north star

ATKINS

SURFACE ACCESS

INTEGRATED TICKETING REPORT

MAY 2018

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1.   Executive Summary

1.1.   Introduction

This report examines air-to-surface access integrated ticketing in support of one of the Department for Transport's (DfT) six policy objectives in the proposed new aviation strategy – *"Helping the aviation industry work for its customers"*.

Integrated Ticketing is defined as the incorporation of one ticket that includes surface access to/from an airport and the airplane ticket itself using one transaction. Integrated ticketing may consider surface access journeys both to the origin airport and from the destination airport. We recognise that some of the methods of integrated ticketing might not be truly integrated (such as selling rail or coach tickets on board the flight), but such examples were included in the report to reflect that these exist and that the customer experience in purchasing is relatively seamless.

The report covers:

1.   Current practice in integrated ticketing;
2.   The appetite and desire for integrated ticketing; and
3.   Barriers to integrated ticketing (and how Government can act on these).

1.2.   Methodology

Primary and secondary research of both a qualitative and quantitative nature was undertaken to understand the current practice, appetite and barriers to surface-to-air integrated ticketing.

Secondary research included a review of existing documents, academic papers and websites that contain information on current practice as well as appetite and desire. Searches were undertaken using Google Scholar, the Global Air Rail Alliance (GARA) database and documentation provided by stakeholders.

Primary research took the form of passenger surveys, industry stakeholders, DfT officials and roundtable discussions.

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CURRENT PRACTICE IN
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1.3. Current Practice

Overall, 21 case studies have been reviewed covering:

- Current practice in air to surface integration in the UK;

- Other modal ticket integration within the UK (surface-to-surface) as a reference point; and

- International practice in air to surface integration.

Currently there are number of airlines and surface access operators in the UK and internationally that offer their passengers integrated ticketing options. These partnerships can be classified into three categories:

Type of Partnership	Type of ticket integration
1. Sophisticated full integration: surface transport operators use the airlines' distribution channels to sell their tickets during the flight booking process.	**Web** - surface transport operator submits their ticketing and availability information to the airline via web, so the airline can integrate surface transport services into their flight booking process.
	Block Seat Agreement - airline buys an agreed block of seats from the surface transport operator and sells them as a 'connecting flight', using airline's ticketing channels.
	GDS - The Global Distribution Systems are multi-user systems where airlines submit schedules, seat availability and prices (which also includes hotels and some other transport providers) and enable sales agents to search for and sell travel itineraries. This is not available directly to customers.
2. Partial integration: integration through extra clicks on a website, selling surface transport tickets as an add-on to an airline ticket or in-flight.	**Partial Integration** - airline and the surface transport operator agree on a mutual promotional campaign to increase ticket sales. This includes selling surface transport tickets on board flights, exchanging external web links or other methods or cooperation.
3. Basic integration: where vouchers or reference numbers are given.	

In all cases, volumes of air to surface integrated ticket sales are extremely low. The most obvious sales involve low cost airlines whose business model includes the sales of ancillary products, and surface transport tickets are one. Even so, the relatively low value of the surface journey makes it a low priority amongst an airline's menu of ancillary products. Even the simplified low-cost airline model of integration has limited cooperation; commissions expected from airlines can be as high as 40% of a surface transport ticket fare. Many surface transport operators decline to come to an agreement, preferring to sell directly to reach the inbound market.

Internationally, cooperation between parties appears greater than in the UK, as does the promotion of the integrated products. Despite this, integrated tickets remain low volume niche products. There is also evidence that the increased prevalence of integration is because of state intervention for strategic reasons (e.g. as a driver for replacing planes with trains between Frankfurt and Cologne, utilising the high-speed infrastructure between the two whilst freeing up airport capacity – the ticketing integration is a by-product of this). There is no evidence to support that integrated tickets are more of a commercial success for international parties than in the UK.

1.4. Appetite and Desire

Several airlines and surface transport operators work together and offer some form of integrated ticketing, evidencing that there must already be a certain appetite. Industry stakeholders identified three key drivers for growing integrated air to surface transport integrated ticketing:

1. Providing a door to door journey

2. Improving the customer experience

3. To grow business

The interviews revealed that industry stakeholders feel strongly about offering a good customer experience with efficient "door to door" journey planning and seamless transfers. Surface access operators also see integrated ticketing as an opportunity to reach new customers who might not consider public transport for their airport access or wider journeys.

To explore passenger appetite and desire for integrated ticketing, a survey was conducted at Gatwick Airport. Passengers did show some appetite for integrated ticketing - 43% of the respondents who had travelled to the airport by public transport that day, said they would have liked to have had the option to purchase their public transport ticket at the same time and using the same method as their air ticket. Moreover, 62% of all the passengers surveyed said they would be more likely to use public transport if integrated ticketing was available.

The top three features that would persuade passengers to purchase an integrated ticket were:

- A "journey guarantee" if public transport is delayed, or being booked on the next flight;

- A reduction in the combined price; and

- Compensation in case of delays with either air or surface transport mode.

1.5. Barriers

We have identified five types of barriers to wider airline-surface transport integrated ticketing implementation: commercial, technological, regulatory, awareness, and cultural/behavioural.

- Commercial

- Technological

- Regulatory

- Awareness

- Cultural/Behavioural

A key commercial barrier for airlines is the relatively low value from surface access sales. For surface transport operators, the cost of sale via airlines distribution channels can be too high to make integrated ticketing a commercially viable option.

1

PROVIDING A DOOR TO DOOR JOURNEY

2

IMPROVING THE CUSTOMER EXPERIENCE

3

TO GROW BUSINESS

Many surface transport operators are not technologically ready for offering sales through the airline booking flows. Distribution often differs from the print at home or paper ticket as well as the barcode mobile fulfillment used by the airline industry, which can mean additional investment to the infrastructure for all participating companies.

There is also a lack of data standards across surface access operators and no standardised accreditation requirements that airlines have. This creates technological and bureaucratic challenges when attempting to integrate systems; unlike multi-sector air journeys, there is no single regulation covering air and surface transport journeys sold on an integrated ticket. Further development of passenger rights regulations is needed for surface access integrated ticketing to succeed, to provide the confidence passengers expect, and to become an attractive proposition.

The most significant barrier faced by passengers is the lack of availability of integrated tickets, coupled with a general lack of awareness of what they are. The transparency related to the price of the ticket was also raised by passengers. This potential lack of passenger trust in the product may be an important barrier imposed by the current passenger perceptions.

1.6. Conclusions

There are several examples of airline and surface transport ticket integration (or partial integration) for air-to-surface journeys in the UK and around the world. In all the case studies shown, it is evident that these are niche products with low sales volumes. However, an effective marketing strategy helps integration programmes become more visible to customers. This helps raise awareness of the product, which is a key factor in improving the uptake.

Partnerships work best when:

- They form part of the core business of the provider i.e. ancillary revenues for low cost airlines (noting that many of these are not fully integrated tickets);

- There are strong champions for the partnership from at least one of the operators, preferably all partners.

A sustainable solution for integrated ticketing should be a commercial one, benefiting operators and passengers alike, supported by a heightened awareness of the offer. There is a recognition that some passengers may be prepared to pay a premium for journey guarantee and convenience, but this is strongly countered by the main body of research that passengers would expect a lower integrated price.

The overriding view from the industry stakeholders was that the Government should have limited involvement in integrated air-to-surface access ticketing, especially when it comes to commercial issues.

However, DfT could act as a facilitator for discussions between airlines and surface operators to co-operate and provide a platform for workshops and discussions, bringing stakeholders together to share their challenges, opportunities to collaborate and success stories of system integration.

Stakeholders would also welcome the Government's support to passenger rights regulations and data standards. It was widely agreed that a government strategy to improve passenger rights in cases of delay could have a positive influence on the wider adoption of integrated ticketing.
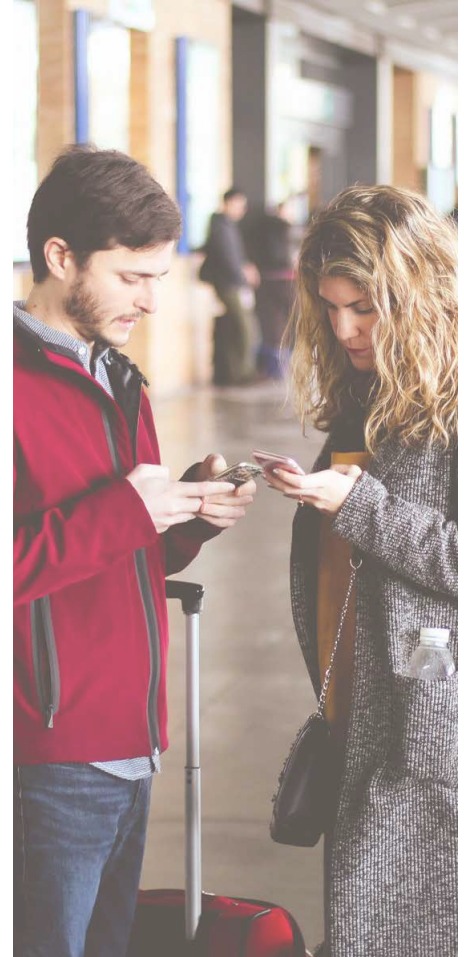
62% OF ALL THE PASSENGERS SURVEYED SAID THEY WOULD BE MORE LIKELY TO USE PUBLIC TRANSPORT IF INTEGRATED TICKETING WAS AVAILABLE

2. Introduction

This report examines air-to-surface access integrated ticketing in support of one of the Department for Transport's (DfT) six policy objectives in the proposed new aviation strategy – *"Helping the aviation industry work for its customers"*.

Integrated Ticketing is defined as the incorporation of one ticket that includes surface access to/from an airport and the airplane ticket itself using one transaction. Integrated ticketing may consider surface access journeys both to the origin airport and from the destination airport. We recognise that some of the methods of integrated ticketing might not be truly integrated (such as selling rail or coach tickets on board the flight), but such examples were included in the report to reflect that these exist and that the customer experience in purchasing is relatively seamless.
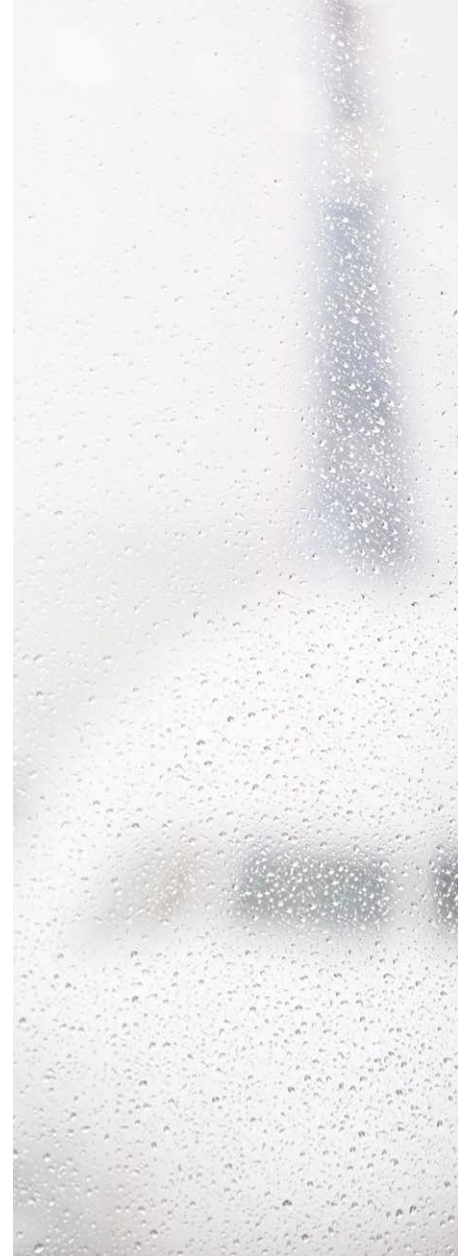
The report covers:

1. Current practice in integrated ticketing;

2. The appetite and desire for integrated ticketing; and

3. Barriers to integrated ticketing (and how Government can act on these).

This report is structured as follows:

- **Methodology** - details the sources of information in this report, which include primary research (interviews and passenger surveys), including how the data was collected and how interviews were conducted and secondary research (literature review).

- **Current Practice** – looks at the current practice of integrated ticketing within the aviation sector in the UK; other mode ticket integration within the UK (surface-to-surface) as a reference point; and international comparisons.

- **Appetite and Desire** - sets out the results from the stakeholder interviews that examined industry appetite for integrated ticketing as well as passenger awareness and appetite.

- **Barriers** - outlines barriers to surface-to-air integrated ticketing that were faced or perceived by passengers, the transport industry and the government.

