

SMART AND INTEGRATED TICKETING & PAYMENTS

Delivery Strategy 2018



TRANSPORT
SCOTLAND
CÒMHDAIL ALBA

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|---|-----|---|-----|-----------------------------------|-----|---|-----|
| 1. Ministerial foreword | p02 | 3.1 Current position | p06 | 4. Delivery Plan | p13 | 5. Overarching delivery aims | p18 |
| 2. Introduction | p03 | 3.2 Current schemes & projects matrix | p09 | 4.1 Our role | p13 | 6. Projected 10 year delivery plan | p19 |
| 2.1 Executive summary | p03 | 3.3 Funding | p09 | 4.2 Established activities | p13 | 7. Glossary | p21 |
| 2.2 Smart & integrated ticketing | p04 | 3.4 Industry challenges & drivers | p10 | 4.2.1 Ticketing | p13 | | |
| 2.3 Government objectives | p05 | 3.5 Governance & stakeholder interaction | p12 | 4.2.2 Payments | p14 | | |
| 2.4 Delivery strategy aims | p05 | 3.6 Stakeholder feedback | p12 | 4.2.3 Customer proposition | p15 | | |
| 3. Context | p06 | | | 4.3 Future activities | p16 | | |

Return to this page by clicking on this icon in the top right corner

As Scotland moves into the next decade, I believe it is essential that we modernise and evolve our public transport services to meet the requirements of future society expectations.

A key role in this is the delivery of smart electronic ticketing and payment services – making our public transport simpler, more convenient, flexible and attractive for passengers.

I am therefore pleased to present the 2018 Smart and Integrated Ticketing & Payment Delivery Strategy.

Whilst smart ticketing and payment is not the ultimate solution to issues facing public transport in Scotland, it is an important part of people's journeys – from planning your leisure travel options through to day to day commuting. By simplifying and making this easier, we can achieve our overall aims to enhance public transport journeys, create modal shift from car to public transport, improve our air quality, reduce our carbon footprint and make Scotland an even greater place to live and visit.

The smart ticketing industry is seeing a number of drivers for change. Advances in technology, different working patterns, broader consumer expectations and environmental concerns are changing, and will continue to change, the way we travel.

Our recent consultation 'The Future of Smart Ticketing in Scotland' has further evidenced that there is appetite for an evolution in the way we buy, collect, pay for and use tickets on our public transport.

Our ambition is to support the industry to make this transition for its customers, and help Scotland embrace this movement by improving public transport with better interoperable multi-model ticketing and payment services.

This document outlines the current position for smart ticketing and payment services on our public transport network, the challenges we face and how, through partnerships and working together, coupled with the forthcoming Transport Bill, we can develop a better range of smart ticketing and more payment options to achieve this ambition – and deliver on our vision that all journeys on Scotland's public transport networks can be made using some form of smart ticketing or payment.



Humza Yousaf
Minister for Transport & Islands



2. INTRODUCTION



2.1 Executive summary

Each year over half a billion journeys are made on Scotland's public transport network.

This document sets out how we will achieve our ambition for smart and integrated ticketing and payment in Scotland to be an integral part of these journeys.

Our overarching aim is to deliver on the Ministerial vision through introducing and enhancing smart ticketing and payment services and schemes across Scotland's public transport network.



That all journeys on Scotland's bus, rail, ferry, subway and tram networks can be made using some form of smart ticketing or payment.



By doing this we will bring consistent standards, interoperability, promote inclusivity and deliver a quality, attractive experience for users.

This document outlines how we will build on the projects and schemes developed from our earlier delivery strategy, and also details some future schemes and projects we anticipate delivering in the next five to ten years.

We will look to develop greater partnerships, release funding potential and facilitate collaborative working across the public transport industry to help us achieve this.

We will continue to monitor developments in the fast evolving smart and digital technology marketplaces, as well as assessing society's changing needs, expectations and consumer demands.

This will help us to revise this document accordingly, align our work with the Scottish Government Digital Strategy, and ensure we are constantly working towards meeting public transport passenger requirements.

| Journey numbers | 2016/17 |
|-----------------|---------|
| Bus overall | 393m |
| Bus concession | 142m |
| ScotRail | 94m |
| Ferry | 8.6m |
| Subway | 11.3m |
| Tram | 6.6m |

2.2 Smart & integrated ticketing and payment

Smart ticketing and payment services are important elements of modern public transport systems and are increasingly prevalent in major cities and countries around the world.

For the purposes of this delivery strategy, **smart ticketing** means an electronic travel ticket that can be loaded onto a micro-chipped smartcard or alternative media (e.g. mobile phone, wearable). **Smart payment** means cashless payment without chip and pin (e.g. contactless bank card or mobile phone) for travel.¹

When travelling on public transport around Scotland, people want modern, digital or electronic options for tickets and/or payment – no matter which operator or mode of travel.

Transport Scotland's Smart and Integrated Ticketing Team's role is to support anyone with a public transport remit – authorities, operators, partnerships, providers – to modernise their services through interoperable multi-modal, smart ticketing and electronic payment systems, making travel easier, more accessible and sustainable.

Our aim is to facilitate a consistent smart approach that will suit Scotland's public transport travel requirements, now and in the future.

Benefits of smart ticketing and payment

The key benefits of smart ticketing and payment are generally held to include:

For passengers

- Ease of use
- Access to new ticket types
- Greater choice on how to pay for travel
- Better journey planning
- Modernisation in line with current and future society expectations

For operators

- Less cash handling
- Greater information about customer's ticket/payment preferences
- Greater marketing opportunities
- Revenue protection
- Potential for increased patronage
- Potential for quicker boarding times
- Ability to develop new electronic ticket products
- Greater control of management information

For society

- Modal shift to public transport – reduce car emissions, health benefits
- A more modern public transport network

¹ Please see glossary for further explanations.



Smart ticketing means an electronic travel ticket that can be loaded onto a micro-chipped smartcard or alternative media.



2.3 Government objectives

Within the Scottish Government's Programme for Government, Transport Scotland's Smart and Integrated Ticketing Team (SIT) is tasked with delivering Scottish Ministers vision:



That all journeys on Scotland's bus, rail, ferry, subway and tram networks can be made using some form of smart ticketing or payment.



