National Audit Office

Report
by the Comptroller
and Auditor General

Department for Transport

Investigation into the South East Flexible Ticketing Programme

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National Audit Office

Department for Transport

Investigation into the South East Flexible Ticketing Programme

Report by the Comptroller and Auditor General

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Sir Amyas Morse KCB
Comptroller and Auditor General
National Audit Office

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This investigation looks at the delivery of the South East Flexible Ticketing Programme.

Investigations

We conduct investigations to establish the underlying facts in circumstances where concerns have been raised with us, or in response to intelligence that we have gathered through our wider work.

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Contents

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What this investigation is about

1 This report is the result of an investigation into the Department for Transport's (the Department's) progress in implementing the South East Flexible Ticketing Programme (the Programme).

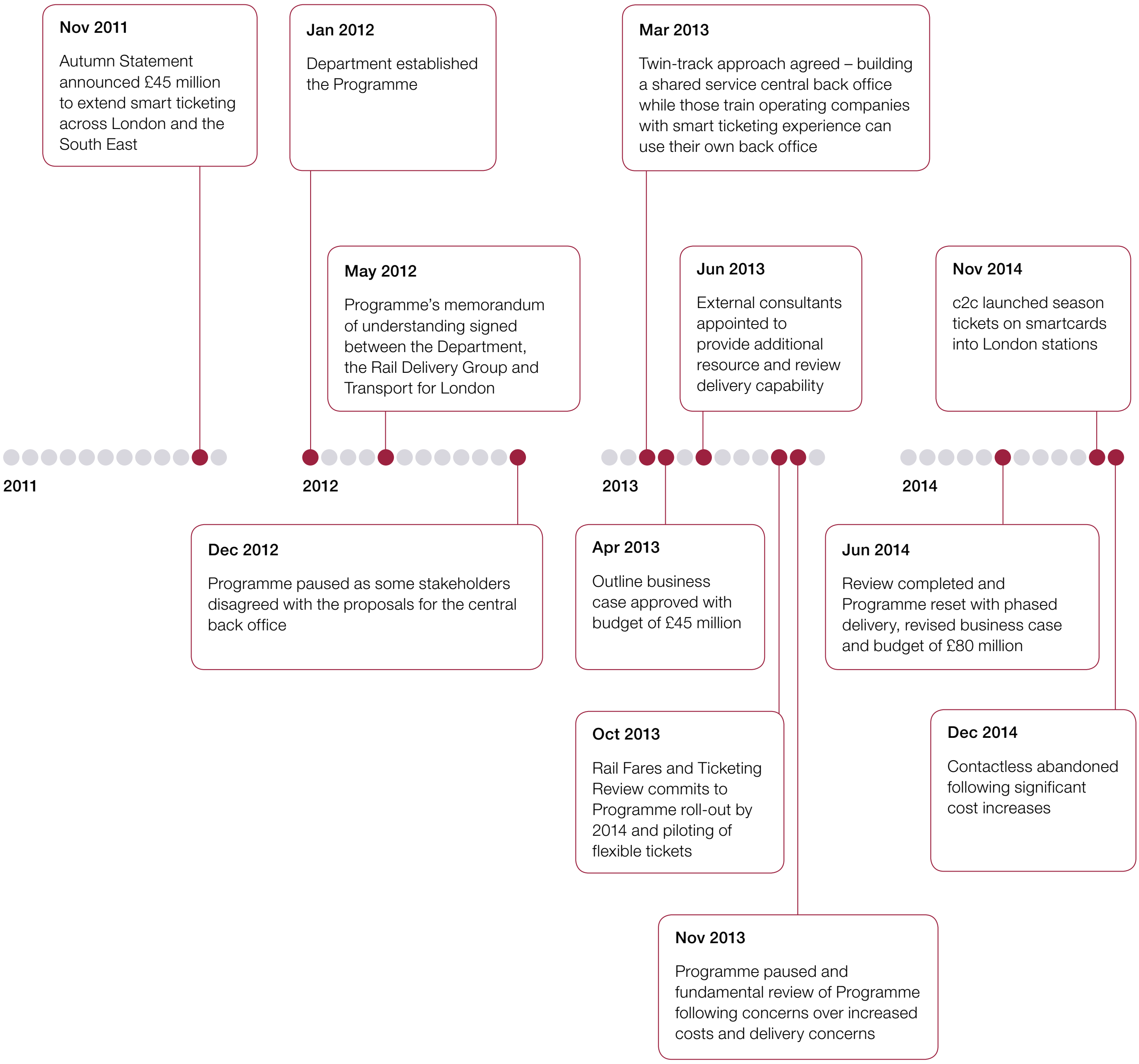
2 In January 2012, the Department set up the Programme to improve coordination, speed up delivery and increase take-up of smart ticketing. The Department was the sponsor and funder of the Programme; the Rail Delivery Group, which represents and coordinates the interests of passenger and freight operators, was the primary delivery agent working with train operating companies to develop and roll out the necessary infrastructure. The original ambition of the Programme was to spend £45 million to allow 11 train operating companies with routes into London to offer season tickets on smartcards by early 2014 and other tickets, including flexible season tickets for part-time workers, to be available by the end of 2014.