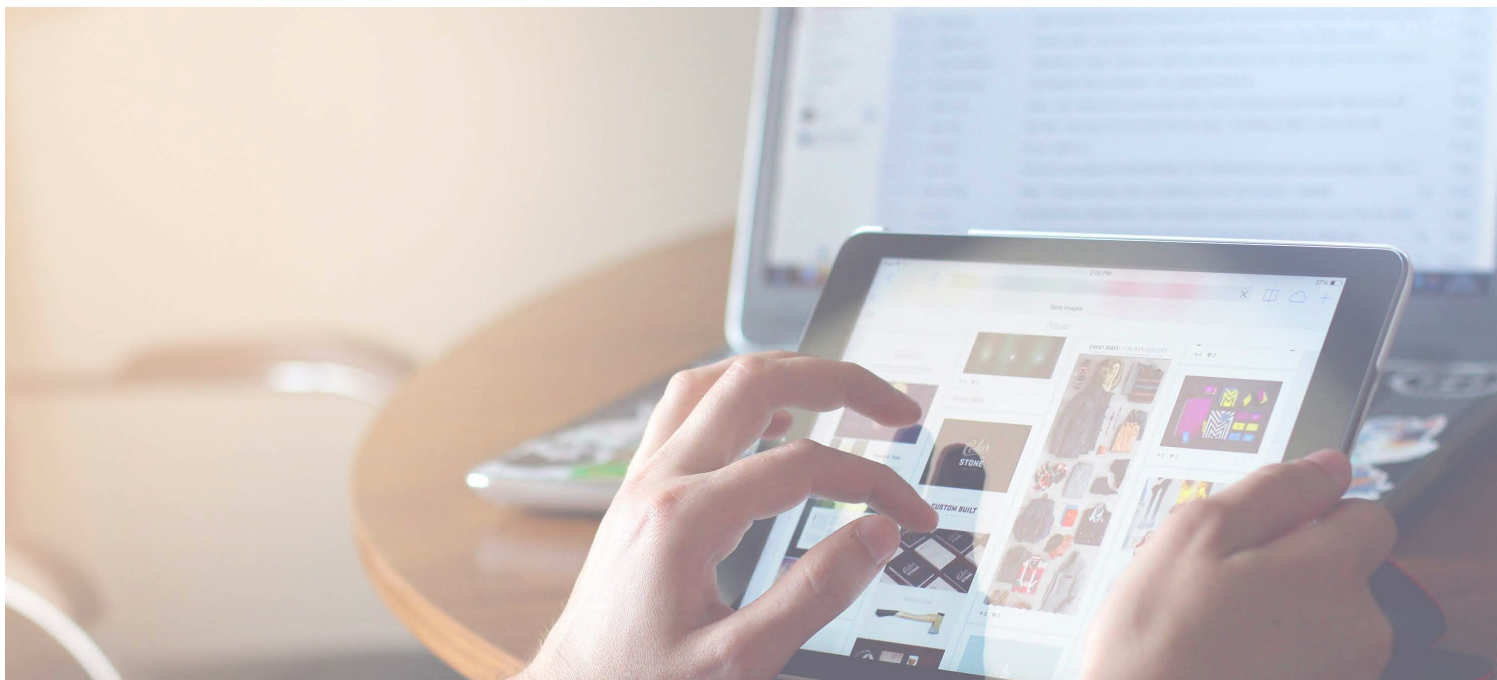- **Conclusions** - provides concluding remarks on the overall findings.

The report was written by Atkins, North Star Consultancy and the Global Air Rail Alliance; details at Appendix 1

1

CURRENT PRACTICE IN INTEGRATED TICKETING

2

THE APPETITE AND DESIRE FOR INTEGRATED TICKETING

3

BARRIERS TO INTEGRATED TICKETING

3. Methodology

Primary and secondary research of both a qualitative and quantitative nature was undertaken to understand the current practice, appetite and barriers to surface-to-air integrated ticketing.

Secondary research in the form of a literature review included a review of existing documents, academic papers and websites that contain information on current practice as well as appetite and desire (bibliography at Appendix 2). Searches were undertaken using Google Scholar, the Global Air Rail Alliance (GARA) database and documentation provided by stakeholders.

Primary research took the form of passenger surveys, industry stakeholders, DfT officials and roundtable discussions.

Specifically:

- Over ninety literature sources were reviewed of existing documents, academic papers and websites that contain information on current practice and appetite for integrated ticketing.

- 102 passenger surveys were undertaken at Gatwick Airport. Interviews focused on awareness of and appetite for surface-to-air integrated ticketing. Passengers were asked a combination of closed, multiple choice and open questions.

- Twenty-two industry stakeholders gave their perspective on surface-to-air integrated ticketing. Stakeholder interviews included questions around awareness, appetite and barriers to surface-to-air integrated ticketing, levers for change, and the role the DfT could take to remove barriers. Stakeholders were also asked to describe possible scenarios that would facilitate the introduction of integrated ticketing.

- Relevant DfT officials provided specialist insight to understand barriers faced by Government and the role it can take to remove them.

- A roundtable discussion was held with nine different industry, government and consumer representatives to discuss the findings of the study. Key questions were discussed in small workshop groups regarding what measures the government and industry stakeholders could take to overcome barriers to surface-to-air integrated ticketing.

90+
LITERATURE SOURCES

102
PASSENGER SURVEYS

22
INDUSTRY STAKEHOLDERS

4.   Current Practice

This part of the report includes the findings from the literature review, stakeholder interviews and the authors' own experiences, covering:

- Current practice within the aviation sector in the UK;

- Other mode ticket integration within the UK (surface-to-surface); and

- International comparisons.

In each section, examples of partnerships and the methods of integrating air-to-surface ticketing are provided, followed by key findings.

Case Study Format

The case studies in the report provide a range of ticket integration examples and the reasons for success or failure. The case studies identify the following areas:

1. Partners/Participating Operators - identifying which operators have an integrated ticketing partnership.

2. Route - this is the route that the integration covers in the case of air-to-surface ticketing integration.

3. Integration Methods (applicable in air-to-surface integrations only) - identifying what technology and/or methods are used to sell the integrated air-to-surface tickets to passengers, such as:

- **Web** - surface transport operator submits their ticketing and availability information to the airline via web, so the airline can integrate surface transport services into their flight booking process.

- **Block Seat Agreement** - airline buys an agreed block of seats from the surface transport operator and sells them as a connecting flight, using airline's ticketing channels.

- **GDS** - The Global Distribution Systems are multi-user systems where airlines submit schedules, seat availability and prices (along with hotels and some other transport providers) and enable sales agents to search for and sell travel itineraries. This is not available directly to customers.

- **Partial Integration** - airline and the surface transport operator agree on a mutual promotional campaign to increase ticket sales. This includes selling surface transport tickets on board flights, exchanging external web links or other methods or cooperation.

More information on integration methods can be found in Appendix 3 Distribution and Integration Methods.

4. Passenger Purchase Method (applicable in air-to-surface integrations only) such as:

- **Add-on** - through the airline's website, as an add-on during the flight booking process.

- **Travel Agency** - through a traditional travel agency or customer call centre.

- **Web Referral** - a web referral to the separate surface transport online booking page.

- **On Board** - directly from the airline staff, such as purchasing surface transport ticket on board the flight.

5. Responsibility in Case of Disruption (applicable in air-to-surface integrations only).

Integrated air-to-surface ticketing involves passengers transferring between transport modes and companies. For instance, this may include an intercity rail journey to a hub station, then a connecting bus or metro journey to the airport and then the flight. This section looks at what agreement has been reached between the airline and the surface transport operator(s) to compensate the passenger for a disrupted journey that results in their flight/ reserved seat being missed.

Under airline passenger rights for connecting flights, the airline is only required to provide compensation if the passenger is booked on a through (integrated) ticket (the passenger has one ticket/reservation reference for the entire journey), and the cause of missing the connection is within the operator's control. If the passenger or their travel agent booked the flights separately, the passenger is not covered by these rules.
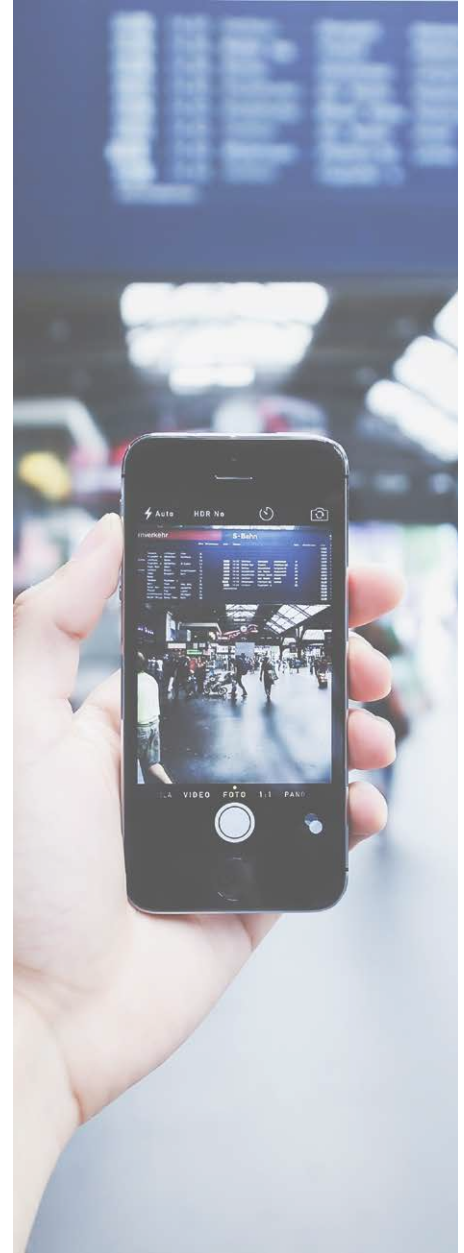
INTEGRATED AIR-TO-SURFACE TICKETING INVOLVES PASSENGERS TRANSFERRING BETWEEN TRANSPORT MODES AND COMPANIES

4.1. Current Practice within the Aviation Sector in the UK

This section examines air-to-surface transport ticketing integration and shows the outcome of integrated ticketing partnerships in the UK. The case studies have been chosen to represent different types of air-to-surface ticketing integration in the UK and answer the following questions:

- What do airlines do in the UK regarding options for passengers to buy surface access transportation?

- Have integrated tickets been used previously?

- If so, how successful were they and why did they stop?

The list of cases covered in this report are shown in Table 1.

	Airline	Surface Access Operator	Description	Integrated Ticketing Category
Case Study 1	Aer Lingus	Heathrow Express	Heathrow Express tickets booked on Aer Lingus website – integrated ticket	Partial (Web Links)
Case Study 2	Ryanair	Various	Surface transport service add-on during Ryanair flight booking on airline's website with a separate ticket issued to the passenger	Simple
Case Study 3	Wizz Air	National Express Govia Thameslink Railway (GTR)	Surface transport service add-on during Wizz Air flight booking on airline's website with a separate ticket issued to the passenger	Simple
Case Study 4	Multiple	Heathrow Express Great Western Railway	Rail included in the Global Distribution System and sold via travel agents and customer call centres	Sophisticated
Case Study 5	bmi regional	Virgin Trains	Promotional campaign which doesn't include integrated ticketing	Simple
Case Study 6	Loganair	ScotRail	Promotional campaign which doesn't include integrated ticketing	Simple

Case Study 1:

Aer Lingus and Heathrow Express

Partners	Heathrow Express (HEx); Aer Lingus
Route	Dublin Airport – London Heathrow
Integration Method	Web
Passenger Purchase Method	Add-on
Duration of the partnership	2011-present
Responsibility in case of disruption	HEx liability to provide other means of transport to destination

Description: Aer Lingus passengers can add a HEx ticket to their flight booking when flying between Dublin Airport and Heathrow Airport, as shown in Figure 1.

The partnership was launched to support passenger business travel between Dublin Airport and London Heathrow Airport. For HEx, it represents an opportunity to encourage passengers to book rail tickets online and in advance of their flight.

The partnership started in 2011 where Aer Lingus had a separate web link to the HEx website booking page. It became more successful in 2013 when the partners worked out a solution to include the rail ticket in the airline's website booking page as an add-on to the flight.
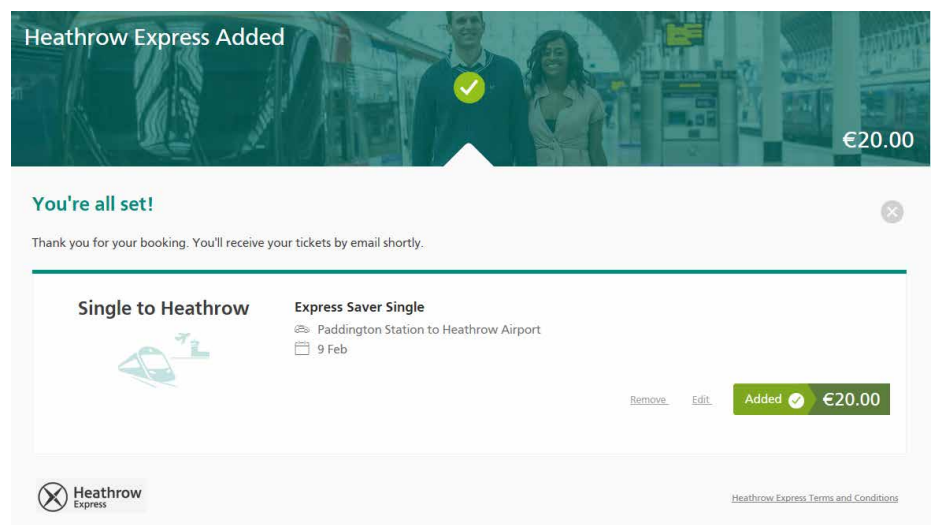

Figure 1. Screenshot showing successful addition of Heathrow Express to Aer Lingus Ticket as a travel extra

Case Study 2:

Ryanair Transfers

Partners	Ryanair National Express Stansted Express Thameslink Railway Others
Route	UK airports and city centres
Integration Method	Web Partial Integration
Passenger Purchase Method	Add-on On-board
Duration of the partnership	Various
Responsibility in case of disruption	Each operator for their own segment

Description: Ryanair offers airport transfers and car park services through its website and on board its aircrafts. Passengers can add the surface transfer option by bus, private vehicle, shared shuttle or train to their flight booking itinerary, as seen in Figure 2. After the booking is completed, Ryanair shares the traveller's email address with a surface transport operator, so they can send a confirmation email.
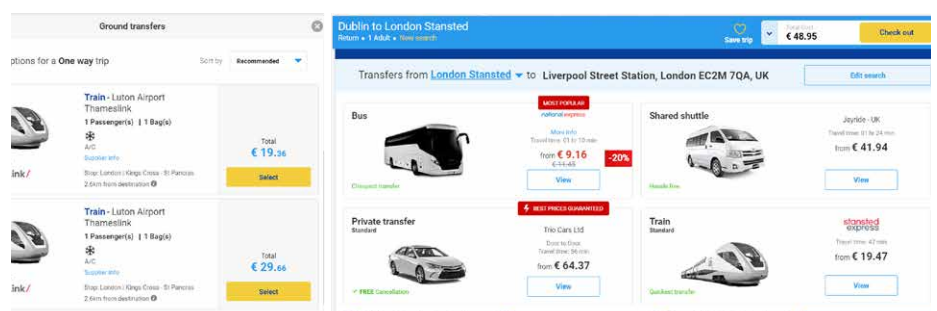

Figure 2. Screenshots of ticket purchase including surface transfer

Case Study 3:

Wizz Airport Transfers

Partners	Wizz Air National Express Govia Thameslink Railway (GTR)
Route	London Luton Airport-London Victoria London Luton Airport Parkway – Central London
Integration Method	Web
Passenger Purchase Method	Add-on
Duration of the partnership	Various
Responsibility in case of disruption	Each operator for their own segment

Description: Wizz Air has a partnership that provides access to/from airports. In the UK, services include National Express from London Luton Airport to London's Victoria Coach Station, and GTR services from Luton Airport Parkway station to central London.