This vision delivers against Scottish Government purpose:

- To focus government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth

Its outcomes:

- Our public services are high quality, continually improving, efficient and responsive to local people's needs
- We live in well-designed, sustainable places where we are able to access the amenities and services we need

Its indicators:

- Improve people's perceptions of the quality of public services
- Reduce Scotland's carbon footprint
- Increase the proportion of journeys to work made by public or active transport
- Improve digital infrastructure
- Improve Scotland's reputation

The Programme for Government 2017/18 commitment:

We are continuing with our programme to allow all journeys on Scotland's bus, rail, ferry, subway and tram networks to be made using some form of smart ticketing or payment. The entire ScotRail network is smart-ready and ScotRail continues to develop and deliver smart ticketing products in line with their franchise commitments. The five largest bus operators, covering 74% of journeys, have already introduced multi-operator smart ticketing in the city regions of Aberdeen, Dundee and Phase 1 of Glasgow, with Glasgow Phase 2 and Edinburgh planned for introduction during 2018.



Transport Scotland will continue its work to deliver a national 'epurse' system² for use on *saltire* cards allowing cash free travel on public transport across Scotland.

Smart ticketing also contributes towards enabling other objectives of the Programme for Government:

- Encourage shift from cars to public transport thus improving air quality
- Support domestic tourism
- Empower island communities to support island-proofing of future government policies and strategies
- Pilot free bus travel for modern apprentices

2.4 Delivery Strategy aims

The smart ticketing and payment activities set out within this document are intended to contribute to the Scottish Government objectives through delivery of the following aims:

- Increase the smart ticketing and payment offering and take up across all transport modes
- Increase smart ticketing interoperability across operators and modes
- Encourage a higher level of consistency in the smart ticketing customer proposition for members of the public
- Improve the provision of online ticketing and fares information along with the range of smart retail and payment options
- Simplify and improve access to the right price for customers as a result of improved information and ticketing options
- Increase the number of operator/local authority/regional transport partnership smart ticketing or payment schemes implemented, to meet local needs
- Ensure successful continuation of concessionary travel as an ITSO smart interoperable scheme
- Facilitate wide as possible use of a standardised platform for all public transport providers, with the purpose of bringing true interoperability

² Since reconsidered, see Payments section on p6.

3. CONTEXT

3.1 Current position

Smart ticketing

The success of interoperable smart ticketing is based on service providers using secure standardised technology. To deliver this the UK Government developed an interoperable and secure smartmedia technology standard, known as ITSO (Integrated Transport Smartcard Organisation).

Transport Scotland adopted ITSO in 2006 as the delivery mechanism for the smart concessionary travel scheme. ITSO is now the basis for all Transport Scotland's smart ticketing activity and we are working with operators and suppliers to ensure Scotland's public transport network adheres to this standard.

Whilst we work to the ITSO standard, we appreciate that individual operator ticketing solutions have also been successfully implemented, such as mtickets, or mobile apps. We acknowledge that in today's marketplace passengers expect a choice and support the industry with providing more ticketing and payment options, but our focus for smart ticketing is for consistency with multi-modal interoperability, wherever possible.

The ScotRail network is fully smart enabled, with an array of ticket types on offer, including Anytime, Off Peak, Season and flexi pass tickets.



Smart payments

Over the course of 2017 and early 2018, we have seen the considerable progress of Scotland's major bus operators introducing contactless payment systems on their fleets, building on the success of this as an alternative payment method already seen on other modes like rail, ferry, subway and tram.

In the wake of this earlier than expected adoption of electronic payment solutions by the bus industry, it was agreed with the Transport Minister in Autumn 2017 to cancel procurement of a national e purse scheme, as an alternative electronic payment system. Instead, Transport Scotland is now working with the industry to evaluate feasibility for electronic bank payment services for smaller operators and support the availability and use of an e purse facility, for those who require it.

Rail

The ScotRail franchise is let by Scottish Ministers and covers all passenger rail services in Scotland, apart from those services by other operators that cross the Anglo-Scottish border (Virgin West and East Coast, TransPennine, Cross Country and the Caledonian Sleeper). The current franchise was awarded in April 2015 to Abellio ScotRail Limited, and runs for a period of seven years with an option to extend to ten years.

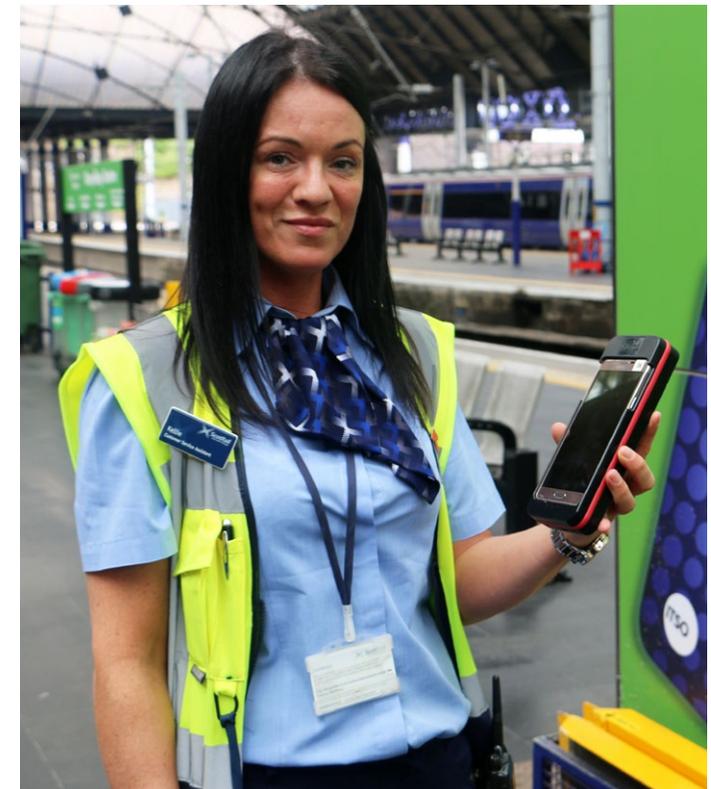
Through the provision of this franchise we work with the operator, currently Abellio, and our rail franchise team to deliver smart ticketing.

