost certainly make this the ticket format of choice. As identified in the Literature Review, if linked into an existing smartcard initiative such as the Citizen Card, the potential for multi-functionality could become extremely attractive to stakeholders, who might envisage the scheme eventually progressing to cover most of the country.

8.54 A City scheme would probably be bus-based, with a significant dependence upon rail, and possibly including trams, underground services, ferries and demand responsive services, depending upon location and implementation. Service quality and a modern image would be very important if travellers were to be successfully lured from their cars. Schedule integration and information would be essential because a large proportion of trips would be business-related and reliability would be critical. A scheme like this would both justify and benefit from real-time information linked to an urban traffic control system, including bus priority and parking management with smartcard access, as described in many European systems.

8.55 Existing inner City bus networks should be sufficient, and the scheme would enable passengers to make better use of the existing network. However, it might be necessary to improve services operating further from the city centres, particularly links between the principal cities and their satellite towns, in order to facilitate seamless travel within the conurbation. Numerous bus companies and other operators would be involved in this scheme, and mutually satisfactory terms of operation, including revenue distribution, would have to be agreed, all in accordance with competition law. This would probably involve a comprehensive review of services to resolve competitive issues and to ensure that such a complex network provided flexible, reliable and responsive, integrated, multi-modal transport for its diversity of travellers.

8.56 Important aspects of a City scheme might include:

- Surrounding bus network may need enhancements, possibly including demand responsive transport
- Possibilities of introduction of new modes, for example, tram, light rail or guided bus
- Large scale modal co-ordination may be required
- Review of interchange efficiency may be required
- Attention will need to be paid to competition law
- Cross modal revenue apportionment agreements will be required
- Most likely smartcard scheme developed in conjunction with other initiatives, with potential for expansion to other areas
- Relatively high cost requiring longer timescale to plan, co-ordinate, and develop
- Assist in development of a sustainable transport policy for the area, leading to modal shift benefits, and assisting in reducing social exclusion and with potential for economic regeneration and environmental improvement.
8.57 Although some of the City area characteristics might be found in a few locations other than the Central Belt, it is worth noting that in that area, there are presently examples of towns that fall just outside either the One-Ticket or ZoneCard schemes. Nevertheless, there are many travellers who probably visit both of those regions regularly, or who fall just within one scheme while many trips are probably made to the other. Furthermore, the existing One-Ticket scheme is designed to facilitate travel into Edinburgh City Centre, but is not structured to assist travel from one suburb to another. Such network gaps are not compatible with a fully integrated transport strategy. Market research is required to determine preferred travel patterns within the catchment area, and ticket types and fare structures need to comply with the requirements for work and leisure-related travel within the conurbation. This means that areas of unmet demand could be identified which would open opportunities for progressive network development and revenue maximisation.

8.58 The area envisaged for this ticket might be defined as embracing Stirling and Dunblane in the north, moving eastwards to Kinross and Kirkcaldy, southwards past Dunbar to Selkirk and then Lanark, further west to Kilmarnock, Ardrossan and Largs, and finally up to Helensburgh. Clearly, it could be much smaller initially, but equally, extension of the scheme to include, for example, Perth, Dundee, St Andrews, Ayr, Rothesay and Dunoon is easily visualised. It is understood that this example would involve the amalgamation of two existing integrated ticket schemes that are based upon Scotland’s two biggest cities. Such a decision is not taken lightly or implemented easily. However, it could provide a model of an efficient public transportation system in the heart of Scotland’s population base, where industry, education, commerce, culture and government are all centred. The resulting benefits for residents and business opportunities for all stakeholders could be very significant.

8.59 The entire programme would be ambitious and expensive, but the costs could be offset by combination with additional applications on the Citizen Card. It would require long-term vision, multi-stakeholder commitment and investment, and strong leadership and management. However, it would permit a process of gradual and responsive development, always providing that the ultimate aims were kept in mind. The Literature Review indicated that the greater the potential multi-functionality of the scheme, the more probably collaborators and investors would identify a relevant corner of the market and commit to it. Establishing such a scheme would probably take at least five years, but the direct and associated social, economic and environmental benefits might be far-reaching and unparalleled.
Figure 8.1: Rural Scheme

- **Issues To Be Addressed**: Bus Operators' Agreement, Multi-modal Revenue Allocation, Service Integration, Competition law, Rural Service Network Improvements.

- **Scheme**: Bus, Rail, Ferry.

- **Scale**: Paper based ticket, Only Smartcard if application on another scheme.

- **Implementation**: Implementation (Years): 1 to 2, 2 to 3, 3 to 4, 4 to 5.

- **Objectives Met**: Social Inclusion, Modal Shift, Tourist Market.
Figure 8.2: Town Scheme
Figure 8.3: City Scheme – Central Belt
CHAPTER 9: CONCLUSIONS

9.1 This report has sought to draw together findings from a wide ranging research project in order to inform future policy on integrated ticketing in Scotland. Each chapter has offered its own conclusions and key findings for integrated ticketing policy. This section attempts to draw together these findings into overarching conclusions, structuring these in terms of the research objectives set out in paragraph 1.5.

Objective 1: To explore definitions of integrated ticketing, in order to recommend a single definition for use by the Scottish Executive

9.2 Ideally, for a ticket to be described as “integrated” it should be:

- Multi-modal, and
- Multi-operator (including more than one bus operator).

9.3 In general, passengers and other stakeholders appear to favour multi-modal tickets over multi-operator bus tickets, but there is a recognition that in areas where bus is the dominant mode a multi-operator ticket might be classed as “integrated”.

9.4 Flexibility was identified as a key feature that should characterise integrated ticketing schemes. Integrated ticketing should be sufficiently flexible to enable it to meet different needs and demands in different areas/markets such as commuters, leisure travellers and tourists. Different products may be required for different types of travellers (e.g. flexible day-tickets vs. season tickets).

9.5 In terms of the appropriate area for an integrated ticket, again, there appears to be a need for schemes to be sensitive to local markets. For each prospective scheme, the first question should be what types of trips do people in this area want to make? The appropriate area, modes and duration of tickets will stem from the answer to this question.

Objective 2: To review current integrated ticketing provision in Scotland

9.6 In Scotland, as in the rest of the UK, all current major multi-modal ticketing schemes are focused around the main cities, with very few schemes in operation in more rural areas. Current schemes include:

- SPT ZoneCard, a multi-modal scheme including rail, subway, most buses and some ferries covering Glasgow and most of the former Strathclyde area. Tickets and charges based on zones, with weekly, monthly, 10-week and annual tickets available.
- One-Ticket, covering Edinburgh and the SESTRAN area, offering unlimited bus and trail travel on participating services, with daily, weekly, monthly and annual travelcards available
- Aberdeenshire Connect bus through-ticketing and travelcard initiative
• PlusBus, a combined bus-rail ticket which entitles the holder to unlimited bus travel within a specified area at one or both ends of their rail journey between participating rail stations. There are currently 22 participating stations in Scotland
• ScotRail/CalMacFreedom of Scotland Travel Pass and Highland Rover tickets, which allow rail, bus and ferry travel on any 4 out of 8 consecutive days on participating services

Objective 3: To conduct an assessment of user demand for future integrated ticketing schemes

9.7 Forty per cent of respondents to the Household Survey indicated that they would buy a ‘fully’ integrated ticket if it cost either the same as their weekly transport costs or half this amount. Further, a small but significant proportion of respondents indicated that they would use public transport more often if they could buy multi-modal (34%) or multi-operator (26%) tickets.

9.8 The research therefore does indicate reasonable levels of user demand for future expansion of integrated ticketing schemes, although previous research on predicted and actual take-up of transport initiatives suggests that this is likely to represent an over-estimate of the actual take-up.

9.9 Respondents appear to be prepared to pay a (small) premium for multi-modal tickets over single-mode tickets, but were not prepared to pay much more for multi-operator tickets over single-operator bus tickets.

9.10 The most commonly mentioned trips respondents thought they would make differently if they bought an integrated ticket were for leisure purposes (leisure day trips, visiting family and friends and entertainment).

9.11 These findings have important implications for the pricing, targeting and marketing of tickets if they are to match user-expectations and demand. For example, where passengers anticipate using tickets on a single-mode, multi-operator tickets will need to be competitively priced or people may not buy them. Marketing for multi-modal tickets might be directed at the tourist/leisure market, focusing on making complex multi-modal trips more simple.