Passengers can book rail and coach transfers at the end of their flight booking, as an add-on, as shown in Figure 3. As with Ryanair, once the booking is complete, passengers will receive separate flight and airport transfer tickets.
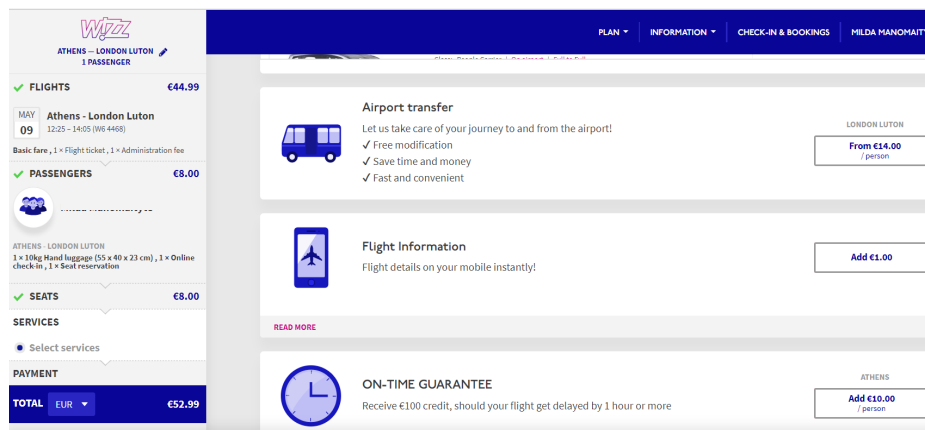

Figure 3. Airport transfer information on Wizz Air website

Case Study 4:

GWR Airline Partnerships – Rail&Fly

Partners	Great Western Railway (GWR); Heathrow Express British Airways; Singapore Airlines; Avianca; Cathay Pacific; Royal Brunei; Oman Air; Japan Airlines
Route	London Heathrow Airport or London Gatwick Airport – GWR stations
Integration Method	GDS
Passenger Purchase Method	Travel Agent
Duration of the partnership	2013 – present
Responsibility in case of disruption	Each operator for their own segment. The booking terms and conditions of the issuing airline or the issuing travel agency apply.

Description: Rail&Fly is a partnership between GWR, HEx, AccesRail (integrator) and participating airlines. AccesRail has created a technology platform which enables the sale of rail tickets in airlines' itineraries via the Global Distribution System (GDS). These Rail&Fly tickets are available to and from 20 GWR stations and airline partners' worldwide destinations.

Rail&Fly allows people to travel with all three operators (GWR, Heathrow Express and the airline) on a single booking. Passengers can book tickets using worldwide travel agents or the airline partner's website. To obtain the GWR and Heathrow Express ticket, passengers need to check in online on accesrail.com up to 72 hours before the departure and print out the rail ticket.

Case Study 5:

bmi regional and Virgin Trains Partnership

|	
Partners	bmi regional; Virgin Trains
Route	Birmingham International - UK
Integration Method	Partial Integration
Passenger Purchase Method	Web referral
Duration of the partnership	2017 – ongoing
Responsibility in case of delay	Each operator for their own segment

Description: This Virgin Trains and bmi regional partnership offers a train travel booking facility on the airline's website. After booking their flight on the bmi regional website, passengers are directed to the Virgin Trains website where they can buy a separate rail ticket. There is no technical integration and passengers need to make two separate bookings and receive two separate tickets.

Case Study 6:

Loganair and ScotRail

Partners	Loganair; ScotRail
Route	Scotland
Integration Method	Partial Integration
Passenger Purchase Method	Web referral
Duration of the partnership	2016 – 2017 (pilot)
Responsibility in case of delay	Each operator for their own segment

Description: This was a 1-year pilot programme between ScotRail and Loganair promoting rail connections in Scotland as a committed obligation in the rail operator's Franchise Agreement. The scheme offered Loganair's passengers a fixed-rate £20 (£10 child ticket) single journey to any ScotRail destination. Loganair passengers with a valid flight boarding pass could purchase the ticket on-train or at any ScotRail station with a staffed booking office. The pilot ran for one year until March 2017.
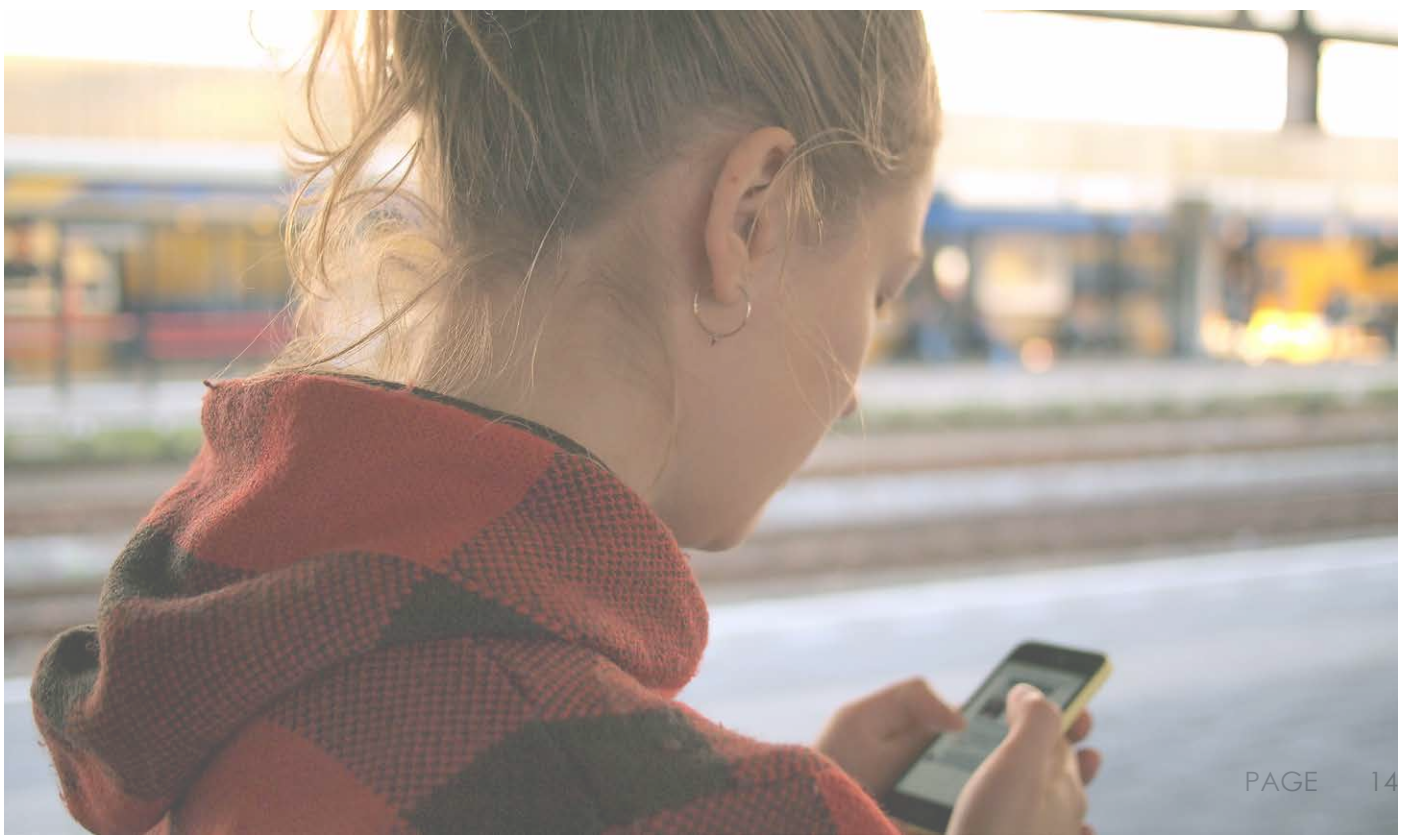
4.2. Experience from Other Modes in the UK

This section provides examples of ticket integration that occurs in the UK between other (non-air) modes of transport, providing an insight into what they are and how they operate. The case studies selected represent rail-to-rail, rail-to-ferry and rail-to-bus integration and cover the main types of partnerships currently operating in the UK. Other examples of intermodal integration exist in the UK and are similar to the ones presented in this section.

These case studies examine:

- What happens with other modes of transport when integrating travel journeys from different operators?

- How successful are they?

The modal integrations researched are shown in Table 2:

Table 2. Surface-to-Surface Integrated Ticketing Case Studies in the UK

	Scheme	Modes Integrated	Description
Case Study 7	Rail/Bus Air Link – London Luton Airport	Train & Bus	Integrated ticketing from any National Rail station to the London Luton Airport terminal via a high frequency bus link connecting Luton Airport Parkway station with the airport terminal
Case Study 8	Rail & Sail	Train & Ferry	Integrated ticketing from any National Rail station to destinations in Ireland, Northern Ireland, Holland and within Scotland via ferry and rail
Case Study 9	Rail-Ferry-Rail Isle of Wight	Train and Ferry	Integrated ticketing between any National Rail station and stations on the Isle of Wight including ferry link
Case Study 10	PlusBus	Train & Bus	Integrated ticketing between any National Rail station and one of the 426 National Rail stations offering bus travel in and around the area it serves
Case Study 11	Travelcard and Oyster	Multi-operator in regulated market	Integrated tickets within London offering multimodal travel on buses, tubes, trams and National Rail
Case Study 12	Nottingham Robin Hood Card and Manchester Get Me There card	Multi-operator in de-regulated market	Integrated ticketing in and around Nottingham using different operator's buses, trains and trams
Case Study 13	SEFT	South Eastern Flexible Ticketing programme	A scheme to increase the use of smart ticketing across National Rail services operating in the South East

Case Study 7:

Rail/Bus Air Link – London Luton Airport

Modes Integrated	Train and Bus – Connecting with the airport
Duration of the partnership	Minimum operation is mandated in the Franchise Agreement, as with previous rail franchises
Features	Significant year-on-year growth, surface access mode share and a rise in rail-bus integrated ticketing

Description: This high-frequency bus link between Luton Airport Parkway and the London Luton Airport (LLA) terminal, a distance of 1.3 miles, is one of the most successful integrated non-metropolitan rail-bus services in the UK. The bus link, operated by GTR as part of their wider Thameslink rail operation, has a minimum service of every 10 minutes throughout the day, every 6 minutes at peak times and every 30 minutes between 23:00 and 06:00.

Through-ticketing to the airport terminal from any National Rail station is available, which includes the fare for the bus link at a cheaper cost than the cash price of a £2.30 single should a passenger turn up on the day.

Other rail-bus schemes

It is worth noting that there are many integrated rail-bus schemes offered across the National Rail network such as the fully integrated Redruth-Helston bus link in Cornwall, Kettering via Peterborough, and Edinburgh Airport from Waverley or Haymarket stations. Each of these schemes requires a Train Operating Company sponsor. These have developed over the years either by way of commercial opportunity or a requirement to integrate through the rail franchising process.

Case Study 8:

Rail & Sail

Modes Integrated	Train and Ferry
Duration of the partnership	Arrangements pre-date rail nationalisation (1994)
Features	Integrated requirement with ferries within the franchise process

Description: There are a number of long standing rail and ferry integrated tickets within the UK. These tickets are sold under a generic term "Rail & Sail", though they are not uniformly retailed or distributed. Tickets include rail travel from stations across the National Rail network and incorporate the ferry, and where appropriate, rail travel in the destination country.

Between countries, these operate to:

- Any station in Holland via Harwich and Hoek van Holland (marketed by Abellio as Dutchflyer);

- Northern Ireland via Cairnryan – Belfast and Liverpool – Belfast; and

- Ireland via Holyhead – Dublin and Fishguard – Rosslare.

Virgin Trains, Arriva Trains Wales, Abellio Greater Anglia and ScotRail have partnerships with Irish Ferries and Stena Line to provide this integrated ticketing. Tickets are retailed online through these operator's websites, third-party websites such as Trainline and from most larger ticket offices at stations.

Internal rail-ferry journeys within Scotland are also operated under the banner of Rail & Sail, on thirteen different routes.

Case Study 9:

Rail-Ferry-Rail Integration - Isle of Wight

Modes Integrated	Train/Ferry/Train
Duration of the partnership	Currently led by South Western Railway, however arrangements pre-date rail nationalisation (1994)
Features	Integrated requirement with ferries within the franchise process

Train services between Ryde Pier Head and Shanklin on the Isle of Wight are operated as part of the National Rail network by the current operator South Western Railway. Through-tickets from National Rail stations on the mainland are available and include the ferry from Portsmouth Harbour and rail travel on the Isle of Wight. Pricing and timetables are fully integrated into information and sales systems.

The original integration of the service dates back to a time when the ferries were operated under British Rail (Sealink) and its predecessors. The continued integration between rail and ferry services is safeguarded as requirement within the rail franchising process.

Case Study 10:

PlusBus

Modes Integrated	Bus and Train
Duration of the partnership	2006 – present
Features	High customer satisfaction

Description: There are 293 PlusBus integrated rail and bus ticketing schemes operating from 426 interchange stations across the National Rail network. These provide unlimited travel on all bus operators' services in a specified local zone to the station(s) throughout the period of travel allowed by the integrated rail ticket associated with the PlusBus add-on fare. These can have validity of the day, week, or a season ticket of up to 12 months.