We ensured that the Scottish rail network was made smart ready for the start of the current franchise by funding ITSO smart reader platform validators at all but a handful of remote stations (where there were power supply/ connectivity issues).

As such, the current ScotRail franchisee inherited a largely smart-ready infrastructure, and has, therefore, had opportunities to make progress in developing rail smart ticketing in the first years of the franchise. ScotRail also accepts contactless bank card payments at its ticket vending machines and over the ticket counters.

The franchise includes targets, agreed with the operator, for the delivery of smart ticketing by April 2019. These are based on using the ITSO standard and include smart journeys uptake, introducing different ticket types into smart, multi-mode tickets, working with bus operators to integrate services and promotion of smart activities.

cont. →



Bus

There are around 170 commercial bus operators in Scotland, in addition to which there are around 150 community bus services. Between 2006 and 2010, the commercial Scottish bus network was equipped with ITSO smart enabled ticketing equipment.

This was initially to enable the Scotland-wide Free Bus Travel Scheme for Older and Disabled people followed by the Young Scot discount product for 16-18 year olds. These schemes, managed by Transport Scotland, can be used by nearly 1.5 million card holders and now account for over one-third of all bus journeys made in Scotland.

Since 2011, it has been the responsibility of both existing and new bus operators to ensure they continue to have appropriate smart ticketing equipment.

In addition to the concessionary schemes, Transport Scotland regularly engages with the major operators to support smart activities. In March 2016, the major bus operators made a series of commitments to the then Transport Minister to:

- **Launch interoperable, bus-to-bus, smart ticketing zones across Scotland's largest cities (Aberdeen, Dundee, Glasgow and Edinburgh) and the surrounding areas**

Large cities, with greater passenger journeys and multiple operators, were an obvious place to start developing multi-operator ticketing schemes. Transport Scotland has provided a supporting role for these regional schemes, but these have mainly been industry led. Aberdeen and Dundee were both delivered in late summer 2016, Glasgow Phase 1 (day tickets on bus retail) was delivered in November 2017. Edinburgh is planned for summer 2018.

99% of buses now have ITSO 2.1.4 enabled.



- **Support for the introduction of a single standard national e-purse (since reconsidered, as noted in section 3.1)**

- **Support for a common saltirecard logo displayed on the various smartcards that individual operators use**

The smartcard *saltirecard* branding was introduced in 2010 and is widely used on the smartcard estate across Scotland.

- **A plan to see contactless bank card technology installed on buses in Scotland by 2022**

As noted before, the main operators are delivering this facility earlier than expected, and Transport Scotland is now looking at the feasibility of bringing this payment service to the smaller operators.

As part of our support services for smaller bus operators, Transport Scotland offers the following:

- ITSO Commercial smart ticketing (smartcards, product development)
- CMS/Portal/App – online and mobile
- Back office services
- Asset management
- Market and industry advisory services
- Marketing toolkit
- E-purse facilitation

cont. →



² Since reconsidered, see section 3.1 Payments

Ferry

Scotland is home to 790 islands and an extensive ferry network. This ferry network is a mixture of Scottish Government franchises, Local Authority, private and subsidised routes.

Transport Scotland works with the ferry industry to bring about smart services. Currently we are working with CalMac to implement a handheld ITSO accredited device suitable for the marine environment, that can be used for smart ticketing retail and fulfilment. We are also working with ScotRail to develop a rail/sail product that can be added to their smartcard.

We also provide support and advice to Local Authorities and RTP's for their own ferry networks. Where practical, some ferry operators accept contactless electronic payment.

Other modes

SPT (Strathclyde Partnership for Transport) has undertaken a substantial modernisation programme for the **Glasgow Subway**, largely funded by the Scottish Government. As part of this programme the subway ticketing system was upgraded to be fully ITSO smart, and a recent project with Abellio ScotRail has brought smartcard interoperability between subway and rail; the ability to load SPT subway tickets on ScotRail smartcards and vice versa.

The tram network in Edinburgh is operated by **Edinburgh Trams Ltd** on behalf of Transport for Edinburgh (TfE).

The TfE Strategy for Delivery 2017-2021 confirms support for the continued development of fully integrated, smart, electronic ticketing systems, and we have been supporting this activity.

Edinburgh Trams smart ticketing ITSO platform is used to deliver the local concessionary travel scheme for City of Edinburgh residents using the **saltirecard** on the tram network. Although their system is certified to the latest version of ITSO it is understood that some elements require upgrade before it is fully interoperable with rail and bus and for commercial smart ticketing initiatives across Scotland.

The tram has also recently begun to adopt contactless smart payments for passengers.

Air travel, even for domestic journeys entirely within Scotland, tends to be based on scanned barcodes from either paper tickets or mobile phones and, as such, the infrastructure is not set up to deal with ITSO smartcards either for individual carriers or at airports generally.

Transport Scotland, in partnership with Orkney Islands Council and Loganair, has successfully introduced a scheme to deliver a local air travel concession scheme using the **saltirecard**. It is envisaged that, in due course, a scheme such as this could be replicated in other rural areas and to commercial travellers on similar routes, e.g. inter-island travel on Orkney or Western Isles, if required.

Taxis, and indeed other smaller vehicles such as 8-seat **minibuses**, used for community transport or social services transport, could benefit from smart ticketing in a number of ways. Whilst the cost of full infrastructure may present a barrier for these very small operations we are working with suppliers, Local Authorities and Regional Transport Partnerships (RTP) to identify best fit technology for these services.