Objective 4: To establish best practice in integrated ticketing from Scotland, the UK and other countries

9.12 The research suggests a number of key features associated with scheme success, based on both best practice and difficulties experienced by existing integrated ticketing schemes in Scotland, the UK and abroad:

• Integrated tickets should be sufficiently flexible in terms of modes and types of journey covered to meet the travel needs of as large a customer base as possible
• Successful integrated tickets are underpinned by integrated transport systems. The research strongly suggests that integrated ticketing will be more effective in
encouraging patronage and modal shift if introduced in conjunction with other improvements to public transport.

- They should offer a range of durations, ideally permitting discounted frequent travel over defined short periods or further discounts for longer term commitments (e.g. commuting).
- An integrated ticket needs to be effectively and actively marketed. It needs to establish a recognisable brand that distinguishes it – and its advantages – from single-operator tickets. Marketing costs for successful schemes are high – requiring a budget in the start-up phase in the region of 10% of total sales.
- Successful schemes require strong-operator buy-in, which in turn requires that the administrator of the scheme is viewed as relatively independent and trusted by all parties. The role of champion(s) in the formation of an integrated ticketing schemes has also proved important in achieving this buy-in, particularly in the context of voluntary participation by operators.

9.13 Many large integrated ticketing schemes in the UK and abroad are now moving towards or already based upon Smartcard technology. Smartcard technology offers several key advantages over other ticketing formats. In particular:

- Smartcards have the potential to resolve issues around revenue distribution by enabling accurate measurement of actual passenger miles
- They facilitate the collection of more detailed passenger data which can assist operators and other in route planning, developing targeted products, etc.
- They have numerous potential applications other than simply transport, which may increase their value to users.

9.14 A card for Scotland, the “Citizen Card”, is currently under development, and may offer a cost-effective way of developing an integrated public transport ticket within Scotland. However, the Citizen Card is still in its planning stage and consequently its applicability as a flexible integrated ticket is not yet clear. Further, this study has identified a number of issues around Smartcards which need to be addressed if their potential advantages are to be fully realised:

- First, it is unclear whether Smartcards will be able to accurately measure passenger miles on buses, where exit from the vehicle is not monitored. Although the research has shown that this is not the only acceptable basis for revenue distribution, if Smartcards are not able to provide an accurate measure of passenger miles on all participating modes, this does undermine some of the advantages claimed for them.
- Second, while smartcards clearly have the potential to provide very useful information to assist in transport planning, this needs to be balanced against the need to conform to data protection legislation and to prevent the misappropriation of any information collected.
- Third, it is not clear how interested the public is in smartcards per se, or whether they would see more value in a multi-functional card as distinct from a travel only card. There is some evidence to suggest that some travellers who would be interested in buying integrated tickets would not be interested in the smartcard format. Further, the evidence was somewhat inconclusive over whether people prefer specific travel-cards or multi-purpose cards.
9.15 None of these issues represent insurmountable obstacles to basing integrated ticketing schemes on smartcards. Issues around measuring passenger miles on buses may be resolved as technology progresses. Data protection issues can be handled through detailed guidance to those participating in schemes. Public education and marketing may overcome any initial resistance to smartcards. The introduction of the Citizen Card may also play an important role in improving acceptance of this technology and also presents opportunities to monitor and evaluate which functions of the card are most popular.

9.16 However, these issues do need to be taken into consideration as ticketing schemes and smartcard technology are developed. In particular, they suggest a need to closely monitor smartcard tickets terms of:

- Effects on boarding/disembarking times
- How data protection issues are handled
- Whether potential passengers are deterred by smartcards
- What passengers use smartcards for (i.e. transport and other uses)

**Objective 5: To establish the impact of integrated ticketing schemes elsewhere in the UK and internationally, particularly on public transport patronage and modal shift**

9.17 The research found a relative dearth of evidence on the precise extent to which existing schemes have had any effect on patronage and modal shift. In general, the strongest evidence that integrated ticketing has had a positive impact on patronage appears to originate from countries where integrated tickets are heavily subsidised and offer substantial discounts over both single-operator and single-journey tickets. For reasons connected with competition legislation and discussed in the Barriers Review of this report, it is not possible for integrated ticketing schemes in the UK to under-cut the price of single-operator tickets.

9.18 The research also highlights the difficulty of separating the impact of integrated ticketing schemes from other improvements in public transport. Integrated ticketing schemes are often introduced in conjunction with other changes to public transport services, and indeed the research strongly suggests that they are likely to be more successful if this is the case. However, this does have the unfortunate side-effect of making it impossible (or at least very difficult) to measure the impact of integrated ticketing alone on patronage and modal shift.

9.19 However, in spite of the lack of quantifiable evidence there does appear to be a strong conviction among stakeholders in existing and potential schemes that integrated ticketing will result in advantages for passengers and other stakeholders, particularly where these are based around smartcards. Perceived benefits include improved transaction speed and better information on which to base services so that they are tailored to passenger demand. Further, as discussed above, the research does suggest that there is passenger demand for integrated ticketing in Scotland and that this would encourage modal shift among a small but significant proportion of people.
Objective 6: To explore the potential, longer-term impacts of integrated ticketing, e.g. on the levels and nature of services provided by different transport operators

9.20 Most of the findings relating to the potential of integrated ticketing to improve service delivery were framed in the context of the development of smartcards. Where schemes are based around smartcards, they have the potential to deliver far more detailed, specific information about passenger travel patterns than has hitherto been possible. This information could facilitate better service planning and delivery, fare structures which are responsive to varying levels of passenger demand (and target different types of passenger), etc.

9.21 Other potential longer-term impacts include:

- Environmental benefits if integrated tickets are successful in encouraging modal shift
- Economic benefits, where integrated tickets are used to facilitate travel to or within a particular region
- Public health benefits, since it has been suggested that integrated tickets can (depending on their format and when they are purchased) reduce the number of actions required in a short-time when boarding a vehicle and may therefore benefit the elderly or those with mobility problems. If integrated ticketing encourages modal shift, it will also have environmental health benefits.

Objective 7: To review barriers to introducing further integrated ticketing schemes in Scotland, including legislative barriers

9.22 This research has identified a range of potential barriers to the success of future integrated ticketing schemes, some real and some “perceived”, and has suggested potential solutions to each of these as follows:

- Achieving operator buy-in is an essential but difficult requirement for any successful scheme, particularly in the context of voluntary participation. Key recommendations for achieving buy-in include finding “scheme champion(s)”, who are skilled negotiators and are trusted by all parties, to take new schemes through the set-up phase, and ensuring that the administration of the scheme is acceptable to participants in terms of feeling they have a fair say in any decisions made.

- Allocating revenue in a manner that is perceived by operators to be equitable is also crucial to sustaining operator buy-in for a scheme. The principal barriers to achieving this in practice are the lack of a perfect methodology and cost, since the large-scale passenger surveys on which revenue allocation is frequently based are very expensive and can still be subject to a considerable degree of sampling error. An alternative to surveys may be to derive passenger miles from fare-distance relationships and fares taken on each operator’s services. Smartcards may be able to facilitate revenue allocation in the future, although currently their inability to monitor exit as well as entry on some modes presents a barrier to this use.
• OFT regulations were found to be an important perceived barrier, in that some operators cite the complexity of competition regulations and the risk of draconian punishments for breaking them as a reason for not entering in to multi-operator schemes. However, this research found that in most cases OFT regulations were by no means insurmountable and that if those setting up schemes consulted the OFT they were usually able to resolve any concerns about the legality of the scheme. It may be that the OFT does need to improve its “public face”, to encourage this dialogue with operators and other stakeholders in future schemes.

• The necessity for multi-operator tickets to cost more than single-operator tickets (a requirement of the OFT Block Exemption) may hamper the success of schemes if passengers are unwilling to pay such a premium. In practice, the most that can be said about the premium for future tickets in Scotland is that it should be as low as possible.

• Administration and marketing costs can be considerable, but without effective marketing new schemes are unlikely to be successful. In the start-up phase, the marketing budget is likely to exceed that which can be funded from ticket revenue and may need some subsidy.

• The attractiveness of integrated tickets is enhanced if they are able to include all public transport modes. However, existing schemes have encountered some difficulties in securing the participation of rail-operators. Widespread acceptance of multi-operator tickets appears likely to occur only when rail operators are required by regulation to participate.

Objective 8: To move forward the development of integrated ticketing in Scotland by proposing options for a maximum of three outline, multi-modal pilot integrated ticketing schemes

9.23 Three general types of area for future integrated ticketing scheme pilots are suggested based on the findings of the research conducted for this study on the necessary conditions for successful schemes and on likely passenger need and demand for tickets of different types:

• A rural area, which includes bus, rail and ferry services. This could particularly aim to make long-distance, infrequent travel easier for residents in relatively remote areas, but might also target the tourist market. Ticket-types and durations would need to reflect the requirements of these target groups. The scheme would probably be paper-based initially, and would be based on local bus, coach and ferry services and linked with long-distance rail services. Initial capital outlay would be relatively modest, and the scheme might be implemented within one or two years.