In order for the bus operators to protect their core markets, the add-on fares are broadly just above a point-to-point return fare within the zone. Therefore, to regular passengers who are making just one or two journeys a day, the price can sometimes be unattractive. The schemes include large metropolitan areas such as Greater Manchester and West Yorkshire, with annual sales ranging from West Midlands 68k, Reading 48k, Benfleet (for Canvey Island) 35k, Cambridge 33k, Brighton 32k, down to over 100 schemes that have less than 100 issues a year. Sales have been in steady decline since 2014 as shown in Table 3.

Table 3. PlusBus scheme total sales in thousands

Year	2014	2015	2016	2017
Issues	954	947	943	930

PlusBus can be purchased through most National Rail retailing channels, including online, from Ticket Offices and at some Ticket Vending Machines (TVMs). It is generally fulfilled using paper ticketing. From 2012, PlusBus has also been available to load onto The Key, a smartcard operated by GTR on Southern. PlusBus has some availability for travel to airports, limited to a few smaller regional airports including Bournemouth Airport, Exeter Airport, Doncaster/Sheffield Airport and Leeds/Bradford Airport.

Case Study 11:

London Travelcard and Oyster

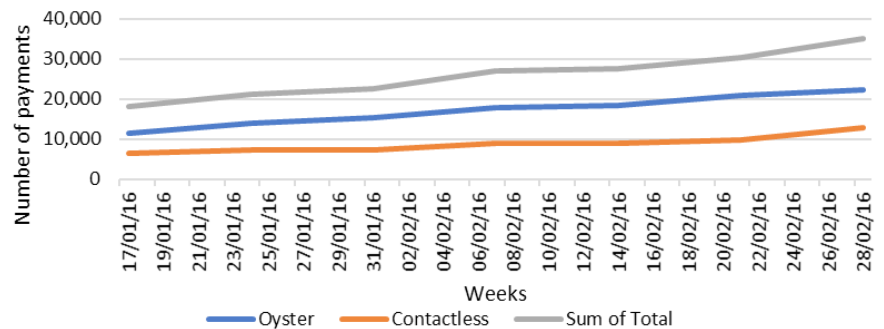| Modes Integrated	Multi-operator in regulated market. Bus, train, tube, tram, light rail, cable car (Air Line), river bus
Duration of the partnership	2003 – present
Features	Uplift in journeys and much improved customer convenience and perception of transport in London

Figure 4. Increase in Oyster and Contactless and payments to Gatwick Airport in first six weeks of introduction (London TravelWatch)

Description: Transport in London is regulated by Transport for London (TfL). London is the only city in the UK that regulates its bus services. It is also part of the Greater London Authority which allows for multi-modal integration to enable planning and investment at a strategic scale.

Currently, TfL has different ticketing arrangements to London's airports:

- In January 2016, TfL introduced Oyster and contactless ticketing at Gatwick for journeys to London and the Oyster Pay As You Go (PAYG) area. The availability of Oyster and contactless ticketing between Gatwick Airport and London resulted in over 3% growth in rail journeys on the route.

- For Heathrow, a full range of TfL products have always been available on the Piccadilly line – part of the extended Travelcard zone network. TfL are in discussion with Heathrow regarding Elizabeth Line fares and extending Contactless/Oyster onto Heathrow Express services.

- For Stansted, there is currently nothing in place.

- For Luton, despite being a franchise commitment for the existing operator (GTR) to deliver a business case to the DfT for Oyster extension, the extension has not been delivered. At this stage, there is no project in place for an extension, apparently due to difficulties in revenue apportionment between TfL and DfT.

- London City is fully integrated into the TfL ticketing system with its own dedicated station on the Docklands Light Railway (DLR).

The Oyster payment network was extended to Gatwick Airport in January 2016 and in just two months over 180,000 passengers had touched-in and out at Gatwick's rail station using Oyster or contactless payments. The increase in the first few weeks of introduction is shown in Figure 4.

London TravelWatch advocates further extension of Oyster and contactless payments to Luton and Stansted Airports. This is driven by convenience and partially by the level of penalty fares, where 21,000 were issued on services between London and Stansted Airport relating to Oyster and contactless cards.

TfL have recently upgraded their ticketing systems and capability due to the opening of the Elizabeth Line with its range of new destinations. These systems can now accommodate expansion to incorporate new multimodal destinations by rail, including airports. This was previously a limiting factor.

The apportionment of revenue is made through "Oyster Clicks". Oyster card data is used for allocating revenue in accordance with agreements with TOCs through the Rail Delivery Group (RDG). These four agreements are The Travelcard Agreement, CPay Agreement, Through London Agreement and PAYG Agreement. They have been created as initiatives with fares, products, retail and fulfilment channels have come about over time. The agreements would benefit from being reviewed with the possibility of being combined to be more flexible across areas of integration. The extension of Oyster beyond the existing boundaries, to airports for instance, is apparently being held back by lack of will.

A trial with easyJet where they sold pre-loaded Oyster cards in flight was short lived mainly due to the issues arising in managing stocks of cards that had real value.

TfL are developing an app that has access to all TfL modes. They have already launched an app for topping up Oyster and are considering expanding their own app offering. Third parties have access to Open Data that is determined by TfL's Open Data Policy.

Case Study 12:

The Robin Hood Card and other Regional Integration

Modes Integrated	Train, bus and tram Multi-operator integration in de-regulated market
Start of the partnership	2014, but some elements previously under the 'Kangaroo Card'
Features	Flexibility of operations across modes
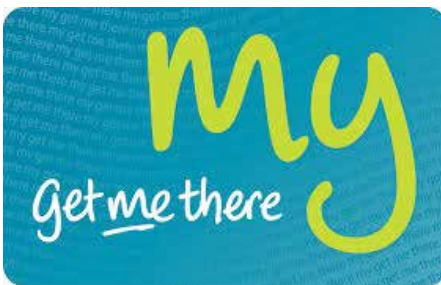
Description: The Robin Hood Card can be used in and around Nottingham and the wider Robin Hood network. This has been created through a partnership between operators and Local Authorities. The Pay As You Go card can be used on buses and trams in the central area, and the Season version has wider application including trains, park and ride services and additional bus and coach services.

The Robin Hood branding has taken into consideration Nottinghamshire County Council's plans to introduce integrated ticketing across the county. The card is more complex than Oyster in that each operator has differing prices for travel within the Greater Nottingham area, whereas in London there is one simple fare structure with TfL determining the price of the integrated ticket when passengers want to travel on multiple operators. The Robin Hood Pay-as-you-Go Card has similarities to OV-chip-kaart in Holland where payment is taken from the card for different operators and journeys. The Robin Hood Pay As You Go card works out the best fare on the day for the trips made.

Transport for Greater Manchester (TfGM) is also developing a multi-modal, multi-operator smart integrated ticketing solution for Greater Manchester and is planning to introduce this by extending their GetMeThere card to offer Metrolink tram services.

Transport for the North (TfN), working with operators, transport authorities and the Department for Transport, has a similar approach for the whole of the North region. Both the TfGM and TfN solutions will be delivered through contactless account-based ticketing where the complex processing logic is performed by an intelligent back office. Passengers can already use a smartcard, contactless bank card or their smartphone to pay for travel by public transport in parts of the North of England. The Integrated and Smart Travel programme (IST) will build on existing systems to develop smart ticketing, payment and information technologies for travel across the whole region.

Case Study 13:

South East Flexible Ticketing (SEFT)

Modes Integrated	Rail (multi-operators: Greater Anglia, c2c, South Eastern, GTR (excluding Southern), South West franchisees)
Duration of the partnership	Programme initiated in 2013
Features	Lessons learned and paved the way to enable smart ticketing solutions

Description: In 2013, the Government announced its intention to trial part-time season tickets with a view to rolling them out across the rail network. The trial became known as SEFT (South East Flexible Ticketing), which started to test smartcard technology and flexible ticketing in 2014 on a number of small-scale trials on London commuter routes. However, according to the National Audit Office (NAO) investigation report, the programme experienced some difficulties in the early years and was judged to be moving too slowly.

One of the original aims of the programme was to have flexible ticketing including discounted, part time season tickets in place on 11 franchises running services into London by 2014. However, by April 2017, it had enabled 5 of the 11 companies to offer season tickets on smartcards with only one of those offering flexible, part time season tickets. The DfT had assumed high levels of take-up of smart ticketing in the 2014 business, assuming 95% of take-up of smart season tickets. Only 8% of all season ticket sales in the 12 months up to March 2017 on participating train operating companies were on smartcards. The Department attributes low levels of take-up to early problems with passenger experience and lack of promotional and marketing activity.

Since 2017, the DfT handed to RDG the responsibility for managing the central back office. The central back office can be used by other TOCs to operate their own smart ticketing schemes but is only being used at 5% of its capacity. The RDG is promoting this central back office capability to TOCs across the country and by March 2017, two franchises outside the South East were using it.

4.3. International Comparisons

This section provides examples of air-to-surface access integrated ticketing in existence outside of the UK. The partnerships examined include those in Table 4:

Table 4. International Case Studies of Air-to-Surface Integrated Ticketing

	Airline	Surface Access Operator	Description	Integrated Ticketing Category
Case Study 14	Lufthansa	Deutsche Bahn	Airline has a block seat agreement with the rail operator and sells rail tickets as a 'connecting flight'.	Sophisticated
Case Study 15	Austrian Airlines	OBB	Airline has a block seat agreement with the rail operator and sells rail tickets as a 'connecting flight'.	Sophisticated
Case Study 16	Finnair	VR	Airline has a block seat agreement with the rail operator and sells rail tickets as a 'connecting flight'.	Sophisticated
Case Study 17	KLM	KLM Bus	KLM offers free, KLM branded bus transfers to/from the airport in selected cities	Sophisticated
Case Study 18	Multiple	Deutsche Bahn	Rail tickets are bookable in combination with flight via the GDS through a third-party supplier AccesRail	Sophisticated
Case Study 19	Multiple	OBB	Rail tickets are bookable in combination with flight via the GDS through a third-party supplier AccesRail	Sophisticated
Case Study 20	Multiple	Thalys	Rail tickets are bookable in combination with flight via the GDS through a third-party supplier AccesRail	Sophisticated
Case Study 21	Multiple	VIA Rail	Rail tickets are bookable in combination with flight via the GDS through a third-party supplier AccesRail	Sophisticated

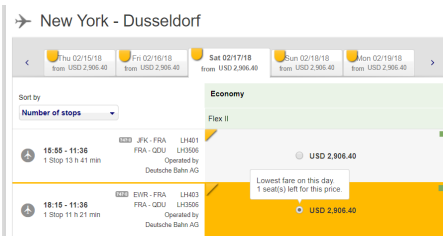# Case Study 14:

Lufthansa Express Rail

Partners	Lufthansa; Deutsche Bahn
Route	Frankfurt Airport – Selected DB stations
Integration Method	Block seating
Passenger Purchase Method	Airline website
Duration of the partnership	2001 to date
Responsibility in case of delay	Lufthansa for the entire journey covered by the integrated ticket

Figure 5. Screenshot of Lufthansa Express Rail booking page

Description: Lufthansa Express Rail is a partnership between Lufthansa Airlines and Deutsche Bahn (DB), offering rail connections to and from Frankfurt Airport as a "connecting Lufthansa flight".

The partnership works under an exclusive agreement where Lufthansa buys a block of seats on selected trains from Deutsche Bahn and sells them to air passengers as their own "connecting flight" under the Lufthansa Express Rail brand. Passengers are issued with two boarding passes – one for the flight and one for the rail journey, just as they would when connecting with different airlines.

Lufthansa Express Rail trains operate under an LH flight number and passengers benefit from receiving Lufthansa loyalty points and a connection guarantee. Lufthansa takes all responsibility for any journey delay under this partnership.

To book the integrated air-rail ticket, passengers need to add one of the railway stations as their destination when searching for flights on the airline's website, as shown in Figure 5.

Currently there is no technical interface between the companies. The rail operator agrees on how many rail seats to block on certain trains participating in the programme and sells them to the airline. Lufthansa has no ability to release unsold rail seats back to Deutsche Bahn but both partners are looking into changing this.
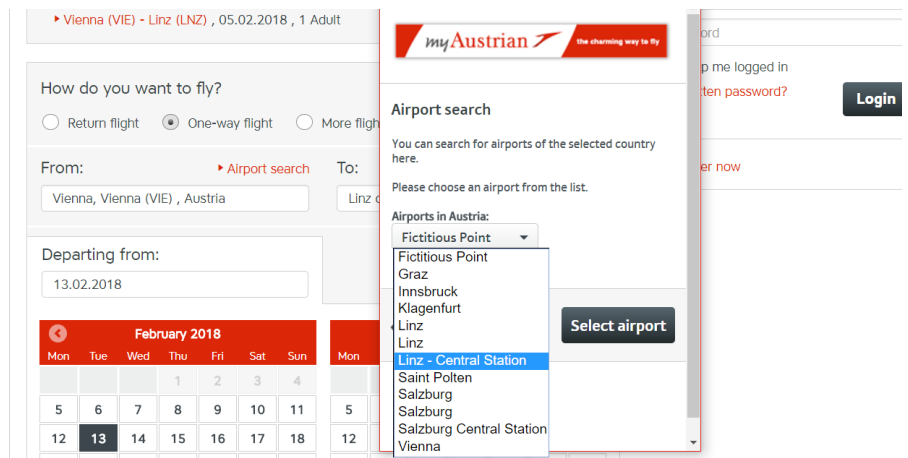
Case Study 15:

Austrian Airlines - AIRail

Partners	Austrian Airlines; Austrian Railways (ÖBB)
Route	Vienna Airport – Linz Central Station, Salzburg Central Station
Integration Method	Block seating
Passenger Purchase Method	Airline website (Train station has IATA code)
Duration of the partnership	2014 – Present
Responsibility in case of delay	Austrian Airlines for the entire journey covered by the integrated ticket

Figure 6. Screenshot of Austrian Airlines AIRail booking page

Description: AIRail is a cooperation between ÖBB (Federal Railways of Austria) and Austrian Airlines that lets passengers combine rail and air travel, including a guaranteed onward connection, in a single transaction. In the event of an unexpected delay to the train or flight, the airline will rebook passengers onto an alternative.