3.2 Current schemes & projects matrix

| Service Projects | | | | | | |
|--------------------|--|--|--|--|--|--|
| Young Carers | | | | | | |
| Modern Apprentices | | | | | | |
| Job Grant | | | | | | |
| Employability | | | | | | |
| Smartzones | | | | | | |
| PlusBus | | | | | | |
| Rail Sail | | | | | | |
| Education | | | | | | |

| Smart Products | | | | | | |
|---------------------------|--|--|--|--|--|--|
| NEC Older & Concessionary | | | | | | |
| NEC Young Scot | | | | | | |
| Interoperable Cards | | | | | | |
| Electronic Payments | | | | | | |
| Epurse | | | | | | |

| Status | | |
|--------|-----------------|----------------|
| Active | Being developed | Planning stage |

| Key | | | | | |
|----------|-------|------|--------|-------|-----|
| | | | | | |
| Planning | Ferry | Tram | Subway | Train | Bus |

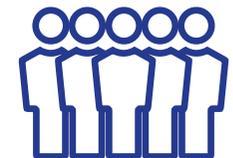
3.3 Funding

Transport Scotland has secured funding through the **European Regional Development Fund (ERDF)** to support interoperable smart ticketing and payment activity within Scotland, with the aim of increasing the number of smart journeys undertaken year on year. The funding is part of the Low Carbon Travel and Transport (LCTT) programme and is currently available to Transport Scotland up to the end of 2019, with an opportunity to seek approval for a further phase of funding for the 2019 to 2022 period. ERDF funding can cover up to 40% of our eligible projects costs, such as staffing and back office infrastructure. It also supports our **Smart Ticketing Challenge Fund** which is open to Local Authorities, RTPs and other public bodies throughout Scotland.

Through the Challenge Fund, which is currently available until the end of 2019, we are able to offer funding of up to 40% against match funding provided by public bodies who wish to upgrade smart ticketing machines and electronic payment technology to support interoperable smart ticketing and payment in the local area.

As part of the ERDF funding agreement, we have some challenging delivery targets in terms of additional journeys undertaken using smart ticketing or payment. The target for the initial delivery phase is for 20 million smart journeys to be made – this means passengers using smart ticketing or electronic payment options – between February 2016 and the end of 2019. These smart journeys can be converted from paper tickets, or new customers, and are to be additional to the baseline of smart journeys already taken by January 2016.

The target is for 20 million additional smart journeys by the end of 2019.





3.4 Industry challenges & drivers

Challenges

There are some unique challenges to delivery of our smart vision. These include:

- To truly achieve the Scottish Government's vision for smart ticketing across Scotland, there must firstly be an agreed **common infrastructure** in place, adopted by all participating operators and, secondly, a consistent, simple and easy to use customer offering. Once these are in place, there needs to be some means of ensuring that the integrity and relevance of national and key regional smart ticketing schemes is maintained and, furthermore, that there is an orderly and planned migration in due course to more advanced technologies as these emerge.

- There is such a **range of options** for smart, it is difficult to assess which are best for purpose – barcodes, smartcards, mobile apps, account based ticketing (smartcard and contactless bank cards) and paper tickets – most not yet providing true interoperability, either on the same or cross mode. To help address this complexity, we continue to promote use of the ITSO standard throughout Scotland.
- **Cross border rail services** need to tie in with the ITSO based ScotRail infrastructure. To bring cross border interoperability for both English/Welsh and Scottish purposes, this should ideally have both the DfT supported barcode and ITSO technology enabled.

- **General supplier concerns:** overuse of one supplier can lead to delays in roll out. For example, the rail industry is mainly served by one ticketing provider, and this can create waiting periods for changes to systems and require significant investment. Alternatively there can be lack of competition to regulate the market.
- **Bus industry:** as a deregulated market, each operator has their own commercial objectives to manage. Whilst working with the Scottish Government to achieve the smart vision and the idealised increase in passengers, we need to be mindful of investment required and explore opportunities to support where we can.

- Several operators and Local Authorities have developed their own schemes, cards and products, but widespread progress towards developing **smart multi-operator or multi-modal** schemes is slower than anticipated.
- Bringing smartcard interoperability generates many positives. It reduces the number of cards required, improves accessibility to smart products and means one card can be used to access any mode of travel (where products are available). However, to truly deliver on this we would also like to simplify the **customer proposition** so that, as far as possible, passengers have a common experience in regard to how they obtain a card, purchase a smart product, collect and use that product, and resolve any issues or problems they may face.

However, challenges are that different operators have established varied ways of retailing and supporting customers at present, and we recognise that it may be difficult to gain consensus on the best approach.

- **On ferry:** cars and freight can bring high volumes of pre-booked traffic. Certainly on the busier routes, where pre-booking is the norm, the operation is more akin to air travel than bus or rail. A central booking, reservations and ticketing system is integral to the smooth running of a larger ferry operator's network, and is an important additional component of the smart ticketing infrastructure for ferry operations.

- Ferry services are fairly **new to smart** ticketing, in particular for the concessionary travel schemes, where ferry services will be starting from a point where interoperable smart ticketing is completely new. As a result, there are various considerations that will need to be addressed prior to ferry services adopting ITSO smart technology, and also whether it is either practical or desirable to extend smart ticketing beyond foot passengers. Many ferry sales points (on and offline) accept bank card payments.
- There are also a small number of operators who are **not thus far engaged** with the smart ticketing agenda, and where – ultimately – some form of legislation may be the only way of ensuring their participation.

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Drivers

Whilst there are challenges, there are also many drivers for change that are influencing the public transport industry. These include:

- **Transport Bill:** it is proposed that smart ticketing is included in the forthcoming Transport Bill. Consultation around the future of smart ticketing was completed in December 2017 and this, along with additional engagement across the industry, is helping to inform what steps should be taken to improve smart. The smart elements of the Transport Bill will focus on smart ticketing, with smart payment being delivered as part of our day to day service, rather than requiring legislation.
- The Bill will also include provision for open data, which should provide a platform for better fares and ticketing **information to the travelling public.** In addition, our National Strategy is also considering the impact of UK open data.
- **Customer proposition:** the industry is aware that systems need to be more streamlined for the end user. A simple, standardised approach is necessary to deliver the backbone of an attractive consistent public transport travel experience across Scotland and is another important route to increasing passengers.
- **Technology:** as technology continues to develop, there will increasingly be options around other forms of contactless payment – for example mobile phones and ‘beacon’ technology. Smart ticketing will likely also continue to migrate to mobile services as that technology becomes more mature. We need to ensure that we do not stifle development in newer technologies, and – when the time comes – to ensure that within any update to the technologies used, a consistent standard is maintained to allow for simple, clear customer experience.
- **Technology:** a popular mobile solution is that of barcode or QR code through an App. Whilst this technology does not meet the ITSO security and interoperability standards which Transport Scotland is committed to, we are observing with interest to see how this will develop.
- **Customer expectations:** developments mean that passengers are beginning to see some benefits from smart ticketing and payment across transport modes, however generally the experience is not a consistent one. Through improving technology, working with stakeholders and educating the end user to the benefits, we can ensure that smart ticketing is a successful component of encouraging modal shift to public transport.
- The UK wide public transport industry is seeking to **reduce paper ticketing** and the Department for Transport sees the future of smart using ITSO, mobile and barcode solutions (page 28, [Connecting People, A Strategic Vision for Rail](#))
- As **active travel** becomes more prevalent across Scotland, joining up journeys using bicycles, car clubs and other sustainable transport methods are expected to become increasingly popular and are suited to smart services.