• A town scheme, focused around a travel “hub” but including rural and relatively remote areas that might depend on the town for work, education, public services, etc. The scheme would probably be bus-based with some rail services, and might start with a paper format, though depending on the area selected there might be scope for introducing an electronic system. There would probably be a need to
pump-prime such a scheme since sceptical or small local operators would be unlikely to provide the initial capital outlay. It might take two to three years to implement, or longer if based on an electronic system.

- A city scheme, possibly covering the central lowland conurbation. This scheme would particularly target commuters and would benefit from being based around smartcard technology given its likely size. It would also justify and benefit from being introduced alongside real-time passenger information linked to an urban traffic control system, since a large proportion of trips would be business related where reliability is key. It would be bus-based, but would also include rail, and possibly trams, underground services and demand responsive services. It is suggested that the Central Belt would be an ideal area for such a scheme, since there are currently examples of towns that fall just outside either the One-Ticket or SPT ZoneCard schemes. Further, there are many travellers who probably visit both regions regularly, or who fall within one scheme but make more regular trips to the area covered by the other. Such a scheme would probably take at least five years to establish but could provide an international model of efficient, integrated public transport service.
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APPENDIX A: METHODOLOGY

STAKEHOLDER SURVEY

Data collection

1. TRL designed and administered a telephone survey to a pre-selected list of organisations that could contribute their knowledge on the current situation as regards integrated ticketing in Scotland and provide a range of opinions from within the industry.

Survey Sample

2. The stakeholder survey aimed to obtain up to 35 replies from a representative cross-section of public transport operating companies and local authorities, based primarily in Scotland. Each prospective interviewee was contacted a number of times to ascertain their views, and knowledge, on integrated tickets.

3. In total 30 replies were obtained. These included a good cross-section of different organisations including:
   - 2 passenger transport executives
   - 3 area transportation authorities
   - 9 councils of varying sizes
   - 6 bus companies of varying sizes
   - 2 rail companies
   - 1 ferry company
   - 2 air transport companies

4. An additional interview was conducted with a member of the Scottish Executive Costs/Infrastructure Working Group and findings from this interview are also included in the main report.

Questionnaire

5. The survey discussed the participants' understanding of:
   - the term integrated ticket,
   - what individual conditions needed to be satisfied for a ticket to meet this definition (for example the minimum number of valid modes, or the smallest valid area),
   - current provision of such tickets in Scotland,
   - known failed schemes,
   - proposed future schemes,
   - barriers to introducing schemes,
• target markets for such tickets,
• of the best form of administration of these schemes, and
• whether there is a business case for these schemes.

CASE STUDIES

Case Study Contacts

6. Each of the case studies was researched by means of a questionnaire survey, using a structured, self-completion questionnaire sent to participants involved in various aspects of the scheme. A potential list of contacts for each of the four schemes was compiled. The contact lists were comprehensive and covered operators for each of the different modes involved in the scheme, the relevant Transport Authority and, in some cases, local authorities.

Case Study Questionnaire

7. A draft questionnaire was produced in consultation with the Scottish Executive based upon the following topic areas:

• Ticket details
• Administration of the ticket
• Legislation (including any legislative difficulties at the time the scheme was introduced, and data protection issues)
• Context (e.g. competing tickets, other transport developments)
• Details of participating operators
• Presentation and distribution of tickets
• Revenue apportionment
• Infrastructure required to support the scheme
• Impacts of the scheme (including patronage impacts and any effects on competition with other operators)
• Future development of the scheme.

8. In addition, owing to the different information required from these two sources, two extra versions of the questionnaire were created especially for the Office of Fair Trading (OFT) and the Oyster Card.
Data Collection

9. Because of the amount of information required from the questionnaire recipients and its complexity, it was decided that conducting the questionnaires in the form of telephone interviews would be very time-consuming and perhaps counter-productive. However, it was recognised that useful information might be obtained from direct telephone conversations, so it was decided to make the initial contact by telephone and try to engage the respondent in discussion before sending the questionnaire by post or e-mails, according to preference. Follow-up telephone calls were subsequently made to assist respondents with completing the questionnaire and to discuss any points arising.

10. During the initial call, the appropriateness and willingness to take part of each respondent was confirmed, and in many cases, this resulted in different contacts being made in order to obtain the information from the most appropriate source. Several of the originally identified contacts could not be reached at all and alternatives were sought. Following the initial discussion, questionnaires were then sent to willing participants, with a covering letter providing information about the project and the questionnaire, and giving a deadline for completion. Progress was checked and questionnaire completion was discussed in follow-up calls approximately 7-10 days later. These calls provided further opportunities to elicit information and to discuss any points of concern within the respective schemes.

Profile of Responses

11. A total of 14 completed questionnaires were received, together with a detailed letter covering the relevant questions, giving a total of 15 responses. A breakdown of these responses according to case-study scheme is provided below:

<table>
<thead>
<tr>
<th>Scheme</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Ticketing Tyne and Wear Network Travelticket</td>
<td>4</td>
</tr>
<tr>
<td>GMPTE Travelcard</td>
<td>3</td>
</tr>
<tr>
<td>SPT Zonecard</td>
<td>5</td>
</tr>
<tr>
<td>ScotRail/CalMac Freedom of Scotland Travelpass</td>
<td>1</td>
</tr>
<tr>
<td>Oyster Card</td>
<td>1</td>
</tr>
<tr>
<td>OFT</td>
<td>1</td>
</tr>
</tbody>
</table>

12. In each of the four schemes, the local transport authority was a main source of information. In particular, initial contact with several of the operators involved in the SPT ticketing scheme highlighted that some of the operators (for instance, the Subway and the ferry operators) are themselves run and centrally administered by SPT. In this respect, their involvement in the integrated ticketing scheme was not so much a matter of choosing to join, as much as being included by default, since the ZoneCard is an SPT-run operation. Similarly, contact with several of the local authority contacts again led to
referrals to SPT for information. Therefore, it became apparent that SPT would be the most frequent point of contact for information. This pattern was reflected across the other three case-studies, where the transport authority was often cited as the main source of information.

13. The majority of responses received were from the PTEs and operators, as shown below in the table below. Only one of the questionnaires was received from a local authority. The ‘other mode’ operators included rail and taxi, but no responses were received from waterborne transport operators, despite approaches.

<table>
<thead>
<tr>
<th>Type of Respondent</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrator</td>
<td>1</td>
</tr>
<tr>
<td>PTE</td>
<td>5</td>
</tr>
<tr>
<td>Local Authority</td>
<td>1</td>
</tr>
<tr>
<td>Operator – Bus</td>
<td>3</td>
</tr>
<tr>
<td>Operator – Other Modes</td>
<td>3</td>
</tr>
<tr>
<td>OFT</td>
<td>1</td>
</tr>
<tr>
<td>Oyster Card</td>
<td>1</td>
</tr>
</tbody>
</table>

14. In some cases, contacts were unable to provide all of information that was requested. Several representatives approached declined to take part in the survey and several of those who had agreed to participate, later withdrew on the basis that they felt unable to provide the information requested. Thus for some schemes the researchers were only able to obtain one or two responses.

15. The level of information respondents were able to give also varied – while some responses were highly detailed, several questionnaires were returned incomplete, or comprised many ‘don’t know’ responses. The information presented in the Case Studies chapter is as it appeared in the questionnaires and represents the respondents’ understanding of the schemes.

HOUSEHOLD SURVEY

16. TNS Social undertook a survey of 1,024 Scottish adults (aged 16 and over) in February and March 2004 to gather user feedback on the various options for integrated ticketing in Scotland.
Sample

Sample coverage

17. The Survey focused on five ‘travel-to-work’ areas (TTWAs) in Scotland. Travel-to-work areas are areas where:

- of the resident economically active population at least 75% actually work in the area, and
- of everyone working in the area at least 75% actually live in that area.

18. The current TTWAs were defined in 1998 using 1991 census information. Although recent analysis of the Scottish Household Survey has suggested that the TTWAs (for Edinburgh in particular) may have widened since 1991, it was felt that for the purposes of the current study they remained the most suitable and practical areas on which to focus.

19. The areas included in the survey were all areas where there was deemed to be good potential for introducing or expanding integrated ticketing schemes based on their current transport infrastructure. Different types of areas (urban, rural, mixed, medium-sized town) were also selected. The final areas were as follows:

1. **Aberdeen TTWA** (261 interviews), which includes Aberdeen City and encompasses Aboyne in the West, Inverurie and Pitmedden in the North and Stonehaven in the South. At the time the survey was carried out, this area did not have a developed integrated ticketing scheme, although there were several schemes in development which might be adopted, amended or expanded if the area were thought suitable for a pilot scheme.