Austrian Airlines block a certain number of seats on selected ÖBB trains and sells them as a "connecting flight" to air passengers. Passengers can book the combined air-rail ticket on the airline's website or through a travel agent (Figure 6).
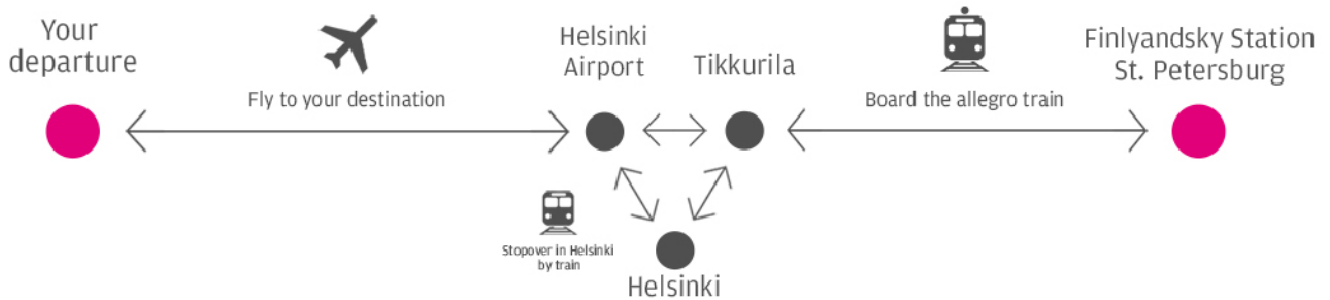
Case Study 16:

Finnair and Finnish Railways

Partners	Finnair; Finnish Railways
Route	Helsinki Airport – St Petersburg Finland Station
Integration Method	GDS
Passenger Purchase Method	Via customer call centres or travel agents
Duration of the partnership	2014 – Present
Responsibility in case of delay	Finnair will evaluate the situation and seek to find the best solution for the customer

Description: Partnership between Finnair and Finnish railway company VR, enabling air passengers to connect between Helsinki Airport and Saint Petersburg on a single intermodal ticket. The intermodal ticket also includes the transfer between Helsinki Airport and Helsinki Central or Tikkurila high-speed rail station, from where passengers can catch the high-speed Allegro train, as shown in Figure 7. The Allegro service, run by Finland's state-owned VR Group, started at the end of 2010 and saw its biggest passenger numbers in 2013, when VR sold about half a million tickets. In 2014, Allegro had a total of about 400,000 passengers. Passport and customer procedures are carried out on board the train while on the move. The tickets are available to buy through Finnair's Customer Service Centre and with travel agents.

Figure 7. Available routes with Finnair and VR

Case Study 17:

KLM Bus or Train

Partners	KLM; KLM Bus
Route	Nijmegen/Arnhem/Veenendaal/Rhenen – Schiphol Airport
	Maastricht/Eindhoven – Schiphol Airport
	Ottawa Railway Station – Montreal Airport
Integration Method	Web
Passenger Purchase Method	Airline website add-on
Duration of the partnership	2015 – Present
Responsibility in case of delay	KLM for the entire journey covered by the integrated ticket

Description: A free KLM Bus service for KLM Royal Dutch Airline passengers travelling between Schiphol Airport and selected cities in the Netherlands, as well as between Ottawa Railway Station and Montreal Airport in Canada. Passengers can book this service either online on the airline's website or via the travel agent, as shown in Figure 8.

KLM also offers combined tickets with Thalys and TGV train services.

Figure 8. KLM booking screenshot

Case Study 18:

Deutsche Bahn Rail&Fly

Partners	Deutsche Bahn; 60 airlines
Route	German airports – German rail stations plus Amsterdam and Zurich
Integration Method	GDS – AccesRail
Passenger Purchase Method	Airline website add-on
Duration of the partnership	1991 – present
Responsibility in case of delay	Each operator for their own segment. The booking terms and conditions of the issuing airline or the issuing travel agency apply.

Description: Rail&Fly is an integrated air-rail ticketing offer from Deutsche Bahn, covering over 5,600 German train stations, all German airports and Amsterdam and Zurich airports.

The integration of rail tickets into airlines' booking systems is made available via AccesRail. AccesRail is a company with its own IATA airline code 9B and offers air-rail integration to a number of railways.

Passengers are not limited to specific trains on the Deutsche Bahn timetable. The Rail&Fly ticket is valid on the flight dates, as well as one day prior to departure, or one day after arrival in Germany.

Passengers can book this integrated air-rail ticket through participating airlines' websites as an add-on to their flight, or via travel agents. To receive their rail ticket, passengers need to check-in online on accesrail.com up to 72 hours before the departure and print out the rail ticket.

Currently 60 airlines are participating in the DB Rail&Fly programme. For the rail operator, this is a way to access international air passengers who might otherwise not chose to travel by rail when in Germany.

Case Study 19:

ÖBB Rail&Fly

Partners	Austrian Railways (ÖBB); Participating airlines (20)
Route	Vienna Airport – Austrian main rail stations
Integration Method	GDS – AccesRail
Passenger Purchase Method	Add-on to airline website booking or via travel agent
Duration of the partnership	2015-Present
Responsibility in case of delay	Each operator for their own segment. The booking terms and conditions of the issuing airline or the issuing travel agency apply.

Description: The ÖBB Rail&Fly product is available to any airline operating from Vienna International Airport. Like Deutsche Bahn, ÖBB has a partnership with AccesRail, allowing for the rail tickets to be sold on the airlines' booking systems.

The air and rail journey can be booked through the sales channels of the participating airlines, or via travel agents, as shown in Figure 9. Rail&Fly is not available from ÖBB's points of sale. Passengers can retrieve their rail ticket on AccesRail's check-in website.

High-speed and long-distance train services were introduced at Vienna International Airport in December of 2015 and the Rail&Fly partnership was a way for ÖBB to promote the service and grow passenger numbers. Rail&Fly gives the rail operator access to a new market segment, but the success to grow the business lies on seamless interchange between air and surface.
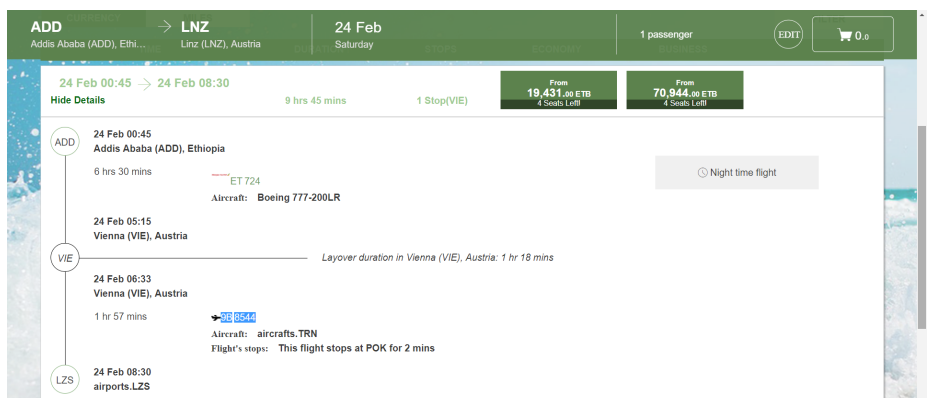

Figure 9. Ethiopian Airlines booking screenshot showing ÖBB rail segment

Case Study 20:

BeNeRail AirRail

Partners	SNCB; NS; Thalys; AccesRail; Airline partners
Route	Brussels Airport – 83 destinations in Belgium (via BeNeRail) Amsterdam Schiphol Airport – Brussels and Antwerp (via Thalys)
Integration Method	GDS – AccesRail
Passenger Purchase Method	Airline website add-on
Duration of the partnership	2011
Responsibility in case of delay	Each operator for their own segment. The booking terms and conditions of the issuing airline or the issuing travel agency apply.

Description: The BeNeRail partnership with AccesRail allows bookings to 83 destinations via train in Belgium and selected cities internationally. Each airline that signs a partnership agreement with AccesRail and flies to Brussels or Schiphol Airport has access to this integrated ticket.

BeNeRail is a distribution joint venture between SNCB and Dutch operator NS.

Case Study 21:

VIA Rail

Partners	VIA Rail; Aeromexico, Cathay Pacific, LOT Polish Airlines, Qatar Airways and Hainan Airlines
Route	Toronto Pearson and Montreal Airports – VIA Rail network
Integration Method	GDS
Passenger Purchase Method	Airline websites or travel agencies
Duration of the partnership	2014 – Present
Responsibility in case of delay	Each operator for their own segment. The booking terms and conditions of the issuing airline or the issuing travel agency apply.

Description: Through a partnership with AccesRail, VIA Rail tickets can be sold to five airline partners flying to Toronto Pearson International Airport and Montreal Airport. VIA Rail does not have direct connections to those airports but operates a free shuttle bus in Montreal and has a separate partnership agreement with Metrolinx that operates UP Express, a rail link connecting Toronto Pearson Airport and the city's Union Station.

Other Partnerships

France. TGV Air allows passengers to buy an airline ticket plus the intercity high-speed rail service TGV, operated by SNCF. The TGV Air service is available to/from Charles de Gaulle and Orly airports and 19 French cities, plus Brussels. Tickets can be purchased online through participating airline partners' websites, or via travel agents. SNCF offers assistance in case of delay or cancellation. SNCF sells fixed rate tickets to the airlines.

Spain. Train&Fly is a combined Iberia flight and Renfe rail ticket, available for passengers flying to/from Madrid airport and connecting to five destinations on Renfe's rail network. Tickets can be purchased through either Renfe's or Iberia's websites as well as any travel agent. Madrid airport is not directly connected to Renfe's rail network, so passengers need to arrange their own transfer between the airport and the railway station. Passengers can obtain a free ticket for the commuter train using a special code.

Austria. Passengers flying with Austrian Airlines to Vienna International Airport can buy their City Airport Train (CAT) ticket on board the flight (tickets are available only on international flights beyond the Schengen zone). Tickets sold through this channel represent only a very small fraction of overall CAT ticket sales.

Sweden. Discontinued partnership between Scandinavian Airlines and Swedish Railway Flyrail, which allowed passengers to purchase an annual pass that covered both air and rail travel. This included a get-to-the-destination guarantee.

Russia. Aeroflot and S7 Airlines passengers can purchase Moscow airport rail tickets (Aeroexpress) online when booking their flight. According to Aeroexpress, they sell 1% of their total tickets via these airline partners and are looking to extend the offer to low cost airline Pobeda's passengers.

Italy. Emirates Airlines offer the purchase of Trenitalia tickets after the passenger completes their booking for their flight to/from Italy on the airline's website. Additionally, Aegean Airlines offer reduced rail ticket fares to passengers flying to Rome, Milan and Venice. These tickets can only be purchased via travel agent.

5.   Appetite and Desire

5.1. Industry Appetite Findings

Several airlines and surface transport operators already work together and offer some form of integrated ticketing, evidencing that there must already be a certain appetite for integrated ticketing.

The industry stakeholders identified three key drivers for growing integrated air-to-surface transport integrated ticketing:

1.   Door to Door

2.   Customer Experience

3.   Business Growth

Door to Door

A recurring theme from the interviews with airlines was the growing demand for integrated door-to-door travel where passengers can search, book and obtain travel documents for their entire journey starting at their home right to their destination or vice versa. Integrated door-to-door travel is seen as an upcoming market trend, and the stakeholders acknowledged that customers will begin to expect more opportunities (enabled by approaches such as integrated ticketing) to fulfil this.

One airline representative explained that *"all airlines are looking for new business models to offer door to door travel. If we can offer this enhanced network, we are able to access much better possibilities for customer service"*.

Surface access operators believe that intermodal ticketing solutions are going to be an established customer need in the future, with the planning and booking of intermodal journeys on a single website or app, offered as a single solution. They see the importance and inevitability of door-to-door journey planning.

Customer Experience

One airport emphasised the importance of good customer experience in getting the passengers to and from the airport efficiently and effortlessly between modes. The appetite for integrated surface access ticketing is a part of this overall picture.

Stakeholders representing ticket sales agents also agreed that passengers are placing higher importance on seamless transport. According to the European Technology and Travel Services Association (ETTSA), consumer and passenger organisations would like to book surface transport as easily as interconnecting flights between countries.

Business Growth

Surface access operators interviewed all had said that there is an appetite for integrated ticketing and see it as an opportunity to reach new customers who might not consider public transport for their airport access or wider journeys. Some airlines see this as a tool that enables them to access passengers from more locations and in some cases, use high speed rail services to replace short haul flights.

5.2. Passenger Appetite Findings

The confidence margin of the quantitative results of this survey is limited by the scope of this project. Conclusions drawn from these results have been reached in parallel with the qualitative analysis that was also undertaken. The following sections outline the survey findings.

Before going into the detail of what integrated ticketing might offer, passengers were asked: *"would you have liked to have had the option to purchase your public transport ticket at the same time and using the same method as booking your air ticket?"*. 43% of respondents who had travelled to the airport by public transport that day, said they would (Figure 10).

As shown in Figure 11, 62% of all the passengers surveyed said they would be more likely to use public transport if integrated ticketing was available, suggesting that integrated ticketing could have a positive impact on the number of passengers using public transport to travel to/from the airport.