3.5 Governance & stakeholder interaction

In January 2016, Transport Scotland identified that a joined up and inclusive strategic approach was desirable and created an Operator Smart Steering Group, comprising senior managers from all the major public transport operator modes in Scotland. This body was envisaged as a strategic decision making and advisory group for smart ticketing and payment in Scotland.

The Group meets regularly to consider the current status of smart ticketing and payment delivery in Scotland and oversees the outputs of a number of working groups on topics such as customer proposition, regional smartzone schemes, and evaluation of market demands and influences.

We will continue to collaborate with this Steering Group and seek positive outcomes from this partnership approach.

In addition, we will continue our regular stakeholder engagement through our channels with colleagues in Smart Ticketing on National Rail, Rail Futures, Rail Delivery Group, Department for Transport, Transport for the North, Welsh Government and other bodies involved in smart ticketing and payment solutions.

We will continue to support colleagues in Digital and Connectivity Departments within Scottish Government in line with their digital strategy.³ As part of the Transport Bill consultation feedback, we will consider input regarding the constitution and perhaps requirement for an expanded role of this group and its work in moving the public transport smart ticketing and payment services forward.

We will also continue to focus on maintaining regular contact with the many stakeholders, experts, suppliers, aggregators and disruptors across the smart industry to remain at the forefront of developments and to be a go-to point for smart industry knowledge.

3.6 Stakeholder feedback

The public consultation closed on 5 December 2017 and a total of 148 responses were received from members of the public, Local Authorities, transport operators, Regional Transport Partnerships, public bodies and other organisations. Respondents were broadly divided into two groups for the purposes of analysis: those submitted by members of the public (individuals) and those submitted by groups with a specific interest or expertise in the topic area (organisations). A total of 98 responses were received from individual respondents with the remaining 50 coming from organisations.

Responses to the consultation were broadly supportive of the general themes set out in the consultation paper.

Smart ticketing policy officials have also consulted and engaged internally with the Integrated Travel In Scotland (ITIS) Board comprising representation from all the main modes – bus, rail and ferry – together with colleagues from SG Digital since 2016 to progress smart ticketing.

There has also been regular engagement with the Operator Smart Steering Group, CPT, individual transport operators, Local Authorities and RTPs.

In terms of business impact, relatively few transport operators responded and their views were mixed. Where there was querying of proposals it was more along the lines of “We can deliver this without legislation” rather than “This will have a negative impact on our business.”

82%
of respondents agreed that a consistent smart payment option available across Scotland and on all main public transport modes would promote use of public transport in Scotland

93%
of respondents were in favour of multi-modal, multi-operator regional smart ticketing schemes

84%
were in favour of new legislation that requires transport operators to participate in regional smart ticketing schemes

88%
were in favour of a single new governance body to advise the Minister on controlled implementation of smart ticketing and payment and 81% felt that this body should be defined in legislation

³ www.gov.scot/Publications/2017/03/7843

4. DELIVERY PLAN

4.1 Our role

Transport Scotland's approach to ensuring delivery of Scotland-wide smart ticketing and payment will continue to be multi-faceted, building on the smart steps already taken across the public transport sector.

There will be direct involvement in delivery, such as with the national concessionary travel schemes; support for other public bodies, such as in the delivery of regional schemes; and in working with transport operators to ensure that commercially developed schemes are, as far as possible, on a standard platform and providing a consistent customer experience.



4.2 Established Activities

4.2.1 Ticketing

Concessionary schemes

We will continue to run our flagship concessionary travel schemes using the Local Authority NEC and Young Scot branded *saltire* cards.

We will continue to work with Local Authorities to realise other benefits of using the NEC *saltire* card for smart ticketing services, such as schools transport. As part of the interoperability work we are also working with Local Authorities to enable commercial ticket products to be stored on the cards.

Multi-model interoperability schemes and projects

Commercial **smartzone** schemes will continue to be a key part of the smart ticketing portfolio. Three of the four regional bus schemes committed to by the major bus operators are already up and running.

The GrassHOPPER scheme in Aberdeen/Aberdeenshire and the ABC scheme in Dundee commenced in late summer 2016 and offer a range of smart tickets across all operators in their respective regions.

Both have been popular with passengers with plans for expansion. In Glasgow; Phase 1 of the 'Tripper' product was introduced in late 2017, with Phase 2 (online) to follow in 2018, and it is hoped that the Edinburgh smartzone will launch in Summer 2018.

As requested, we will provide smartzones with support for product development, operational advice and implementation, if required, as well as marketing and promotional support. We will also seek to ensure these schemes can be expanded geographically, can bring in more operators, and can include other modes such as rail.

Of paramount importance to the customer is ease and simplicity of smart ticketing services. To this end, over 2018, Transport Scotland is working closely with ScotRail, Local Authorities and bus operators on a smartcard interoperability project. This project opens up the smartcard estate, creating interoperability by allowing smart tickets from any operator or mode of transport to be stored on any Scottish ITSO smartcard.

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Local Authority support – schools, staff travel

Transport Scotland has also developed a range of ‘demonstrator’ schemes and is working with both public bodies and commercial operators to make these the standard format for delivery in Scotland. These include activities to support:

- School and college travel
- Local authority employability schemes
- Single operator epurse schemes
- A mobile NFC (Near Field Communications) app for loading products onto the *saltirecard* and reading what travel products are stored on it
- Supporting the use of the Young Scot branded NEC card to deliver a range of new initiatives such as the forthcoming Modern Apprentice pilot and plans for a Job Grant smart product etc.