2. **Edinburgh TTWA** (258 interviews), which encompasses Edinburgh, Midlothian, East Lothian and West Lothian. Although the ‘One-ticket’ scheme was already in operation in Edinburgh and surrounding areas at the time of the survey, the initial stakeholder consultation suggested that take-up was not yet particularly high. Further, while the ticket offers good bus coverage, very few rail services were included at the time of the survey. It was therefore felt that it would be worthwhile including the Edinburgh ‘travel-to-work’ area in order to assess levels of awareness of ‘One-ticket’ and to explore the scope for amending/expanding the scheme.

3. **Perth TTWA** (245 interviews), which includes Perth and extends to Dunkeld in the North, Glenlarg in the South, Errol in the West and Methven in the East. Perth was included to ensure that the perspective of people living in or near a medium-sized urban settlement were covered by the survey.

4. **Oban TTWA and Islay and Mull TTWA** (260 interviews). These adjacent TTWAs were included in order to assess the need and demand for integrated ticketing in a rural area. Findings for the two areas are presented together throughout this chapter.
Sample selection

20. The sample was provided by a specialist sampling company (Business Geographics) and was structured in order to produce an achieved sample of approximately 250 interviews in each of the four areas above. A technique known as ‘random location sampling’ was used to ensure that the final sample was representative of adults in that area. In each of the first three areas (Aberdeen, Edinburgh and Perth), 32 Census Enumeration Districts (EDs) were selected randomly with a probability proportionate to the number of households in that ED, while 16 EDs were selected in each of Oban TTWA and Islay and Mull TTWA. Full address listings were provided for each ED and quotas for interviews were set based on the sex, age and working status profile of the adult population in that ED (based on 2001 Census results). The aim of setting quotas on population characteristics was to ensure that the achieved sample reflected the broad characteristics of the study populations.

Data collection

21. The survey was carried out using a pen-and-paper questionnaire administered face-to-face in peoples’ homes by trained interviewers from TNS. All interviewers working on the study received a full briefing from a member of the research team. The interview took around 25 minutes to complete.

Questionnaire design

22. The questionnaire was designed by the research team in consultation with the Scottish Executive. It covered the following topics:

- Demographic information about respondents
- Respondents’ current travel patterns and travel costs
- Use of and attitudes towards public transport
- Awareness of integrated ticketing schemes
- Potential take-up of integrated tickets and impact on travel patterns
- Views on different types of tickets and different ticketing technologies
HOUSEHOLD SURVEY SAMPLE CHARACTERISTICS

23. Overall, 48% of Household Survey respondents were male and 52% were female, matching the profile of the Scottish Population as a whole\(^1\). These proportions were similar across all four areas included in the survey.

24. Just over 1 in 10 respondents (12%) were aged between 16 and 24 years old, while over a third (35%) were aged 25-44, a quarter (25%) were aged 45-59 and 28% were aged 60 or older. Table 4 shows the age breakdown of respondents across the four areas. The age profile of the sample is very similar to the profile of the adult population in each area, as indicated by the 2001 Census, although respondents aged over 60 years were slightly over-represented in the Edinburgh sample (29% in the Household Survey compared with 24% in the Census).

Table 4 - Age by area (% of Household Survey respondents compared with 2001 Census)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-24</td>
<td>Household Survey (%)</td>
<td>14</td>
<td>15</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>2001 Census (%)</td>
<td>16</td>
<td>15</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>25-44</td>
<td>Household Survey (%)</td>
<td>39</td>
<td>34</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>2001 Census (%)</td>
<td>37</td>
<td>39</td>
<td>35</td>
<td>34</td>
</tr>
<tr>
<td>45-59</td>
<td>Household Survey (%)</td>
<td>23</td>
<td>22</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>2001 Census (%)</td>
<td>24</td>
<td>23</td>
<td>25</td>
<td>27</td>
</tr>
<tr>
<td>60 +</td>
<td>Household Survey (%)</td>
<td>24</td>
<td>29</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>2001 Census (%)</td>
<td>23</td>
<td>24</td>
<td>28</td>
<td>29</td>
</tr>
</tbody>
</table>

25. Overall, 58% of the sample were employed, either full-time, part-time or self-employed. A further 24% were permanently retired from work, while 7% were looking after the home or family (Table 5).

---

\(^1\) See [www.scrol.gov.uk](http://www.scrol.gov.uk) for Scotland’s Census results for 2001.
Table 5 – Economic activity by area (% of Household Survey respondents)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-employed</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Employed full-time</td>
<td>42</td>
<td>34</td>
<td>36</td>
<td>36</td>
<td>37</td>
</tr>
<tr>
<td>Employed part-time</td>
<td>13</td>
<td>14</td>
<td>15</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Looking after home or family</td>
<td>7</td>
<td>6</td>
<td>9</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Permanently retired from work</td>
<td>21</td>
<td>25</td>
<td>27</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Unemployed</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>In full-time education</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Permanently sick or disabled</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>3</td>
<td>*</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>BASES (n)</td>
<td>261</td>
<td>258</td>
<td>245</td>
<td>260</td>
<td>1,024</td>
</tr>
</tbody>
</table>

26. Table 6 shows the overall profile of working (including full-time, part-time and self-employed) and not-working respondents in the sample compared with the profile of the adult population in the four areas selected. The profiles are very similar, although the working population is slightly under-represented in the Edinburgh sample (54% compared with 60% in the population).

Table 6 – Working status by area (% of Household Survey respondents compared with 2001 Census)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household Survey</td>
<td>60</td>
<td>54</td>
<td>58</td>
<td>61</td>
<td>58</td>
</tr>
<tr>
<td>2001 Census</td>
<td>62</td>
<td>60</td>
<td>59</td>
<td>59</td>
<td>NA</td>
</tr>
<tr>
<td>Not working</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household Survey</td>
<td>40</td>
<td>46</td>
<td>42</td>
<td>39</td>
<td>42</td>
</tr>
<tr>
<td>2001 Census</td>
<td>38</td>
<td>41</td>
<td>41</td>
<td>41</td>
<td>NA</td>
</tr>
</tbody>
</table>

27. Overall, 22% of the sample lived in pensioner households, varying from 18% in Oban, Islay and Mull to 26% in Perth TTWA. Just over a third (35%) lived in households with children (5% single parents). Fourteen per cent were couple households without children, while 14% were single person households. Just over 1 in 10 (11%) identified themselves as households of 2 or more adults living together.

---

2 * indicates a proportion smaller than 1%
Table 7 – Household type by area (% of respondents)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single pensioner</td>
<td>10</td>
<td>8</td>
<td>11</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Pensioner couple</td>
<td>12</td>
<td>14</td>
<td>15</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Single person without children</td>
<td>19</td>
<td>14</td>
<td>13</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Single person with children</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Couple without children</td>
<td>17</td>
<td>12</td>
<td>18</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>Couple with children</td>
<td>30</td>
<td>32</td>
<td>27</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Group of 2 or more adults living together</td>
<td>8</td>
<td>15</td>
<td>10</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>BASES (n)</td>
<td>261</td>
<td>258</td>
<td>245</td>
<td>260</td>
<td>1,024</td>
</tr>
</tbody>
</table>

28. Fifteen per cent of respondents said they had an annual household income before tax of under £9,999, while a further quarter (24%) had an annual income of between £9,999 and £19,999 (Table 8). Seventeen per cent had an annual income of £20,000 to £29,999 while 21% had an income of £30,000 or more. Seventeen per cent of the sample refused to give information about their income.