Figure 10. Desire for integrated ticket

Figure 11. Likelihood of public transport use

Would you have liked to have had the option to purchase your public transport ticket at the same time as and using the same method as your air ticket?
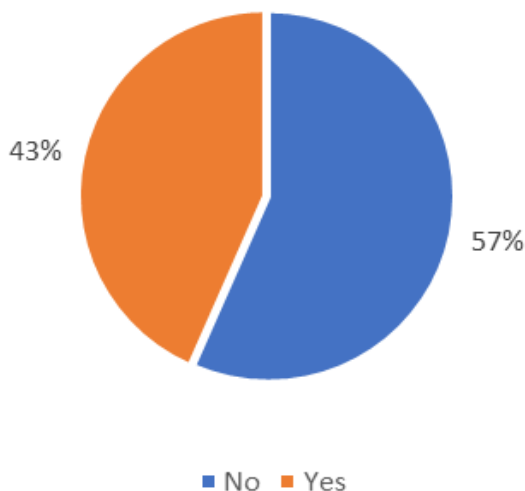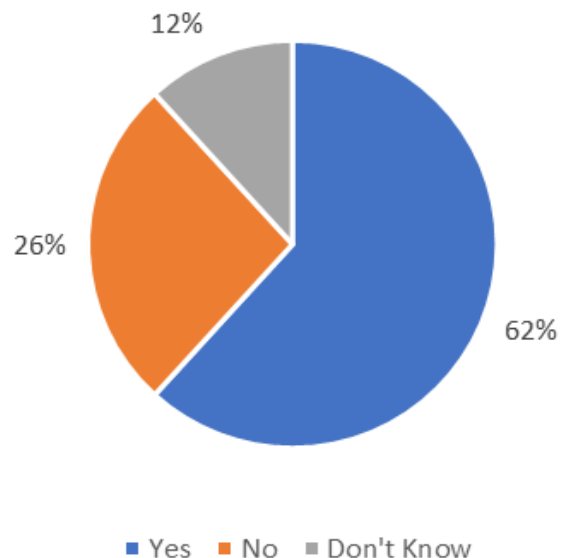
43%

57%

■ No ■ Yes

Would you be more likely to use public transport if integrated ticketing were available?

12%

26%

62%

■ Yes ■ No ■ Don't Know

Following the initial general questions, the detail of integrated ticketing was introduced and explained to the passengers.

Integrated ticket: This is a ticket that covers the plane journey as well as the surface transportation (train, bus, coach, underground) journey to/from the airport. It may be on two physical tickets but is bought in one transaction.

94% of passengers said they were not aware of any integrated ticketing options for their journey. Furthermore, of the six passengers who had heard of integrated ticketing options, only four identified integrated tickets that satisfy the definition used for this project (i.e. one transaction as described above).

Features of Integrated Ticketing

To better understand why passengers do or don't want integrated ticketing, a series of potential features of integrated ticketing were provided. They were asked, *"how likely are these features to persuade you to buy an integrated ticket?"* and asked to answer on a 5-point scale from "Very Unlikely" to "Very Likely", where Very Unlikely is 1 and Very Likely is 5. The averaged results from the survey using this 5-point scale are shown in Table 5.

Table 5. Results of integrated ticketing features question in Gatwick survey.
Scores based on a 5-point scale.

	Average (Mean)	Very Unlikely	Unlikely	Neutral	Likely	Very Likely
A Journey guarantee if public transport is delayed, you are booked on the next flight	4.12	3%	8%	7%	39%	43%
A reduction in the combined price	4.00	6%	5%	8%	46%	35%
Compensation in case of delays with either air or surface mode (money back)	3.98	2%	10%	14%	37%	37%
Flexibility of different modes of public transport that a ticket allows travel on	3.83	5%	5%	16%	51%	24%
Booking done through one website, instead of two separate websites	3.79	7%	10%	10%	44%	29%
Ability to book a flight that includes surface access to the airport in one transaction	3.61	9%	9%	16%	46%	21%
Access to live service updates on your upcoming public transport journey	3.58	5%	14%	23%	36%	23%
Ability to receive one combined ticket	3.54	7%	9%	25%	41%	18%
Ability to book face to face or over the phone	2.78	15%	25%	33%	20%	7%

The qualitative questions asked as part of the Gatwick survey were designed to give passengers an opportunity to discuss any further reasons for or against integrated ticketing and allow them to emphasise any of the previous factors mentioned. The themes mentioned by passengers have been categorised in Figure 12.

The next sub-sections go into the detail of the responses around the key features that may influence the purchase of integrated ticketing.

Figure 12. Passenger responses to qualitative questions
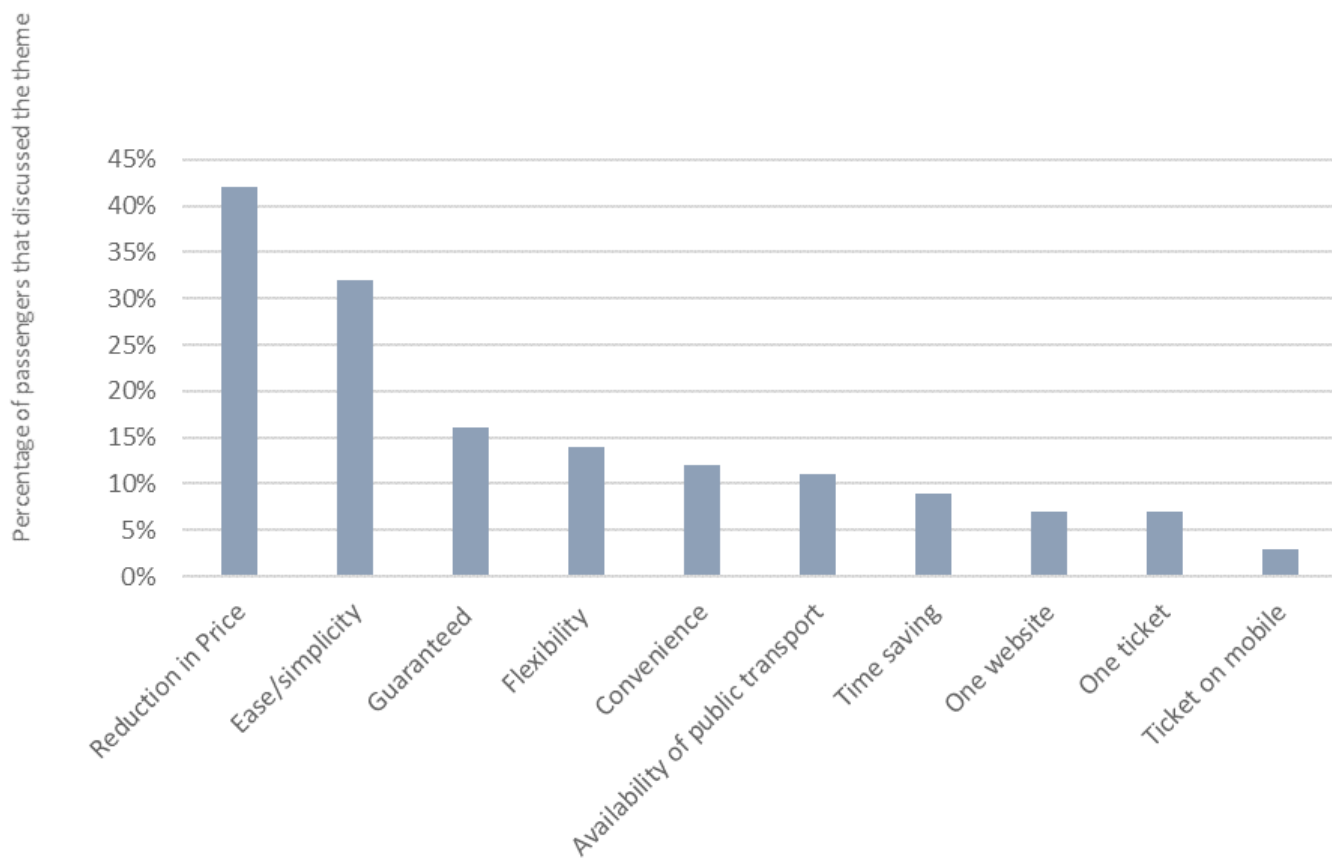
Journey guarantee and delay compensation

As can be seen from the results in Table 5 a "journey guarantee" and delay compensation are two of the top three features that would make integrated tickets attractive to passengers. The provision of a journey guarantee (guarantee to be booked on the next train/flight) or delay compensation (compensated in case of delay) reduces the worry associated with travel and the overall journey experience is made more appealing.

Further evidence of passengers' desire for a journey guarantee and delay compensation was provided as 50% of the passengers surveyed said they would pay more for a journey guarantee, and 54% said they would pay more for delay compensation.
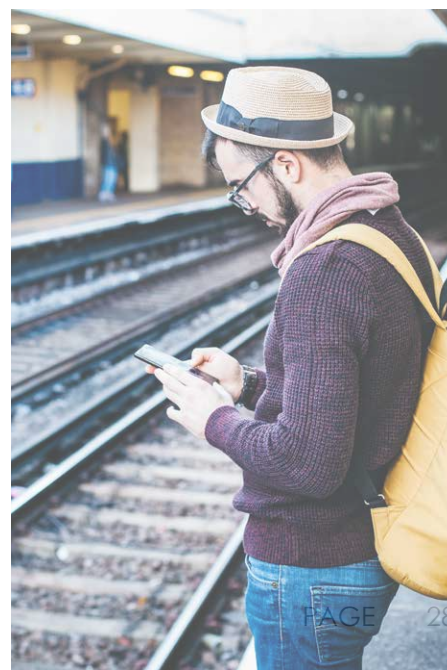
Price

More than 80% of passengers stated that a price reduction compared with buying separate tickets would persuade them to buy an integrated ticket. Moreover, most of those who answered "no" to the initial question regarding their interest in purchasing an integrated ticket changed their views and said that a price reduction would persuade them to buy it in this question.

In addition, "price reduction", "cost less", and "cheaper" were recurrent answers to questions relating to what would encourage passengers to buy an integrated ticket, and what they would expect from it. 42% of passengers gave price-related answers to the qualitative questions in the survey. Passengers also like to know how much they are saving, as one passenger stated, *"I like knowing that I am saving 10%, for example, it makes me want to buy it"*.

As discussed previously, about half of passengers surveyed would pay more for an integrated ticket that included delay compensation or a journey guarantee. This shows that price is not necessarily the overriding factor, although it is clearly an important consideration for passengers.

"I LIKE KNOWING THAT I AM SAVING 10%, FOR EXAMPLE, IT MAKES ME WANT TO BUY IT"

Another factor around price, which was raised by a few passengers, was transparency. One passenger said, *"I've got to believe I'm getting the cheapest option, and that I'm not getting ripped off"*, when asked if there were any other factors that would affect their likelihood of booking an integrated ticket. Another passenger stated, *"It would be good to book it on the BA website, but it would probably be more expensive, like with the car rental"*. There was a desire and expectation from passengers for the pricing to be no higher than if they booked separately and as one passenger explained, *"A clear breakdown to be available, so I can see how much the train is costing"*.

Flexibility

As shown in Table 5, flexibility of transport mode was another potential feature of integrated ticketing that passengers thought would persuade them to buy an integrated ticket. This finding was backed up by answers from passengers when asked to give further explanation of their expectations of integrated tickets:

The issue of flexibility was brought up by many passengers when they explained why they would be unlikely to buy an integrated ticket. Passengers generally book their air tickets a long way in advance. The potential lack of flexibility enforced on passengers by having to book their public transport ticket at the same time as their air ticket is a clear issue for many. One passenger who used the train to get to Gatwick said *"Lack of flexibility would stop me buying an integrated ticket. It's not always easy to know when I want to leave and what train I want to get."*

Only 4% of passengers who had taken public transport to the airport booked their public transport ticket on the same day as booking their flight, as shown in Figure 13. 65% had bought their ticket on the day of travel, albeit including those using Oyster/contactless. This clearly demonstrates the current propensity of passengers to hold off buying their surface access transport tickets. It is worth noting that those passengers who used Oyster or contactless to travel on the train to Gatwick were aware that this is was an option and did not need to pre-book a train ticket.

"I'VE GOT TO BELIEVE I'M GETTING THE CHEAPEST OPTION, AND THAT I'M NOT GETTING RIPPED OFF"

Figure 13. Breakdown of when passengers booked their surface transport

When people booked their surface transport

- Today
- Same day as booked flight
- Before booking flight
- Inbetween
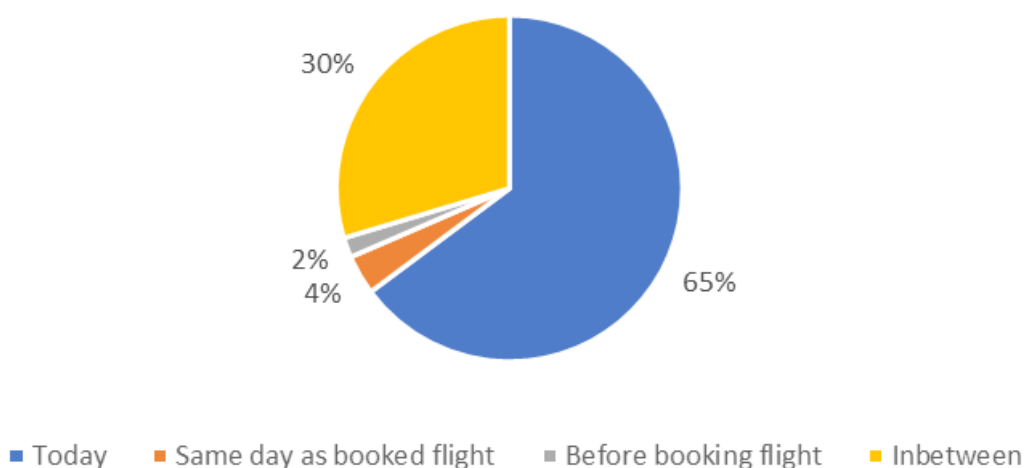
Convenience

There was a clear belief amongst passengers that if they were to use integrated ticketing, it should simplify their journey. Many passengers said they would expect to save time during the booking process and some passengers even expected that it should provide reductions to the total journey time.

This expectation from passengers mirrors what airlines believe passengers are beginning to expect - seamless, door-to-door travel. As smarter, more integrated ticketing options begin to appear, passengers' expectations of how they buy and use tickets across multiple transport modes are becoming higher. A passenger who travelled to Gatwick using National Express said, *"If I could use a website to plan and book my entire trip that would be great, provided I could trust the information it was providing"*.