In Perth we are also supporting a trial of interoperable smartcards for students who travel using both bus and train, which is currently proving a success. We are also working in partnership with Local Authorities for schools and Further Education transport projects to enable children and students to get smart travel. These are being delivered in East Lothian, Argyll & Bute, Western Isles, Dumfries & Galloway, and Perth & Kinross.

All these schemes have potential to grow across regions and provide savings to Local Authorities. Larger operators are also working with Local Authorities to implement similar school products.

Socio-economic projects

In addition to the future Scottish Government proposed schemes like Modern Apprentices, we will look to continue and develop our socio-economic projects, such as Employability Hub and Through Care.

We will work with Local Authorities to determine the successful attributes of these projects and build on these, as well as support others to develop where there is perceived demand.

We will also continue to work with Young Scot closely to achieve wider Scottish Government goals for through travel for schools, attainment, employability and NEC activities.

Smaller operator support

We will continue to provide support to the smaller providers who request it including, when our current contract ends, procurement of a new HOPS back office system. We will also continue to review, test and trial our managed complementary offerings such as CMS, Portals and Apps.

We will continue to offer support and back office services for any operator looking to develop ITSO smart ticketing services, from product development through to marketing services.



4.2.2 Payments

Following the withdrawal from procuring a national epurse provision, Transport Scotland is now focused on:

- Contactless electronic payment in place of national epurse for operators as part of our smart payment strategy
- Redirecting funding earmarked for the national epurse system into enabling contactless electronic payment to be delivered more quickly and across a wider number of operators, supporting smaller operators as best fit
- Maintaining support for the basic epurse service for those smaller operators who want it

As part of this, we have commenced work on a feasibility study for contactless payment solutions, to provide information to smaller operators about this provision and to ascertain the best way we can offer support. We anticipate this study will be completed in mid-2018.

We have had some interest and success with the epurse system pilots in East Lothian and Fort William. The epurse allows passengers to pre-credit a smartcard with money to be deducted for travel. We will continue to work with those who wish to develop this form of electronic payment.

Whilst we see the potential in this area for certain markets, we also note the recent success of contactless bank card payments for travel convenience, and will support operators and other interested parties in determining which alternative payment route will best suit their requirements.

We do not anticipate that cash as a payment method will be removed from public transport for the foreseeable future, however we understand that this is a commercial decision for operators, based on their own market analysis. We will continue to monitor this position for the industry and Government, as an area of potential concern for deprived socio-economic groups.

4.2.3 Customer proposition

All public transport passengers in Scotland, whether regular users, occasional users or simply visitors to Scotland, should be able to enjoy the benefits of modern ticketing and payment technology, making their journeys simpler and easier. We believe that this will help encourage modal shift onto public transport and contribute to growth in usage of Scotland's public transport services.

We believe the branding for smart ticketing services should be recognisable, trusted and inspire confidence. The Scottish Government developed the *saltirecard* brand to be associated with smart services in 2010. This was to allow passengers and operators to clearly identify the smart concessionary cards that can be used to access free travel in Scotland.

Over time this brand has evolved to be included on the Transport Scotland commercial smartcards, included on the rail smartcard and, more recently, the majority of bus operators' commercial smartcards.

We will continue to work with the industry to build a clear, identifiable brand, which is becoming increasingly important for passengers with the enhanced multi-modal, interoperability projects underway.

Working groups with Transport Scotland, operators, RTPs, Local Authorities, Young Scot and other stakeholders have been established, both pan-Scotland and UK wide, to ensure marketing and branding is core within interoperable and multi-modal smart offerings and develop, where appropriate, a standardised customer proposition and consistent customer services.

We will continue to review and evolve the smart ticketing marketing and branding activities to meet customers' demands, on a national and local basis, with the aim to:

- Promote smart services to increase public awareness and understanding
- Promote the Scottish Government's vision and aim of the *saltirecard* programme for Scotland
- Promote smart as a modern, more convenient, quicker way to use transport
- Raise the profile of smart ticketing schemes and products in Scotland – locally and nationally

- Promote interoperability of smartcards and tickets when available (multi-modal, multi-operators)
- Ensure branding is clear, recognisable and fit for purpose for multi-operator, multi-modal smart ticketing
- Work with providers to improve information about various smart products and services, preferably in one place

As part of our on-going customer proposition work, we will continue to research, monitor and evaluate smart services across Scotland, with the purpose of sharing best practices and being an additional source of customer feedback.



4.3 Future activities

4.3.1 Pilots and future planning

Technology & systems

ITSO smartcards and contactless payment are not the only technology in use for smart ticketing and payment. Technology already offers a wide range of other possibilities – e.g. barcodes, mobile phone technology, NFC and beacon (bluetooth) technology. None of these, however, are entirely proven as being both interoperable and accessible to all passengers across all modes and we wait to see how these technologies will develop.

During 2018 it is anticipated that ITSO will launch their transit hub with partners, providing the interoperability of **ITSO on mobile**, host card emulation (HCE). This is basically replicating the functionality of the secure smartcard in a mobile phone. It is anticipated that this will offer the security and speed of ITSO, but with the added convenience and functionality that a mobile phone can bring, as well as eliminating the cost of the actual chipped card.

A pilot is expected first and, once this offering has been brought to market, we will seek to actively work with ITSO suppliers and stakeholders to bring a secure, standardised smart mobile ticketing solution to Scotland's passengers.

Account Based Ticketing

(ABT) is where a traveller does not pay for transport at the point of consumption but 'on account'. An example is monthly billing for all travel undertaken during that period with potential capping and discounts applied, so that the passenger is assured of getting the right price available for their journey. There is some evidence that other European countries with more mature smart ticketing offerings, such as Ireland, the Netherlands and Denmark, see this as the next major travel service to be developed and delivered.

Within its franchise, ScotRail has already committed to deliver an ABT pilot in 2018 and we look forward to assessing the impact of this approach in more general terms, for example how it has affected travel patterns and habits. If proven a success, we would look to determine if there is a future for this system, how this would best fit requirements for Scotland's passengers, and the role of Transport Scotland to support progression.

Mobility as a Service (MaaS)

is an emerging concept aimed at providing a comprehensive package of account based journey planning and transport services, and not limited to conventional public transport.