Table 8 – Annual household income before tax by area (% of respondents who are householders or their spouse/partner)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than £9,999</td>
<td>9</td>
<td>17</td>
<td>14</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>£9,999 - £19,999</td>
<td>23</td>
<td>23</td>
<td>27</td>
<td>25</td>
<td>24</td>
</tr>
<tr>
<td>£20,000 - £29,999</td>
<td>18</td>
<td>20</td>
<td>14</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>£30,000 - £49,999</td>
<td>20</td>
<td>12</td>
<td>14</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>£50,000 +</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Refused</td>
<td>22</td>
<td>15</td>
<td>20</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>Don’t know</td>
<td>4</td>
<td>7</td>
<td>4</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>BASES (n)</td>
<td>240</td>
<td>246</td>
<td>230</td>
<td>232</td>
<td>948</td>
</tr>
</tbody>
</table>

29. Sixteen per cent stated that they had a long-standing illness, health problem or disability. Twenty-nine per cent of respondents already held some type of concessionary travel card or pass, the most common type being an OAP bus pass (20% of respondents).
APPENDIX B: CURRENT SCHEME COVERAGE
APPENDIX C: CASE STUDY BACKGROUND INFORMATION

http://www.scotrail.co.uk/rtmap1.htm
http://www.spt.co.uk/Tickets/zonecard.html
http://www.tyneandwearmetro.co.uk/pdf/map.pdf
## NETWORK TICKETING TYNE AND WEAR NETWORK TRAVELTICKET

<table>
<thead>
<tr>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scheme Name/Type of ticket:</strong></td>
</tr>
<tr>
<td>Network Ticketing Tyne and Wear Network Travelticket</td>
</tr>
<tr>
<td>Multi-modal/multi-operator season tickets covering Tyne and Wear</td>
</tr>
<tr>
<td><strong>Area Covered:</strong></td>
</tr>
<tr>
<td>Tyne and Wear</td>
</tr>
<tr>
<td><strong>Type of zoning:</strong></td>
</tr>
<tr>
<td>Divided into 60 zones</td>
</tr>
<tr>
<td><a href="http://www.tyneandwearmetro.co.uk/pdf/map.pdf">See www.tyneandwearmetro.co.uk/pdf/map.pdf</a></td>
</tr>
<tr>
<td>Network Ticketing says 32 zones</td>
</tr>
<tr>
<td><strong>Bus operators involved:</strong></td>
</tr>
<tr>
<td>Line Coaches</td>
</tr>
<tr>
<td>ARRIVA Classic Coaches</td>
</tr>
<tr>
<td>Garfoot Coaches</td>
</tr>
<tr>
<td>Go North East</td>
</tr>
<tr>
<td>Jayline</td>
</tr>
<tr>
<td>Kingsley Coaches</td>
</tr>
<tr>
<td>Low Fell Buses</td>
</tr>
<tr>
<td>Northumbria Mini Coaches</td>
</tr>
<tr>
<td>Redby Coaches</td>
</tr>
<tr>
<td>Sherburn Village Coaches</td>
</tr>
<tr>
<td>Snaiths Travel</td>
</tr>
<tr>
<td>Stanley Taxis</td>
</tr>
<tr>
<td>Stagecoach in Cumbria</td>
</tr>
<tr>
<td>Stagecoach North East Wright Bros Coaches Ltd</td>
</tr>
<tr>
<td>Stagecoach North East, Arriva, Go North East and 7 small bus operators</td>
</tr>
<tr>
<td><strong>Other modes included:</strong></td>
</tr>
<tr>
<td>Metro</td>
</tr>
<tr>
<td>Ferry</td>
</tr>
<tr>
<td>Local rail services</td>
</tr>
<tr>
<td><strong>Times card is valid:</strong></td>
</tr>
<tr>
<td>Two cards available: all day for use anytime and off-peak for use 9.30 to 16.00 and from 18.00</td>
</tr>
<tr>
<td>Monday to Friday.</td>
</tr>
<tr>
<td>Anytime Saturday and Sunday</td>
</tr>
<tr>
<td>Various different tickets available, some of which can be used 24 hours a day</td>
</tr>
<tr>
<td>All-day and off-peak options available</td>
</tr>
</tbody>
</table>
Ticket Outlets: Tickets available from a range of agents as listed at www.networkticketing.com

20+ agencies across Tyne and Wear

Location of Nexus Travelshops:
Four Lane Ends Metro Station*
Gateshead Bus/Metro Interchange*
Gateshead MetroCentre Bus Station*
Heworth Metro Station
Newcastle (Haymarket Metro Station)*
Newcastle (Monument Metro Station)*
North Shields Metro Station*
South Shields 32-36 Fowler Street*
Sunderland Park Lane Interchange
Sunderland (Park Lane Metro Station)*
*Concessionary Travel (CT) Passes/Under 16 Cards available here.
Also available where you see the Network Travelticket sign.

Example fares:

<table>
<thead>
<tr>
<th></th>
<th>1 week</th>
<th>2 weeks</th>
<th>4 weeks</th>
<th>Annual</th>
<th>1 week</th>
<th>2 weeks</th>
<th>4 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2 Zones in a row</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>£11.20</td>
<td>£22.40</td>
<td>£39.00</td>
<td>£415.00</td>
<td>£9.00</td>
<td>£18.00</td>
<td>£31.90</td>
</tr>
<tr>
<td><strong>3 Zones in a ring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>£12.00</td>
<td>£24.00</td>
<td>£42.10</td>
<td>£440.00</td>
<td>£9.60</td>
<td>£19.20</td>
<td>£33.90</td>
</tr>
<tr>
<td><strong>3 Zones in a row</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>£12.80</td>
<td>£25.60</td>
<td>£45.20</td>
<td>£480.00</td>
<td>£10.40</td>
<td>£20.80</td>
<td>£36.00</td>
</tr>
<tr>
<td><strong>4 Zones in a ring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>£14.20</td>
<td>£28.40</td>
<td>£49.30</td>
<td>£535.00</td>
<td>£11.40</td>
<td>£22.80</td>
<td>£40.10</td>
</tr>
<tr>
<td><strong>All Zones</strong></td>
<td>£15.50</td>
<td>£31.00</td>
<td>£54.50</td>
<td>£575.00</td>
<td>£12.30</td>
<td>£24.60</td>
<td>£43.20</td>
</tr>
</tbody>
</table>
## GMPTE TRAVELCARD

<table>
<thead>
<tr>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheme Name/Type of ticket: GMPTE System One Travelcard</td>
</tr>
<tr>
<td>Area Covered: Greater Manchester</td>
</tr>
<tr>
<td>Type of zoning: Metrolink has 8 zones based on distance from City zone</td>
</tr>
<tr>
<td>Bus operators involved: Arriva Cheshire</td>
</tr>
<tr>
<td>Arriva Cymru Limited</td>
</tr>
<tr>
<td>Arriva North West Limited</td>
</tr>
<tr>
<td>Ashall's Coaches</td>
</tr>
<tr>
<td>Atherton Bus Company</td>
</tr>
<tr>
<td>Blackburn Transport</td>
</tr>
<tr>
<td>Blue Bus</td>
</tr>
<tr>
<td>Bluebird Bus and Coach</td>
</tr>
<tr>
<td>Border Buses</td>
</tr>
<tr>
<td>Bostock's Coaches</td>
</tr>
<tr>
<td>Bowers Coaches</td>
</tr>
<tr>
<td>R. Bullock Buses</td>
</tr>
<tr>
<td>Burnley &amp; Pendle Travel Ltd</td>
</tr>
<tr>
<td>Bu-Val</td>
</tr>
<tr>
<td>Checkmate Mini Coaches</td>
</tr>
<tr>
<td>The Coachmasters</td>
</tr>
<tr>
<td>Cranberry Coachways</td>
</tr>
<tr>
<td>Dennis's Coaches</td>
</tr>
<tr>
<td>Express Coach Services</td>
</tr>
<tr>
<td>FinglandsFirst Calderline</td>
</tr>
<tr>
<td>First Huddersfield</td>
</tr>
<tr>
<td>First Manchester</td>
</tr>
<tr>
<td>Including First Rochdale</td>
</tr>
<tr>
<td>First Pennine</td>
</tr>
<tr>
<td>First PMT</td>
</tr>
<tr>
<td>Goodwins</td>
</tr>
<tr>
<td>Jim Stones Coaches</td>
</tr>
<tr>
<td>JP Travel</td>
</tr>
<tr>
<td>Lancashire United Ltd</td>
</tr>
<tr>
<td>A Mayne &amp; Son Ltd</td>
</tr>
<tr>
<td>Midwest (Westbrook Coaches)</td>
</tr>
<tr>
<td>MR Travel</td>
</tr>
<tr>
<td>National Express</td>
</tr>
<tr>
<td>National Trust</td>
</tr>
<tr>
<td>Nip On Transport</td>
</tr>
<tr>
<td>Northern Blue</td>
</tr>
<tr>
<td>North Star Buses</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Olympia Travel</td>
</tr>
<tr>
<td>Red Rose Travel</td>
</tr>
<tr>
<td>Ringwood Luxury Coaches</td>
</tr>
<tr>
<td>Rossendale Transport</td>
</tr>
<tr>
<td>Selywn's</td>
</tr>
<tr>
<td>South Lancs Travel</td>
</tr>
<tr>
<td>Stagecoach Manchester</td>
</tr>
<tr>
<td>Stagecoach Ribble</td>
</tr>
<tr>
<td>Stott's Tours</td>
</tr>
<tr>
<td>Sureway Travel</td>
</tr>
<tr>
<td>David Tanner Travel</td>
</tr>
<tr>
<td>Trent Buses</td>
</tr>
<tr>
<td>UK North</td>
</tr>
<tr>
<td>Vale of Manchester</td>
</tr>
<tr>
<td>Warrington Borough Transport</td>
</tr>
<tr>
<td>Whitegate Travel</td>
</tr>
</tbody>
</table>