The Global Digital Traveller Research 2017 found that 45% of travellers agreed that booking everything separately (flights, accommodation, surface transport etc.) to be a pain point. This survey covered 11,000 passengers from 19 countries. The UK Digital Traveller Research 2017 found that passengers are becoming increasingly reliant on technology. 17% of passengers booked their travel on smartphones, 62% of passengers said that digital boarding passes and e-tickets would make their travelling easier, and 37% of passengers tend to book surface transport in advance.

Single travel document/single booking website/single transaction

Some passengers expressed a desire to have all their different tickets on a single document to make keeping track of everything easy. The views of these passengers show that many value the convenience provided by the physical integration of tickets, which is a view backed by the results shown in Table 5. 59% of passengers said the ability to receive one combined ticket would either be likely or very likely to persuade them to buy an integrated ticket. 73% of the survey respondents said that bookings done through one website would encourage them to buy an integrated ticket and 67% said that the ability to buy both tickets in a single transaction would encourage them to buy this ticket.

Seat booking

Some passengers were concerned about having a seat on public transport. Even though the ticket guarantees access to public transport, passengers were worried that they wouldn't have a seat on-board a busy service. This will impact on the uptake of the integrated ticketing option if it is not provided.

5.3. Passenger Appetite Summary

Less than 2% of the passengers interviewed, correctly identified an integrated air-surface transport ticket option. This indicates a scarcity of options available to passengers, their lack of awareness and the lack of marketing of the existing availability. This is supported by the stakeholders' view of lack of awareness.

In total, 43% of passengers that travelled to the airport by public transport would have liked the option to have bought their surface transport ticket at the same time and via the same method as their air ticket. There is an appetite amongst passengers to simplify the buying process by reducing the number of websites that must be visited, though there is still a significant number of passengers (57%) who don't see integrated ticketing as a product they would like to use. Both views also came out through passengers' qualitative answers to further questions around integrated ticketing expectations.

The key reason cited against integrated ticketing was the potential lack of flexibility. Many passengers explained that they did not want to commit to buying their surface transport ticket as far in advance as they do their air tickets. Price incentive, journey guarantee and delay compensation came out as the potential features of integrated ticketing that would most persuade people to buy one.

"IF I COULD USE A WEBSITE TO PLAN AND BOOK MY ENTIRE TRIP THAT WOULD BE GREAT, PROVIDED I COULD TRUST THE INFORMATION IT WAS PROVIDING"

6.   Barriers

The debate concerning implementing a widespread and universally-accepted surface-to-air integrated ticketing solution has been on-going since modern day intermodal transport operator partnerships were formed such as that between Lufthansa and Deutsche Bahn in Germany (Rail&Fly) in 2001. Seventeen years later, there are still relatively few airlines and surface transport operators that offer this service. For those that do, it represents a very small proportion of their business, as shown in the Current Practice section of this report.

In 2008, North Star conducted research on "*Through Ticketing Between Airlines and Rail Operators*" with a sample of nine airport express operators around the world, finding that "*although all respondents feel that through ticketing is a good thing, there were many perceived barriers to its use - including costs, efficiency and technology*" and that "*the biggest challenge is making the world aware that rail services are now bookable this way*". Ten years on from this research, advances in technology have lifted some of the challenges in issuing and validating tickets, although many of these barriers do still exist today.

The following sections outline the barriers uncovered in the literature review, interviews (industry & DfT), and the passenger survey. These barriers include those faced by the industry, the government and passengers that stand in the way of a wider take-up of surface-to-air integrated ticketing. The section also includes implications for Government Policy which were discussed in the DfT interviews as well as the roundtable discussion. These barriers and implications for Government Policy can be grouped into the following themes:

- Commercial

- Technological

- Regulatory

- Awareness

- Cultural/Behavioural

THERE ARE MANY PERCEIVED BARRIERS TO ITS USE - INCLUDING COSTS, EFFICIENCY AND TECHNOLOGY, BUT THE BIGGEST CHALLENGE IS MAKING THE WORLD AWARE THAT GROUND SERVICES ARE NOW BOOKABLE THIS WAY

6.1. Commercial

Barriers

Commercial barriers have been highlighted as a key challenge by both airlines and surface transport operators. The potential market size for surface-to-air integrated ticketing is large, yet demand is low. This is even the case for the most successful and widely known airline-railway partnership, Rail&Fly. Deutsche Bahn sells around 500,000 Rail&Fly tickets annually. With just over 200 million air passengers per year in Germany, at an assumed average rail mode share of 25% (passengers travelling to/from airports by rail), this represents just 1% of actual rail users accessing airports using integrated tickets.

Surface transport journeys are predominantly sold as an airline add-on and the revenue from the relatively low-value ticket sale is shared between two operators. From the airline's perspective, the commission received from surface transport ticket sales is so low that it often sits at the bottom of the ancillary revenue stream unless they have a strategic objective to fulfil. Airlines therefore seek a high commission fee and from the surface transport operator's perspective, high commission fees mean that revenues from ticket sales are significantly depleted. In some cases, it ceases to be commercially viable for them to participate in an integrated air-surface transport partnership.

Integrated tickets sold via the Global Distribution Systems (GDS) add another layer of cost for both operators. This is because GDS companies charge a distribution fee for each ticket or a journey segment sold using their platform, typically around $5 per journey segment. Therefore, booking a return journey that requires connecting flights both ways would make that a four-segment journey with a $20 GDS fee attached.

Implications for Government Policy

The overriding view from the industry stakeholders interviewed for this project was that the Government should have limited involvement in integrated air-to-surface access ticketing, especially when it comes to commercial issues.

Stakeholders agreed that the development of a business case for integrated surface-to-air ticketing solutions would be useful to show its value to the different parties involved. The suggested was to establish the actual size of the market to incentivise industry stakeholders to join integrated air-to-surface ticketing schemes.

The need to establish a code of practice for commercial agreements was highlighted by the roundtable discussion participants.

HIGH COMMISSION FEES MEAN THAT REVENUES FROM TICKET SALES ARE SIGNIFICANTLY DEPLETED

6.2. Technological

The main driving force behind stakeholders' desire for integrated ticketing is their aim for more seamless "door-to-door" journeys for their passengers. To achieve this, the booking systems of airlines and surface transport operators need to reach a level of integration. However, some airlines have emphasised that in many cases, surface transport operators are not technologically ready to be included in the flight booking process.

Surface transport operators do not use one universally accepted ticketing media, as is the case with the airline industry. Different operators offer different types of tickets, ranging from paper, to smart cards, to barcode tickets that can be stored on mobile devices. Therefore, to offer integrated tickets to passengers, airlines would have to integrate with multiple operators' systems. This level of technical complexity is a significant barrier to surface-to-air integrated ticketing even if the commercial barriers were overcome.

The Current Practice section of this report highlights that a majority of existing surface-to-air-integrated ticketing partnerships are executed using the GDSs. During interviews with stakeholders, both airlines and surface transport operators agreed that GDSs are outdated and expensive. The New Distribution Capability (NDC) currently under development by the airline industry allows airlines to sell personalised packages that include ancillary products. This new distribution system may provide an easier method for surface transport operators to integrate with airlines.

Surface transport operators are still likely to face challenges in becoming technologically ready to join any new airline distribution channel due to the lack of data standards and formalised data-sharing arrangements. Companies such as Citymapper are only able to provide multimodal journey planning for surface transport information because they are powered by open data on routes, public transport stop locations, schedules and real-time arrivals predictions. To enable integrated multimodal (in this case, air and surface transport) ticket purchase, third party developers need access to open data on fares and ticketing from all transport operators, including airlines, buses, rail and car sharing.

As Mobility as a Service (MaaS) and other multimodal solutions develop, open data and access to sales platforms becomes increasingly important. Transport operators are still protective of passenger data and reluctant to share it. This digital "customer ownership" is becoming more of a barrier to integrated ticketing and MaaS, as operators seek to maximise their customer relationships by establishing new non-core revenue streams, such as on-demand services.

There are also fulfilment challenges, including how tickets would be delivered to customers. As smart cards have not progressed along a single technical route, there could be a significant cost to interaction. The same point could be extended to the complex fare structures when customers search for surface transport and airline tickets, which is a key reason for the popularity of websites that search for low priced airfares: passengers need to have 'insider knowledge' to get the best deal when purchasing a ticket. Unless this lack of transparency/complexity is solved, integrated ticketing is only likely to add another layer of confusion for customers searching for the best ticket for their needs.
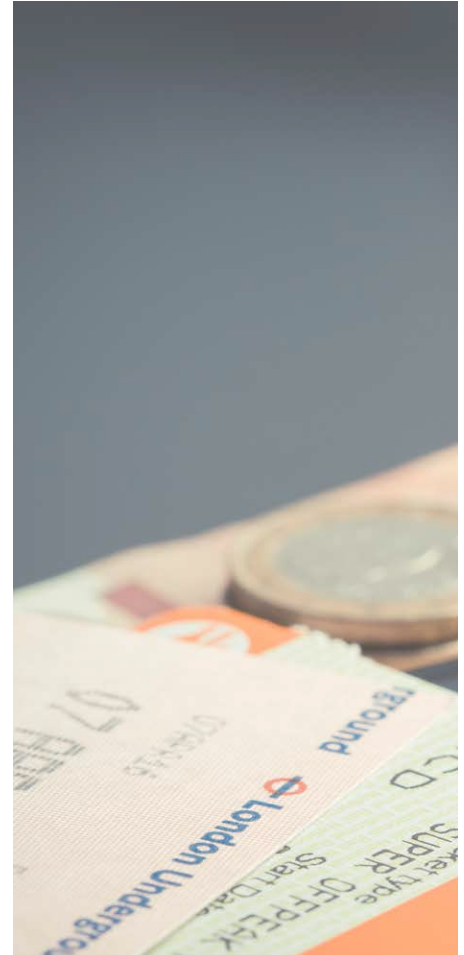
DIFFERENT OPERATORS OFFER DIFFERENT TYPES OF TICKETS, RANGING FROM PAPER, TO SMART CARDS, TO BARCODE TICKETS THAT CAN BE STORED ON MOBILE DEVICES

Implications for Government Policy

The general industry ideal is to include surface transport journeys within the airline booking flow and produce a single ticket for the flight and for the surface transport journey segment. According to industry stakeholders interviewed – technology is the answer, especially mobile phones and wearable technology. Integrated air-to-surface transport journeys could be searched for, booked and stored on mobile devices via QR codes, for example. Any solution must be 'smart' or electronic in nature. A situation where passengers get vouchers to queue and exchange for bus or rail tickets fails to create truly seamless journeys.

Transport for London see the DfT's role as a leader representing the surface transport operators on negotiations to integrate London's airports into the Oyster/contactless network.

Industry stakeholders agreed that to have a truly integrated surface-to-air ticketing scheme, investment in UK ticketing infrastructure is needed, especially in terms of common network distribution including ticket gates and ticket validation. A suggestion was to further research future technologies and consider biometrics or facial recognition as a potential solution.

6.3. Regulatory

Barriers

For journeys consisting of two or more connecting flights, there are clear passenger rights regulations. Regulation EU 261/2004 for connecting flights states that the airline is only required to provide compensation if the passenger is booked on a through ticket (the passenger has one ticket/reservation reference for the entire journey) and the cause of missing the connection is within the operator's control. If the passenger or their travel agent booked the flights separately, the passenger is not covered by these rules. It is well understood by passengers that if they book a flight with multiple legs on one ticket and the first leg is delayed, they will be looked after by the carrier and put on the next available flight.

There is no single regulation covering air and surface transport journeys sold on an integrated ticket. As multimodal journeys do not have the same clear regulation of passenger rights as for connecting flights, the level of protection provided to the passenger in the case of disruption varies amongst different integrated ticketing schemes. This variability creates uncertainty and a lack of trust amongst potential passengers, a significant barrier to integrated ticketing.

Stakeholders from both airlines and surface transport operators agreed that passenger rights regulations need further development for the successful implementation of surface-to-air integrated ticketing.

Data sharing is and will be crucial for making integrated ticketing a reality in the UK, but there is currently no public transport data standard for fares and tickets, which poses another barrier to ticket integration. The DfT is currently working on legislation for data sharing called NeTEx, a technical standard for exchanging public transport information, with a commitment that by 2020, all bus and coach operators in England will have to release their data on routes, timetables, fares, ticketing and real-time information. This could be the greatest motivating factor for a wider adoption of integrated ticketing, but for this to happen, the NeTEx standard needs to be embraced by all public transport operators.

DATA SHARING IS AND WILL BE CRUCIAL FOR MAKING INTEGRATED TICKETING A REALITY

Implications to Government Policy

Stakeholders would welcome the Government's support to passenger rights regulations and data standards. It was widely agreed that a government strategy to improve passenger rights in cases of delay could have a positive influence on the wider adoption of integrated ticketing.

According to industry stakeholders it is the job of industry to agree on passenger rights, and for the Secretary of State to endorse and sign off on these. There was a suggestion that there should be a National Rights of Travel, an industry code of practice, but then the consensus of implementing legislation to support or enforce this was not clear. The stakeholders agreed that if there are robust enough commercial agreements, legislations might not be necessary.

The Rail Delivery Group stressed that they would welcome a clear statement of support for multimodal integrated air-to-surface ticketing from the Government, including an agreement to facilitate the sharing of data across transport modes and the right to sell combined products for multiple parties. A franchise reform might be needed to encourage new operators to share their data, but there is also a need for pan-industry legislation which would prompt all surface transport operators to join the data sharing scheme.