Assuming the concept matures into something tangible and substantial in the years ahead, smart ticketing will certainly be an element of the services on offer, and an overlap between the two areas may well be ABT. Whilst MaaS is a topic that is not a part of the immediate considerations around smart ticketing, it again has some overlap with our smart activities, and we will look to develop these when suitable.

As part of the Scottish Government's Programme for Government focus to improve community links, rural connectivity and address the 'first and last mile', we will also be looking to engage with cycling and active travel, demand responsive transport and car club schemes.

Services like these are often associated with MaaS. Within MaaS Scotland, localised, focused projects to deliver these types of transport are gaining traction and pilots, such as Navi-gogo in Dundee, are proving interesting. We will continue to support suppliers and interested parties as part of our interoperability and accessibility aims.



During 2018 it is anticipated that ITSO will launch their transit hub with partners, providing the interoperability of ITSO on mobile phones.



Schemes

Consideration for a pilot of free concessionary bus travel for Modern Apprentices, using smart ticketing systems, is currently being developed. Working with bus policy colleagues and other public sector bodies, such as Skills Development Scotland, we are already involved in supporting the feasibility, and as such expect to be take a key role in any delivery of this scheme.

The Scottish Government is also looking at a proposal for the introduction of a Job Grant Scheme by 2019, offering three months free bus travel for young people unemployed for more than six months. This will most likely be using the NEC platform and again, we anticipate undertaking a key role in its development and implementation.

We will also continue to work with Young Scot and other public sector bodies to identify and deliver improvements to smart public transport services, as well as provide support for other schemes where smart travel technology can play a part.

Customer proposition & marketing projects

Interoperability
As the smartcard interoperability project moves forward, we will look to actively promote this in collaboration with project stakeholders. Building on campaigns, like **Fife in the Fast Lane**, we will aim to raise awareness of the various smartcards, and educate people on how smart works - how they can use the same card to store smart tickets for wherever there is smart public transport options available. We will continue to work with Local Authorities to help identify and improve on ITSO smartmedia services and support further development of these customer led projects.

We will work with operators to help promote multi-modal, interoperable tickets like Rail/Sail and Plus Bus, as they come to market.

Accessibility

We will also be reviewing the availability of information about fares and ticketing options. We will work with third party providers, such as Traveline Scotland, and support entrepreneurial activity to enhance this capacity and develop accessibility to smart products.

Branding

We will also continue to evolve our *saltire*card brand to make sure it is robust and fit for purpose as technology requirements modernise and move forward.

Transport Bill

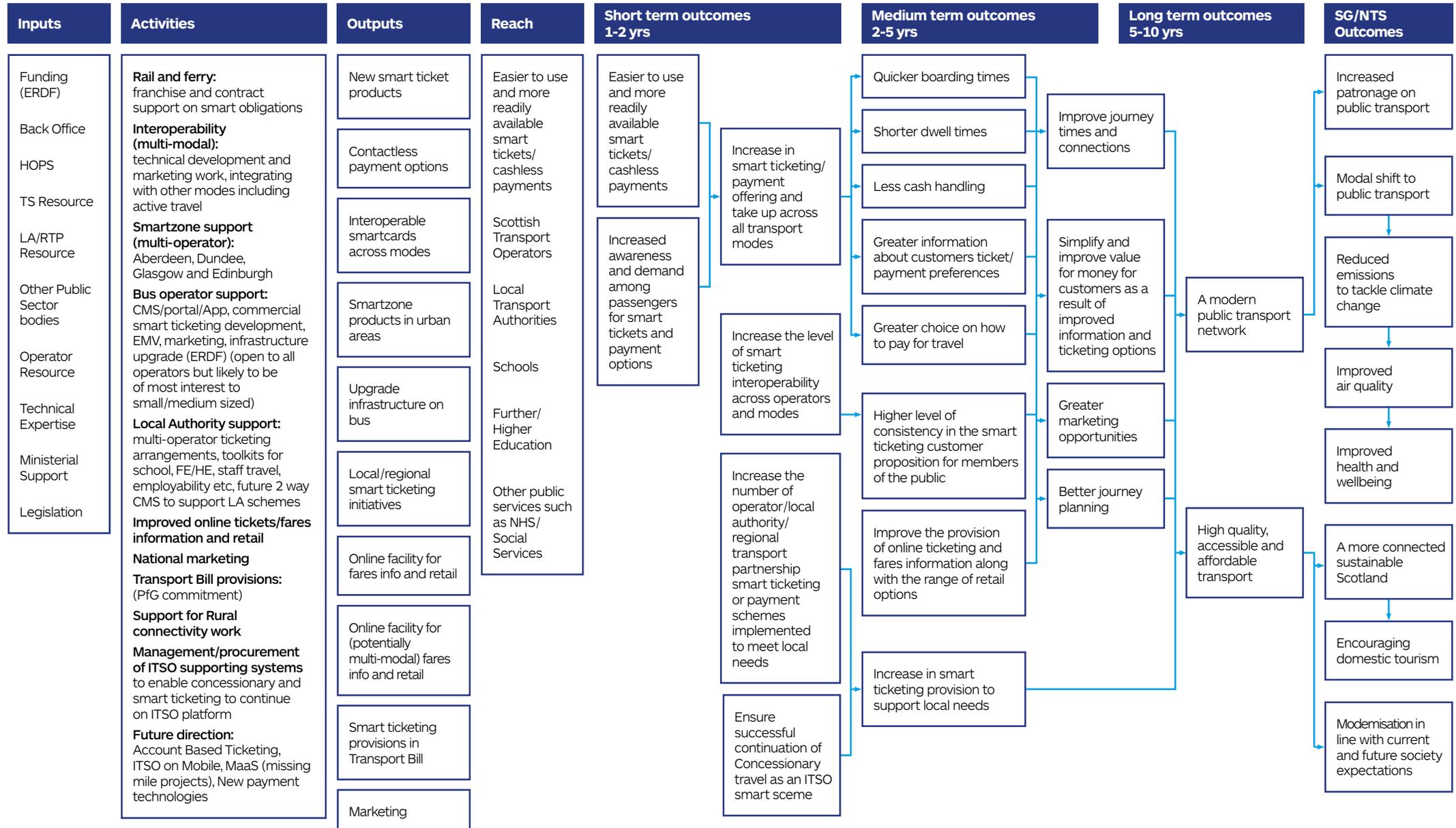
The Transport Bill aims to empower Scotland's Local Authorities and establish consistent standards to make public transport easier to access and use, greener and smarter than ever before. It is intended to support our aspirations to deliver a safe, efficient, cost-effective and sustainable transport system for all.