Other modes included:
- Metrolink
- Rail

Times card is valid:
- Anytime, System 1 Travel Network
- Buses – all day. Other modes – post 09:30

Ticket Outlets:
- Altrincham
- Ashton
- Bolton
- Bury
- Hyde
- Leigh
- Middleton
- Oldham
- Rochdale
- Stockport
- Wigan
- Wythenshawe

Post Offices, travelshops/stations and on the bus
Example fares:

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Day travel on trains and any bus</td>
<td>£22.70</td>
</tr>
<tr>
<td>Monthly travel on trains and any bus</td>
<td>£71.50</td>
</tr>
<tr>
<td>Annual travel on trains and any bus</td>
<td>£715.00</td>
</tr>
<tr>
<td>£3.30 or £2.95 per day</td>
<td></td>
</tr>
</tbody>
</table>
### SPT ZONECARD

<table>
<thead>
<tr>
<th>Details</th>
</tr>
</thead>
</table>
| **Scheme Name/Type of ticket:** | SPT ZoneCard  
Multi-modal travel scheme |
| **Area Covered:** | Most of the former Strathclyde area (SPT area) |
| **Type of zoning:** | Divided into town zones  
E.g. Ayr = A, see map at www.spt.co.uk/tickets/zonecard.pdf  
The zones have been arranged in a way that reflects approximately the same value of travel when taken contiguously |
| **Bus operators involved:** | 48 operators  
see www.spt.co.uk/tickets/zonecard.pdf  
All major bus operators, plus the vast majority of all other bus operators in the ZoneCard area, about 70 in total  
Approximately 70 – all major operators and most of the small operators in the area |
| **Other modes included:** | Rail  
Subway  
Ferry |
| **Times card is valid:** | Sunday to Saturday and 24 hours a day |
| **Ticket Outlets:** | Most Scotrail stations, the Transcentre St Enoch Subway station, SPT travel centres, Buchanan bus station and Ayr and Kilmarnock bus stations  
All ‘manned’ stations  
All ScotRail staffed stations (in SPT area), all SPT administered Travel Centres, including the Transcentre, various operator outlets, some bus stations and various retail outlets to fill in the gaps |
| **Example fares:** | See www.spt.co.uk/tickets/zonecard.pdf |
## SCOTRAIL/CALMAC FREEDOM OF SCOTLAND TRAVELPASS

<table>
<thead>
<tr>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scheme Name/Type of ticket:</strong></td>
</tr>
<tr>
<td><strong>Area Covered:</strong></td>
</tr>
<tr>
<td><strong>Type of zoning:</strong></td>
</tr>
<tr>
<td><strong>Bus operators involved:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Other modes included:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Times card is valid:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Ticket Outlets:</strong></td>
</tr>
<tr>
<td><strong>Example fares:</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
## APPENDIX D: HOUSEHOLD SURVEY: ADDITIONAL TABLES

### Table D 1– Average (mean) number of trips made per week for various purposes by working status (no. of trips)

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Working full-time/self-employed</th>
<th>Working part time</th>
<th>Full-time education/in government training</th>
<th>Retired</th>
<th>Other economically inactive</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>To/from work</td>
<td>9.35</td>
<td>7.26</td>
<td>1.07</td>
<td>0.00</td>
<td>0.02</td>
<td>5.29</td>
</tr>
<tr>
<td>Business</td>
<td>2.17</td>
<td>0.50</td>
<td>0.00</td>
<td>0.18</td>
<td>0.03</td>
<td>1.09</td>
</tr>
<tr>
<td>To/from education</td>
<td>0.19</td>
<td>1.38</td>
<td>8.40</td>
<td>0.07</td>
<td>0.26</td>
<td>0.71</td>
</tr>
<tr>
<td>Accompanying or taking other people places</td>
<td>2.26</td>
<td>3.38</td>
<td>1.38</td>
<td>0.98</td>
<td>3.53</td>
<td>2.24</td>
</tr>
<tr>
<td>Grocery shopping</td>
<td>3.34</td>
<td>3.95</td>
<td>2.04</td>
<td>4.53</td>
<td>4.71</td>
<td>3.83</td>
</tr>
<tr>
<td>Leisure day trips</td>
<td>1.83</td>
<td>1.89</td>
<td>2.09</td>
<td>1.77</td>
<td>1.38</td>
<td>1.78</td>
</tr>
<tr>
<td>Visiting friends/relatives</td>
<td>3.21</td>
<td>3.73</td>
<td>4.69</td>
<td>2.44</td>
<td>3.54</td>
<td>3.21</td>
</tr>
<tr>
<td>Entertainment</td>
<td>1.71</td>
<td>1.56</td>
<td>3.13</td>
<td>1.26</td>
<td>1.37</td>
<td>1.60</td>
</tr>
<tr>
<td>Other</td>
<td>0.53</td>
<td>0.52</td>
<td>0.56</td>
<td>0.61</td>
<td>0.75</td>
<td>0.58</td>
</tr>
<tr>
<td>ALL TRIPS</td>
<td>24.59</td>
<td>24.17</td>
<td>23.36</td>
<td>11.84</td>
<td>15.59</td>
<td>20.33</td>
</tr>
<tr>
<td>BASES (number of respondents)</td>
<td>458</td>
<td>149</td>
<td>45</td>
<td>241</td>
<td>131</td>
<td>1,024</td>
</tr>
</tbody>
</table>

### Table D 2 – Weekly spend on Petrol and car parking by area (% of respondents who ever make trips by car)

<table>
<thead>
<tr>
<th>Area</th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing</td>
<td>16</td>
<td>12</td>
<td>10</td>
<td>8</td>
<td>11</td>
</tr>
<tr>
<td>£10 or less</td>
<td>31</td>
<td>34</td>
<td>28</td>
<td>32</td>
<td>31</td>
</tr>
<tr>
<td>£11-£20</td>
<td>31</td>
<td>29</td>
<td>28</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>£21-£30</td>
<td>12</td>
<td>14</td>
<td>17</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>£31-£45</td>
<td>7</td>
<td>3</td>
<td>8</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>More than £45</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Average</td>
<td>£15.83</td>
<td>£15.40</td>
<td>£17.58</td>
<td>£17.37</td>
<td>£16.56</td>
</tr>
<tr>
<td>BASES (n)</td>
<td>216</td>
<td>197</td>
<td>224</td>
<td>212</td>
<td>849</td>
</tr>
</tbody>
</table>
### Table D 3 – Weekly spend on public transport and taxis by area (% of all respondents)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nothing</td>
<td>68</td>
<td>58</td>
<td>69</td>
<td>75</td>
<td>68</td>
</tr>
<tr>
<td>£5 or less</td>
<td>11</td>
<td>15</td>
<td>16</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>£6-£10</td>
<td>9</td>
<td>14</td>
<td>10</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>£11-£20</td>
<td>8</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>£21-£30</td>
<td>2</td>
<td>2</td>
<td>*</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>£31-£45</td>
<td>*</td>
<td>1</td>
<td>*</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>More than £45</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2</td>
<td>1</td>
<td>*</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>£3.06</td>
<td>£4.27</td>
<td>£2.55</td>
<td>£2.36</td>
<td>£3.07</td>
</tr>
<tr>
<td><strong>BASES (n)</strong></td>
<td>261</td>
<td>258</td>
<td>245</td>
<td>260</td>
<td>1,024</td>
</tr>
</tbody>
</table>

### Table D 4 – Rating of bus services in the respondent’s area (% of respondents)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good</td>
<td>15</td>
<td>23</td>
<td>31</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>Fairly good</td>
<td>39</td>
<td>33</td>
<td>31</td>
<td>23</td>
<td>32</td>
</tr>
<tr>
<td>Average</td>
<td>18</td>
<td>18</td>
<td>16</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>Fairly poor</td>
<td>8</td>
<td>9</td>
<td>7</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Very poor</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Not applicable – no services in area</td>
<td>4</td>
<td>*</td>
<td>-</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Don’t know</td>
<td>11</td>
<td>7</td>
<td>11</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td><strong>BASES (n)</strong></td>
<td>261</td>
<td>258</td>
<td>245</td>
<td>260</td>
<td>1,024</td>
</tr>
</tbody>
</table>