3 The Department has paused and reconsidered its approach to the Programme and changed its scope and objectives on a number of occasions. In June 2014, the Department reset the Programme; and, in April 2016, the Department reduced the scope of the Programme so that it only planned to enable season tickets on smartcards on five train operating companies. In April 2017, it transferred day-to-day management of the Programme's technology and assets to the Rail Delivery Group. This investigation examines the Programme from its inception to its handover. The report sets out:

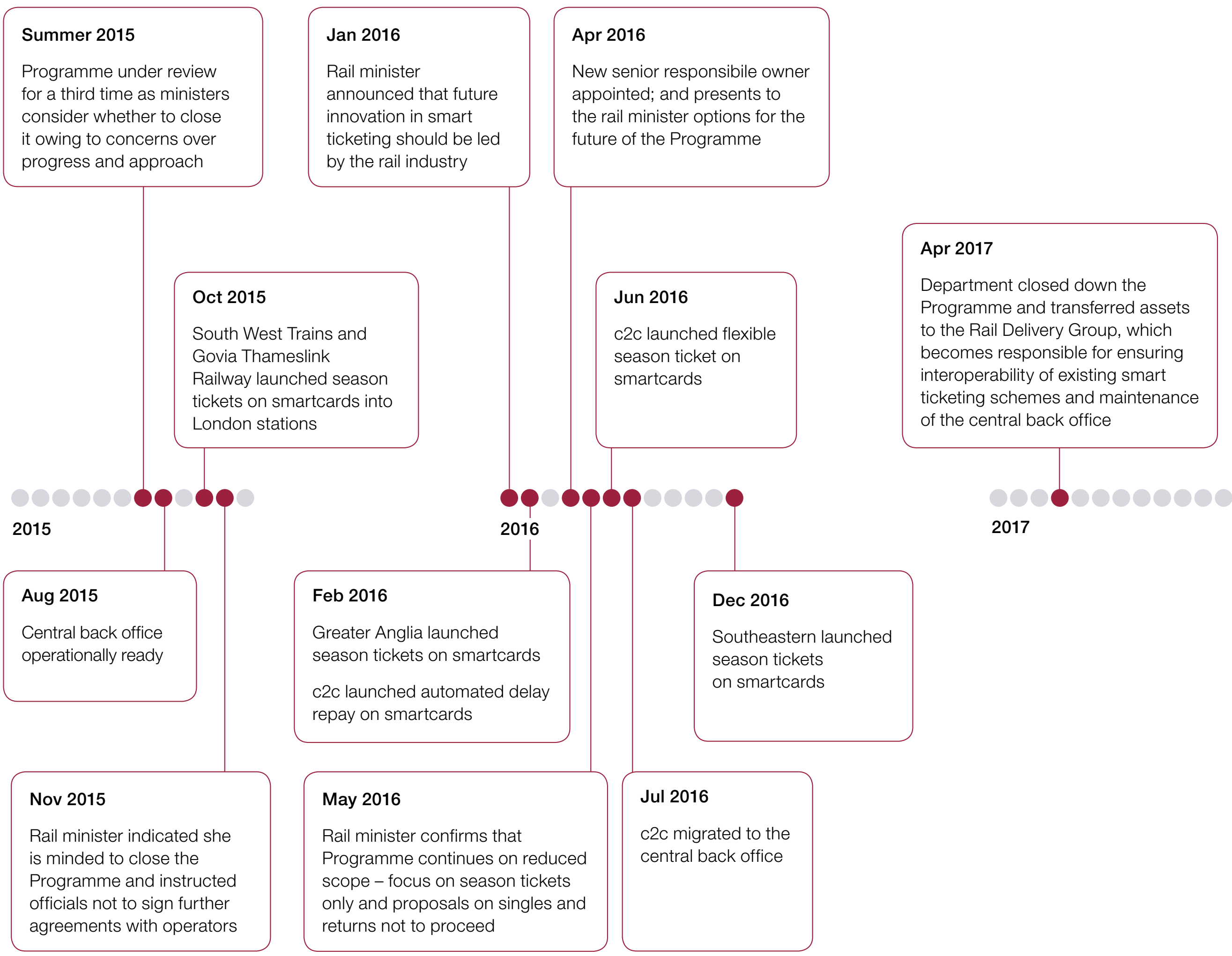
- the progress of the Programme; and
- the Department's oversight and management of the Programme.