Significant progress has been made in relation to the smart ticketing provisions within the Transport Bill, as set out in the Programme for Government. A public consultation on the future of smart ticketing closed in December 2017 and work is now on-going, including stakeholder engagement, to finalise proposals. These will feed into the legislative process for the Transport Bill that will be laid before Scottish Parliament in 2018, and is set for introduction in 2019.



5. OVERARCHING DELIVERY AIMS

This flow sets out how the range of activities outlined in the document contribute to delivery of smart ticketing and payment aims.



Glossary

List of Smart Ticketing Acronyms

| Term | Meaning |
|----------------------------------|---|
| Back office system | There are different types of back office systems, but for this document, the main function is to securely communicate (electronically) key smartcard usage details from the mode of transport (such as from the ticket machine on board a bus, or a train station gate) to a centralised system to enable calculation of journey payment or travel history to the relevant operator or epurse provider. The Transport Scotland back office system is called HOPS (Host Operator Processing System). |
| Beacon technology | An infrastructure which interacts remotely with your mobile or other smart device, similar to Bluetooth, receiving and/or issuing information (eg reading tickets) as required. |
| Contactless card payments (cEMV) | Refers to contactless bank card payment, where a PIN does not need to be provided for transactions below £30. Actual acronym is Europay, Mastercard and Visa (the three companies that originally created the standard). |
| CMS | Customer or Client Management System |
| ETM and TVM | Electronic Ticket Machine (typically on bus) and Ticket Vending Machine (typically at a rail station) |
| Governance | How people collectively organise, often through rules and regulations, to manage and deliver on a programme of work or project. |
| HOPS | Host Operator Processing System Back office support infrastructure that processes (public transport) transactions. |
| Infrastructure | The equipment used for the ticketing system, for example ticket gates, machines on board buses, devices used by conductors to check tickets, ticket machines at stations, as well as back office systems. |
| Integrated ticketing | A ticketing system or scheme that works across modes and ticket types, it can also combine with events or attractions; for example transport to Olympic/Commonwealth venues. These can also be paper based. |
| Interoperable | A smartcard that can be used anytime, anyplace, anywhere. Can be used on different transport operators (for example with buses this would be, Stagecoach, First, McGills etc) also different locations (Edinburgh, Glasgow, Highlands) and different modes (train, ferry, bus, tram, subway). |
| ITSO | ITSO is a not for profit organisation that oversees technical, standardisation and interoperable smart ticketing services for the UK. It is supported by the UK Government, and ITSO is a technical platform on which interoperable smart ticketing and epurse schemes can be built. The national concessionary travel schemes across the UK are based on this technology. ITSO 2.1.4 is the current standard required for a smart ticketing service. |
| Legislation | The process of making or enacting laws |
| Primary legislation | Primary legislation consists of Acts of Parliament or statute. |
| Subordinate legislation | A subordinate legislation is a law which is enacted under delegated powers, such as statutory instruments (for example regulations or by-laws). |
| Multi-modal | Can be used on different modes of transport, for example on train, ferry and bus. |
| Multi-operator | Can be used on more than one operator but on one mode of transport (for example with buses this would be, Stagecoach, First, McGills etc). |
| National epurse | A pay as you go system, typically via a smartcard or mobile app. The smartcard or app is pre-credited via an online account or other means of topping up or buying credit. |

Glossary

List of Smart Ticketing Acronyms continued

| Term | Meaning |
|---|---|
| National concessionary travel scheme, national entitlement card (NEC) | The Transport Scotland national concessionary scheme provides over 60 year olds and people with a disability with free bus travel. A National Entitlement Card, is provided for recognition, and also to electronically enable the journey using smart ITSO infrastructure. |
| NFC | A mobile device that is able to read a smartcard through Near Field Communication (NFC) – often seen when a smartcard is held up to a mobile device on a train or similar. The reader will also often be able to indicate the ticket/money on the smartcard. |
| Proprietary system | A system that is in place already, usually owned by the person or company who developed it, but which cannot interoperate with other systems eg Lothian Buses Ridacard, or London's Oyster. |
| PVAL | Platform Validator – ITSO card readers found commonly on rail platforms. |
| Saltire card | A smartcard that is capable of being used for smart ticketing or epurse with ITSO technology. It is branded with a saltire flag on the reverse, with the name ' saltire card'. Each operator customises their own smart saltire card on the front, the card should also include a reference number and some operators include your pass photo. The NEC cards are also branded as such. |
| Smart | Non-paper technology – mainly in this context using a micro-chipped smartcard, mobile or contactless payment for travel purposes. |
| Smartcard | A micro-chipped card that stores your travel ticket, or retains monetary credit to be deducted on use. |
| Smart platform | Similar to infrastructure (see above) and system (see below), and in the context of this document, this refers to any electronic or digital product or service that can interact with a smart ticket or smart payment. This could include a mobile app on android or apple, a card reading app, an online system or website, electronic ticketing machines etc. |
| Smart ticketing | An electronic travel ticket loaded on a micro-chipped card or mobile phone. |
| Smart ticketing system | A system that enables the use of an electronic ticket(s) on a smartcard or mobile app. These can be multi-modal and multi-operator. |
| Smart ticketing scheme | A scheme can refer to any set of smart ticketing arrangements with a particular set of rules around availability, prices and validity. These can be single operator eg SPT subway, ScotRail season tickets, Stagecoach Megarider, multi-operator eg the smartzones in Aberdeen and Dundee or the national bus concessionary travel scheme, or multi-modal ticketing schemes. |
| Smartzone | A (usually urban based) region where transport operators agree to set up and participate in multi-operator smart ticketing, at locally set prices and validity rules. GrassHOPPER (based around Aberdeen) and ABC (based around Dundee) are current examples in Scotland. |

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