### Table D 5 – Rating of train services in the respondent's area (% of respondents)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good</td>
<td>*</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Fairly good</td>
<td>22</td>
<td>21</td>
<td>25</td>
<td>23</td>
<td>23</td>
</tr>
<tr>
<td>Average</td>
<td>9</td>
<td>14</td>
<td>14</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>Fairly poor</td>
<td>7</td>
<td>4</td>
<td>7</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Very poor</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Not applicable – no services in area</td>
<td>28</td>
<td>33</td>
<td>22</td>
<td>47</td>
<td>33</td>
</tr>
<tr>
<td>Don’t know</td>
<td>28</td>
<td>23</td>
<td>26</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td><strong>BASES (n)</strong></td>
<td>261</td>
<td>258</td>
<td>245</td>
<td>260</td>
<td>1,024</td>
</tr>
</tbody>
</table>
Table D 6 – Rating of other public transport services, e.g. ferries, in the respondent’s area (% of respondents)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>30</td>
<td>9</td>
</tr>
<tr>
<td>Fairly good</td>
<td>2</td>
<td>1</td>
<td>*</td>
<td>40</td>
<td>11</td>
</tr>
<tr>
<td>Average</td>
<td>*</td>
<td>1</td>
<td>1</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>Fairly poor</td>
<td>-</td>
<td>-</td>
<td>*</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Very poor</td>
<td>*</td>
<td>*</td>
<td>-</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Not applicable (not aware of other services in area)</td>
<td>62</td>
<td>77</td>
<td>93</td>
<td>-</td>
<td>58</td>
</tr>
<tr>
<td>Don’t know</td>
<td>34</td>
<td>19</td>
<td>4</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>BASES (n)</td>
<td>261</td>
<td>258</td>
<td>245</td>
<td>260</td>
<td>1,024</td>
</tr>
</tbody>
</table>

Figure D 1 – Orientation towards public transport and car use – mean scores by area
Figure D 2 – Orientation towards public transport and car use – mean scores by age

![Chart showing mean scores by age for orientation towards public transport and car use.]

Figure D 3 – Orientation towards public transport and car use – mean scores by number of cars or vans available to household

![Chart showing mean scores by number of cars or vans available to household. Number of cars or vans ranges from 'None' to 'Three or more'.]
Table D 7– Level of agreement or disagreement with “Where possible, I prefer to travel by public transport rather than by car” by number of cars per household (row %)

<table>
<thead>
<tr>
<th>Number of cars in household</th>
<th>Strongly agree/Agree</th>
<th>Neither</th>
<th>Strongly disagree/Disagree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>56</td>
<td>11</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>One</td>
<td>24</td>
<td>8</td>
<td>68</td>
<td>100</td>
</tr>
<tr>
<td>2 or more</td>
<td>14</td>
<td>8</td>
<td>78</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>27</td>
<td>9</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

Base = 979

Table D 8 – Level of agreement or disagreement with “Even if the public transport in my area was really good, I would still prefer to travel by car most of the time” by number of cars per household (row %)

<table>
<thead>
<tr>
<th>Number of cars in household</th>
<th>Strongly agree/Agree</th>
<th>Neither</th>
<th>Strongly disagree/Disagree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>28</td>
<td>10</td>
<td>63</td>
<td>100</td>
</tr>
<tr>
<td>One</td>
<td>61</td>
<td>9</td>
<td>30</td>
<td>100</td>
</tr>
<tr>
<td>2 or more</td>
<td>71</td>
<td>6</td>
<td>23</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>8</td>
<td>34</td>
<td>100</td>
</tr>
</tbody>
</table>

Base = 971
Figure D 4 – Orientation towards public transport and car use – mean scores by distance travelled to work

Table D 9 – Whether practical to use buses and trains for different types of trip (% of respondents who make this type of trip by car)

<table>
<thead>
<tr>
<th>Type of Trip</th>
<th>Bus</th>
<th>Train</th>
<th>Neither/not applicable</th>
<th>Don’t know</th>
<th>BASES (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entertainment</td>
<td>45</td>
<td>7</td>
<td>51</td>
<td>2</td>
<td>344</td>
</tr>
<tr>
<td>Leisure day trips</td>
<td>44</td>
<td>24</td>
<td>49</td>
<td>2</td>
<td>475</td>
</tr>
<tr>
<td>Visiting friends/relatives</td>
<td>39</td>
<td>12</td>
<td>55</td>
<td>2</td>
<td>593</td>
</tr>
<tr>
<td>Travel to/from education</td>
<td>33</td>
<td>4</td>
<td>63</td>
<td>2</td>
<td>48</td>
</tr>
<tr>
<td>Grocery shopping</td>
<td>30</td>
<td>1</td>
<td>68</td>
<td>3</td>
<td>693</td>
</tr>
<tr>
<td>Travel to/from work</td>
<td>29</td>
<td>3</td>
<td>69</td>
<td>2</td>
<td>378</td>
</tr>
<tr>
<td>Accompanying or taking other people places</td>
<td>19</td>
<td>4</td>
<td>76</td>
<td>3</td>
<td>232</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
<td>1</td>
<td>77</td>
<td>6</td>
<td>108</td>
</tr>
<tr>
<td><em>Business</em></td>
<td>16</td>
<td>4</td>
<td>80</td>
<td>4</td>
<td>114</td>
</tr>
</tbody>
</table>

3 E.g. because there are no train services in the area
Table D 10 – Proportion who agreed it would be “practical” for them to travel to work by bus by distance travelled to work (working adults making more than one trip to work per week and who drive to work, column percentages)

<table>
<thead>
<tr>
<th>AREA</th>
<th>1 mile or less</th>
<th>2 - 4 miles</th>
<th>5 - 10 miles</th>
<th>&gt; 10 miles</th>
<th>Total</th>
<th>BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edinburgh</td>
<td>50</td>
<td>52</td>
<td>63</td>
<td>38</td>
<td>51</td>
<td>132</td>
</tr>
<tr>
<td>Aberdeen</td>
<td>9</td>
<td>42</td>
<td>29</td>
<td>41</td>
<td>33</td>
<td>135</td>
</tr>
<tr>
<td>Perth</td>
<td>20</td>
<td>45</td>
<td>30</td>
<td>11</td>
<td>28</td>
<td>111</td>
</tr>
<tr>
<td>Oban, Mull &amp; Islay</td>
<td>13</td>
<td>26</td>
<td>5</td>
<td>23</td>
<td>16</td>
<td>122</td>
</tr>
</tbody>
</table>

Base = 341

Table D 11– Reasons travel to work/education by car rather than public transport (% of respondents who usually travel to work/education by car)

<table>
<thead>
<tr>
<th>Travel to/from work</th>
<th>Travel to/from education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quickest method</td>
<td>48</td>
</tr>
<tr>
<td>Public transport unavailable</td>
<td>25</td>
</tr>
<tr>
<td>Public transport too infrequent</td>
<td>22</td>
</tr>
<tr>
<td>Need car at work/at destination</td>
<td>17</td>
</tr>
<tr>
<td>No other form of transport available</td>
<td>17</td>
</tr>
<tr>
<td>Cheapest method</td>
<td>13</td>
</tr>
<tr>
<td>Convenience</td>
<td>12</td>
</tr>
<tr>
<td>Too much to carry</td>
<td>8</td>
</tr>
<tr>
<td>Drop children/other person somewhere on way there/back</td>
<td>8</td>
</tr>
<tr>
<td>Shift worker/late night work</td>
<td>6</td>
</tr>
<tr>
<td>Someone else in household/nearby drives to same place</td>
<td>5</td>
</tr>
</tbody>
</table>

Bases: 369 45

Table D 12 - Reasons for commuting by car by area (% of respondents who travel to work by car)

<table>
<thead>
<tr>
<th>P for chi-sq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberdeen</td>
</tr>
<tr>
<td>Quickest method</td>
</tr>
<tr>
<td>PT unavailable</td>
</tr>
<tr>
<td>PT too infrequent</td>
</tr>
<tr>
<td>Need car at work</td>
</tr>
<tr>
<td>No other form available</td>
</tr>
<tr>
<td>Cheapest method</td>
</tr>
<tr>
<td>Convenience</td>
</tr>
<tr>
<td>Too much to carry</td>
</tr>
<tr>
<td>Drop another</td>
</tr>
<tr>
<td>Shift / late night work</td>
</tr>
<tr>
<td>Another drives to same destination</td>
</tr>
<tr>
<td>Don’t like public transport</td>
</tr>
<tr>
<td>No direct route</td>
</tr>
<tr>
<td>Shops / leisure</td>
</tr>
<tr>
<td>Disability</td>
</tr>
</tbody>
</table>