There was also a suggestion that airports should take on the responsibility for ensuring that integrated ticketing options are available for surface transport providers and airlines serving the airport. As airports have various environmental targets, promoting public transport access is an effective tool to meet them. The House of Commons Transport Committee report on surface transport recommendations include that integrated ticketing should be part of the Master Plans for all major UK airports, as well as being included in their Surface Access Strategy.
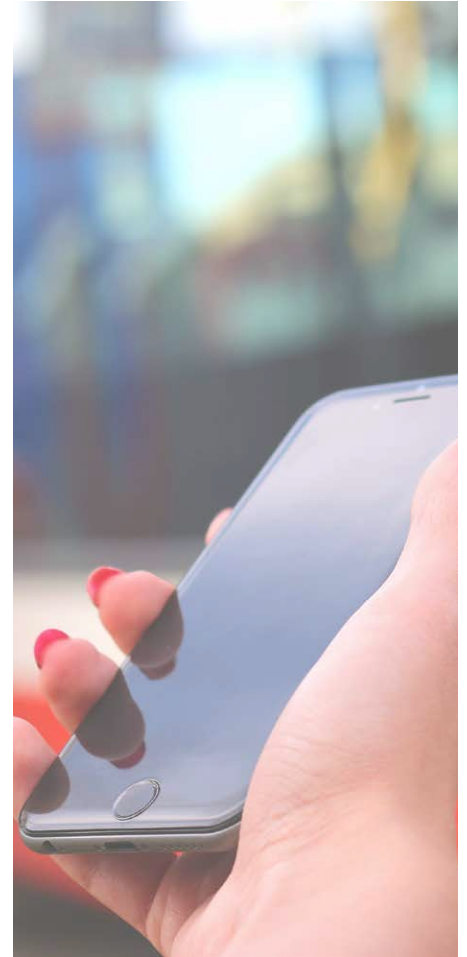
6.4. Awareness

Barriers

The most significant barrier faced by passengers is the lack of availability of integrated tickets, coupled with a general lack of awareness of what they are. Of the passengers surveyed at Gatwick Airport, less than 2% could successfully identify an integrated ticketing option available to them. As the concept of integrated ticketing is still a new one for the UK, there may be an additional barrier of time to gain acceptance from passengers if integrated ticketing becomes more widespread.

The industry faces the challenge of raising awareness of the availability of surface-to air integrated ticketing, especially when those tickets are distributed by third-party providers, such as travel agents. As explored in the Current Practice section of this report, many currently available integrated ticketing offers can only be booked via customer service representatives of travel agent companies. In interviews, stakeholders noted that many travel agents are not aware or do not trust the offer.

Implications to Government Policy

The consensus held by the surface operators and the DfT is that the Government could act as a facilitator for discussions between airlines and surface transport operators. Some stakeholders felt competitive pressure from new entrants such as ride sharing and new technologies such as driverless cars and have expressed the need to react to market changes. They would like the DfT to provide a platform for workshops and discussions to bring stakeholders together to share their challenges and success stories.

THE MOST SIGNIFICANT BARRIER FACED BY PASSENGERS IS THE LACK OF AVAILABILITY OF INTEGRATED TICKETS, COUPLED WITH A GENERAL LACK OF AWARENESS OF WHAT THEY ARE

The stakeholders of this research project agreed that to eliminate the awareness barrier, all operators involved would be required to work together to promote integrated surface-to-air integrated ticketing offers to passengers and travel agents.

Roundtable discussion participants considered using a comprehensive passenger information board, which would help compare different surface transport options to travel to/from airport. This was proposed to be located at the baggage reclaim hall as an awareness tool. Some suggested that sharing this type of information during the flight booking process might encourage more passengers to book their airport access journeys at the same time as the flight.

6.5. Cultural/Behavioural

Barriers

The transparency related to the price of the ticket was raised by passengers. There was a desire and expectation from passengers for the pricing to be no higher, or even to be lower, than if the tickets are booked separately. This potential lack of passenger trust in the product may be an important barrier imposed by the current passenger perceptions.

To successfully implement integrated ticketing, passenger behaviours will also be required to evolve and shift. As discovered during the interviews at Gatwick Airport, 65% of surveyed passengers purchased their surface access ticket on the day of the flight and only 4% purchased it on the same day as the flight was booked.

The Current Practice section of this report also highlights shifting passenger behaviour as one of the challenges to the successful implementation of integrated ticketing. For example, Lufthansa and Deutsche Bahn discovered that after introducing Karlsruhe and Mannheim as destinations on their Lufthansa Express service operated by the railway, the challenge was to change the mindset of passengers to search and book flights directly from those rail stations and not from Frankfurt Airport.

Implications for Government Policy

Changing passenger behaviour is closely related to the awareness challenge. If passengers know about the surface-to-air integrated ticketing offer in advance of their flight booking, that could shift their tendency to purchase the airport access journey on the day of travel.

A transparent and clear price breakdown showing different journey segments could eliminate the potential lack of trust in the product and a Journey Guarantee product could help solve the potential financial consequences if the surface transport journey gets delayed and the passenger misses the flight.

Transparency in the price breakdown and compensation in case of delay was highlighted as a key tool in reassuring passengers about the validity of the integrated ticket.

65% OF SURVEYED PASSENGERS PURCHASED THEIR SURFACE ACCESS TICKET ON THE DAY OF THE FLIGHT

7. Conclusions

There are several examples of airline and surface transport ticket integration (or partial integration) for air-to-surface journeys in the UK and around the world. In all the case studies shown, it is evident that these are niche products with low sales volumes. However, an effective marketing strategy helps integration programmes become more visible to customers. This helps raise awareness of the product, which is a key factor in improving the uptake.

During the passenger interviews at Gatwick Airport it was discovered that less than 2% of the passengers interviewed, correctly identified an integrated air-surface transport ticket option. Ticketing for surface access is rarely considered at the time of booking a flight, with only 4% of passengers surveyed booking surface access at the same time as their flight.

Passengers are more likely to trust an integrated ticket when purchased through an airline and would generally only consider this if they believed they were getting the best available price for their journey.

Airlines and surface transport operators see integrated ticketing as an opportunity to grow business, reaching out to new customers and expanding their network operations. They also believe that integrated air to surface transport ticketing can deliver improved door-to-door service.

Airlines understand that in offering surface transport access tickets to/from airports, they are delivering an improved customer experience. The fact that new air-surface transport partnerships are being formed around the world is evidence that stakeholders and passengers have an appetite for it.

The research discovered that partnerships work best when:

- They form part of the core business of the provider i.e. ancillary revenues for low cost airlines (noting that many of these are not fully integrated tickets);

- There are strong champions for the partnership from at least one of the operators, preferably both partners.

There is also evidence that some of the international partnerships are influenced by government intervention, to ensure that strategic assets are used more efficiently (e.g. a shift to high-speed rail in Germany, away from internal flights).

Some key barriers were uncovered that prevent a wider adoption of integrated airline-surface transport ticketing schemes to be adopted on a wider scale, specifically:

- Commercial

- Technological

- Regulatory

- Awareness

- Cultural/Behavioural

AIRLINES AND SURFACE TRANSPORT OPERATORS SEE INTEGRATED TICKETING AS AN OPPORTUNITY TO GROW BUSINESS, REACHING OUT TO NEW CUSTOMERS AND EXPANDING THEIR NETWORK OPERATIONS

Surface operators' individual yields are comparatively low in the context of the whole air travel experience. A key commercial barrier for airlines is the relatively low value from surface access sales, especially when compared to their other ancillary revenue streams or even upselling of their own product in the online retailing and information space. High commissions through airlines squeeze net yields and therefore surface operators prefer their own channels.

A sustainable solution for integrated ticketing should be a commercial one, benefiting operators and passengers alike, supported by a heightened awareness of the offer. There is a recognition that some passengers may be prepared to pay a premium for journey guarantee and convenience, but this is strongly countered by the main body of research that passengers would expect the best available price.

However, many surface transport operators are not technologically ready for offering sales through the airline booking flows. Distribution often differs from the print at home/paper ticket and bar mobile fulfilment used by the airline industry.

The airline industry sees the GDSs as outdated and expensive, with poor integration capability with surface transport. IATA are currently developing a New Distribution Capability designed to address the industry's current distribution limitations, including surface access sales. The commercial model, and how surface access providers can access the system, is still currently unclear.

There is a lack of data standards across surface access operators, and no standardised accreditation requirements, which creates technical and bureaucratic challenges when attempting to integrate systems. Open data sharing across transport operators creates new distribution channels, but some operators are concerned about losing control of "their" customers, which may make it difficult to bring about.

Legislation for data sharing and protocols for all operators, and a proactive role in creating passenger rights legislation for multimodal journeys, would help provide a level operating field.

Unlike multi-sector air journeys, there is no single regulation covering air and surface transport journeys sold on an integrated ticket. Further development of passenger rights regulations is needed for surface access integrated ticketing to succeed, to provide the confidence passengers expect, and to become an attractive proposition.

Recent Transport Select Committee recommendations have sought to improve integration with surface access providers and offer through-ticketing through Master Plans and Airport Surface Access Strategies. Airports could be encouraged to take the lead in this area through planning consents to ensure that integrated ticketing options are available for public transport and airlines serving the airport.

Acting as a facilitator for discussions between airlines and surface operators to co-operate, the DfT could provide a platform for workshops and discussions, bringing stakeholders together to share their challenges, opportunities to collaborate and success stories of system integration.

Mindful that both airlines and surface access operators operate in a highly competitive market, the key would be for the DfT to support the development of systems that provide the channel for integrated ticketing and not to develop the products themselves. Supporting short-term trials may be appropriate in terms of testing systems in the current marketplace. The industry is clear that the DfT should have limited involvement when it comes to the commercial agreements that will drive any sustainable solution.

A SUSTAINABLE SOLUTION FOR INTEGRATED TICKETING SHOULD BE A COMMERCIAL ONE, BENEFITING OPERATORS AND PASSENGERS ALIKE, SUPPORTED BY A HEIGHTENED AWARENESS OF THE OFFER

8. Appendix 1 – About the Authors

Atkins

SNC-Lavalin's Atkins business is one of the world's most respected design, engineering and project management consultancies. SNC-Lavalin, a globally fully integrated professional services and project management company, and Atkins help their clients plan, design and enable major capital projects and provide expert consultancy that covers the full lifecycle of projects.

The project team is composed of Intelligent Mobility professionals who have worked on complex and multi-disciplinary projects both in the private and public sectors. Intelligent mobility is an end-user and outcome-focused approach to connecting people, places and services - reimagining infrastructure across all transport modes. Enabled by data, technology and innovative ideas it will transform people's journeys and the movement of goods, whilst increasing the efficiency, sustainability and safety of our transport systems and cities worldwide. The project team encompasses skills and experience from academic and commercial research backgrounds, with capabilities including the human factors approach, smart and integrated ticketing, and advisory services expertise, multi-modal transportation consultancy, and unique immersive ethnographic research.

North Star

North Star Consultancy Ltd was formed with expertise in operations and the customer centric experience for the consultancy market. North Star provides a skill set backed up by decades of experience at all levels of management in transport and has a deep understanding of the rail sector which allows delivery of world-class rail and other transport solutions.

North Star is recognised by the air-surface transport industry as the benchmarking authority for mode share analysis since 2012. North Star is also a majority shareholder of the Global AirRail Alliance (GARA), and industry organisation working with airports, ground transport operators, planners and suppliers to share best practice of improving access to and from airports for passengers and employees.

To the project team North Star brings surface access and integrated ticketing professionals who have worked on planning, delivering and improving major airport access projects.

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10. Appendix 3 – Distribution and Integration Methods

Airlines generally sell tickets either directly to customers (e.g. through the airlines website or app) or indirectly (e.g. through a Global Distribution System via third-party distributor). Low cost airlines typically sell their tickets directly to customer, while legacy airlines sell a large proportion of their tickets though indirect channels.
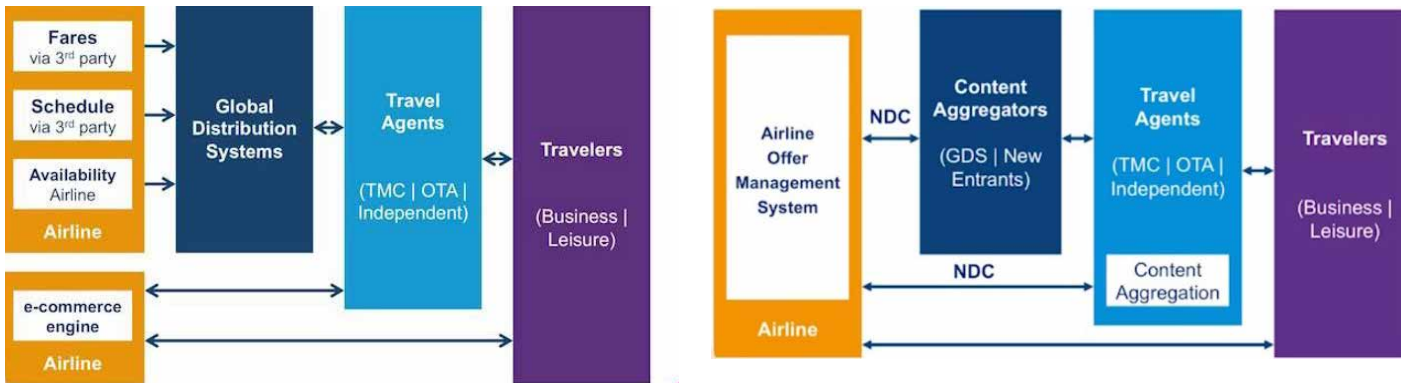
10.1. Global Distribution System (GDS)

The GDS is a platform that enables travel agencies and their clients to access travel data, such as inventories of hotels, airlines, car rentals, and (some) railway and bus reservations - in real time. The GDS acts as a central point of aggregation for airline tickets.

The fees to distribute tickets through the GDS are relatively high and average around US$12 per return ticket. In 2012, it was estimated that approximately US$7 billion in GDS fees was paid by airlines, which was over twice the industry's expected net profit for that year.

If a surface transport operator wants to be distributed through the airline systems, they need to become associate members of IATA, and follow their standards.

There are three main GDS systems: Travelport (Galileo, Apollo, Worldspan), Amadeus and SABRE used by the airline groupings (i.e. One World, Star Alliance etc).

10.2. New Distribution Capability

The New Distribution Capability (NDC) is a travel industry-supported program (NDC Program) launched by IATA for the development and market adoption of a new, XML-based data transmission standard (NDC Standard).

The NDC Standard is based on modern technology and is open to any third party, intermediary, IT provider or non-IATA member to implement and use. It allows airlines to push personalised offers to GDS and other distribution channels.

10.3. WEB / XML

XML is a modern and open technology standard that allows structured data to be stored or transmitted via the web.