BASE

32
### Table D 13 – Whether would use public transport more often if … (% of respondents in Aberdeen TTWA)

<table>
<thead>
<tr>
<th></th>
<th>A lot more</th>
<th>A bit more</th>
<th>About the same amount</th>
<th>Don’t know/not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>There were more direct services in your area</td>
<td>16</td>
<td>30</td>
<td>47</td>
<td>7</td>
</tr>
<tr>
<td>Public transport was cheaper</td>
<td>10</td>
<td>28</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>Services were more reliable</td>
<td>10</td>
<td>27</td>
<td>52</td>
<td>11</td>
</tr>
<tr>
<td>There was better information about which services to use</td>
<td>7</td>
<td>26</td>
<td>56</td>
<td>11</td>
</tr>
<tr>
<td>There were more frequent services in your area</td>
<td>6</td>
<td>32</td>
<td>54</td>
<td>5</td>
</tr>
<tr>
<td>You could buy a travel card that could be used on all types of public transport</td>
<td>6</td>
<td>26</td>
<td>56</td>
<td>12</td>
</tr>
<tr>
<td>You could buy a travel card you could use with all bus companies</td>
<td>6</td>
<td>18</td>
<td>61</td>
<td>14</td>
</tr>
</tbody>
</table>

BASE = 261

### Table D 14 – Whether would use public transport more often if … (% of respondents in Edinburgh TTWA)

<table>
<thead>
<tr>
<th></th>
<th>A lot more</th>
<th>A bit more</th>
<th>About the same amount</th>
<th>Don’t know/not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Services were more reliable</td>
<td>19</td>
<td>22</td>
<td>49</td>
<td>9</td>
</tr>
<tr>
<td>There were more frequent services in your area</td>
<td>17</td>
<td>28</td>
<td>47</td>
<td>8</td>
</tr>
<tr>
<td>There were more direct services in your area</td>
<td>15</td>
<td>26</td>
<td>49</td>
<td>9</td>
</tr>
<tr>
<td>Public transport was cheaper</td>
<td>12</td>
<td>23</td>
<td>55</td>
<td>11</td>
</tr>
<tr>
<td>There was better information about which services to use</td>
<td>10</td>
<td>21</td>
<td>56</td>
<td>14</td>
</tr>
<tr>
<td>You could buy a travel card you could use with all bus companies</td>
<td>10</td>
<td>21</td>
<td>52</td>
<td>18</td>
</tr>
<tr>
<td>You could buy a travel card that could be used on all types of public transport</td>
<td>9</td>
<td>18</td>
<td>57</td>
<td>16</td>
</tr>
</tbody>
</table>

BASE = 258

---

4 Some people felt that some of these statements did not apply to them since there were no services in their area so, for example, they would not be able to use a travel card with different bus companies.

5 Some people felt that some of these statements did not apply to them since there were no services in their area so, for example, they would not be able to use a travel card with different bus companies.
Table D 15 – Whether would use public transport more often if … (% of respondents in Perth TTWA)

<table>
<thead>
<tr>
<th>Statement</th>
<th>A lot more</th>
<th>A bit more</th>
<th>About the same amount</th>
<th>Don’t know/not applicable&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public transport was cheaper</td>
<td>15</td>
<td>21</td>
<td>56</td>
<td>8</td>
</tr>
<tr>
<td>There were more direct services in your area</td>
<td>13</td>
<td>29</td>
<td>53</td>
<td>5</td>
</tr>
<tr>
<td>You could buy a travel card that could be used on all types of public transport</td>
<td>10</td>
<td>23</td>
<td>61</td>
<td>5</td>
</tr>
<tr>
<td>There were more frequent services in your area</td>
<td>9</td>
<td>29</td>
<td>59</td>
<td>4</td>
</tr>
<tr>
<td>Services were more reliable</td>
<td>9</td>
<td>20</td>
<td>66</td>
<td>5</td>
</tr>
<tr>
<td>You could buy a travel card you could use with all bus companies</td>
<td>8</td>
<td>19</td>
<td>66</td>
<td>6</td>
</tr>
<tr>
<td>There was better information about which services to use</td>
<td>7</td>
<td>25</td>
<td>62</td>
<td>5</td>
</tr>
</tbody>
</table>

BASE = 245

Table D 16 – Whether would use public transport more often if … (% of respondents in Oban, Islay and Mull TTWAs)

<table>
<thead>
<tr>
<th>Statement</th>
<th>A lot more</th>
<th>A bit more</th>
<th>About the same amount</th>
<th>Don’t know/not applicable&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>There were more frequent services in your area</td>
<td>19</td>
<td>31</td>
<td>41</td>
<td>9</td>
</tr>
<tr>
<td>You could buy a travel card that could be used on all types of public transport</td>
<td>18</td>
<td>25</td>
<td>43</td>
<td>14</td>
</tr>
<tr>
<td>Public transport was cheaper</td>
<td>12</td>
<td>14</td>
<td>52</td>
<td>22</td>
</tr>
<tr>
<td>Services were more reliable</td>
<td>12</td>
<td>18</td>
<td>53</td>
<td>17</td>
</tr>
<tr>
<td>There was better information about which services to use</td>
<td>9</td>
<td>22</td>
<td>55</td>
<td>14</td>
</tr>
<tr>
<td>There were more direct services in your area</td>
<td>8</td>
<td>14</td>
<td>45</td>
<td>34</td>
</tr>
<tr>
<td>You could buy a travel card you could use with all bus companies</td>
<td>8</td>
<td>14</td>
<td>48</td>
<td>31</td>
</tr>
</tbody>
</table>

BASE = 260

<sup>a</sup> Some people felt that some of these statements did not apply to them since there were no services in their area so, for example, they would not be able to use a travel card with different bus companies.

<sup>b</sup> Some people felt that some of these statements did not apply to them since there were no services in their area so, for example, they would not be able to use a travel card with different bus companies.
Figure D 5 –How often make journeys using transport run by different companies (% of respondents who indicated a choice of bus or coach operators)

Base = 135

Table D 17– Whether ever make journeys using more than one mode of (public) transport by area (% of respondents)

<table>
<thead>
<tr>
<th></th>
<th>Aberdeen TTWA</th>
<th>Edinburgh TTWA</th>
<th>Perth TTWA</th>
<th>Oban, Islay and Mull TTWA</th>
<th>ALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>77</td>
<td>81</td>
<td>79</td>
<td>66</td>
<td>76</td>
</tr>
<tr>
<td>Bus and train</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Bus and ferry</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>Train and ferry</td>
<td>*</td>
<td>-</td>
<td>*</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Bus and taxi</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Train and taxi</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Taxi and ferry</td>
<td>*</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Taxi/helicopter/plane</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Bus/helicopter/plane</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>BASES (n)</td>
<td>261</td>
<td>258</td>
<td>245</td>
<td>260</td>
<td>1,024</td>
</tr>
</tbody>
</table>
Figure D 6 – Reasons would not buy ticket (% of respondents who would not buy ticket at either Cost A or Cost B)

- Car more convenient/comfortable: 31%
- Do not use enough to justify/no use for it: 21%
- Holds transport pass: 19%
- Public transport inconvenient/unreliable/takes too long: 18%
- Need car for business/work: 8%
- Walk/get lift/cycle: 7%
- Age/disability - don't get out much: 6%
- Cost: 5%
- Inconvenient generally: 3%
- Don't know: 3%

Base = 617
Table D 18 – Experience of and attitudes towards different ways of buying tickets for journeys in Scotland (% of respondents)

<table>
<thead>
<tr>
<th>Whether ever bought a ticket in this way</th>
<th>Preferred way of buying tickets&lt;sup&gt;8&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>On a train/bus/ferry</td>
<td>77</td>
</tr>
<tr>
<td>At a bus/train/ferry station/terminal</td>
<td>68</td>
</tr>
<tr>
<td>From a travel office – e.g. the bus office</td>
<td>32</td>
</tr>
<tr>
<td>Over the phone</td>
<td>17</td>
</tr>
<tr>
<td>On the Internet</td>
<td>16</td>
</tr>
<tr>
<td>From a ticket machine</td>
<td>12</td>
</tr>
<tr>
<td>From a travel agent</td>
<td>9</td>
</tr>
<tr>
<td>From a local shop</td>
<td>4</td>
</tr>
<tr>
<td>By post</td>
<td>4</td>
</tr>
<tr>
<td>No preference</td>
<td>-</td>
</tr>
<tr>
<td>BASES</td>
<td>1,024</td>
</tr>
</tbody>
</table>

<sup>8</sup> NB the totals do not add up to 100% as respondents were allowed to choose more than one preferred way of buying tickets.