4 The investigation does not assess the value for money of the Programme. **Figure 1** on pages 6 and 7 summarises the timeline of main events during the Programme. Our investigative methods are set out in Appendix One.

Figure 1
Timeline of key events of the Programme



Source: National Audit Office analysis of Department for Transport information


Summer 2015
Programme under review for a third time as ministers consider whether to close it owing to concerns over progress and approach
Aug 2015
Central back office operationally ready
Oct 2015
South West Trains and Govia Thameslink Railway launched season tickets on smartcards into London stations
Nov 2015
Rail minister indicated she is minded to close the Programme and instructed officials not to sign further agreements with operators
Jan 2016
Rail minister announced that future innovation in smart ticketing should be led by the rail industry
Feb 2016
Greater Anglia launched season tickets on smartcards
c2c launched automated delay repay on smartcards
Apr 2016
New senior responsibile owner appointed; and presents to the rail minister options for the future of the Programme
May 2016
Rail minister confirms that Programme continues on reduced scope – focus on season tickets only and proposals on singles and returns not to proceed
Jun 2016
c2c launched flexible season ticket on smartcards
Jul 2016
c2c migrated to the central back office
Dec 2016
Southeastern launched season tickets on smartcards
Apr 2017
Department closed down the Programme and transferred assets to the Rail Delivery Group, which becomes responsible for ensuring interoperability of existing smart ticketing schemes and maintenance of the central back office
2015
2016
2017

Summary

Key findings

Progress of the Programme

1 **In 2011, the Department for Transport (the Department) concluded it needed to intervene to accelerate the implementation of smart ticketing schemes.** Since 2006 the Department's approach had been to require train operating companies to implement smart ticketing schemes as part of new franchise agreements. However, progress was slow and take-up was low. This was largely because train operating companies had little incentive to implement, coordinate and promote schemes. The upfront capital investment required, linked to uncertainty about whether there would be a return on that investment over the duration of the franchise, meant that some operators did not consider that they would benefit greatly from the scheme. The Department therefore decided to initiate the South East Flexible Ticketing Programme (the Programme) to provide a more coordinated delivery approach and provide funding for the infrastructure and the development of a central back office to process rail journeys on smartcards (paragraphs 1.4 and 1.6).

2 **The Department has not delivered the original ambition of the Programme as set out in 2012.** The Department expected the Programme to result in a range of benefits, including an improved experience for passengers and reduced costs to train operating companies of selling tickets. An original aim when the Department established the Programme in 2012 was to have flexible ticketing in place on 11 franchises running services into London by 2014. By April 2017, the Programme has enabled five of the 11 train operating companies running services into London to offer season tickets on smartcards. Only one of the five train operating companies currently offers flexible season tickets (paragraphs 2.1 to 2.4).

3 **The Department has now completed the Programme based on the reduced scope agreed in 2016.** It has handed over responsibility for managing the central back office, which processes rail journeys by passengers using smartcards to the Rail Delivery Group. The central back office can now be used by other train operating companies, to operate their own smart ticketing schemes, and to process a wider range of ticket and fare types. The Rail Delivery Group has estimated that the central back office is currently using around 5% of its capacity and can handle more smart ticketing schemes. The Rail Delivery Group is promoting the capability of the central back office system to train operating companies across the country. By March 2017, two operators outside the south-east of England were using the central back office (paragraphs 2.3 and 3.16).

4 **The Department had assumed high levels of take-up of smart ticketing.** Achieving the economic benefits of smart ticketing stated in the 2014 business case depended on eventually achieving 95% of take-up of smart season tickets. The Department's latest data show that 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 (paragraphs 2.6 to 2.8).

5 **The Department has spent £54 million on the Programme, compared with the original budget of £45 million.** This was spent on developing a central back office to facilitate smart ticketing systems, installing or upgrading infrastructure such as ticket validators, ticket barriers and ticket vending machines, with £26 million (48%) spent on the Department and Rail Delivery Group's system design, system integration and delivery of the Programme (paragraph 3.19 and Figure 7).

6 **In total, the Department has spent at least £120 million to achieve the current level of smart and flexible ticketing on the national rail network in the south-east of England.** The £54 million spent on the Programme builds on previous departmental expenditure. Before the Programme was initiated, the Department agreed to provide £60 million to Transport for London to upgrade its ticket gates and back-office systems to read train operating companies' smartcards, so that passengers could use smartcards provided by these operators at stations operated by Transport for London. This upgrade cost £66 million on completion in 2014 following changes to the scope of the work (paragraphs 1.5 and 3.19).

7 **In April 2016, the Department estimated that it would cost a total of £96 million to deliver the full scope of the Programme as set out in the 2014 business case.** To deliver its original objectives for smart ticketing in the south-east of England, such as providing part-time season tickets, the Department would need to either pay for the additional ticket barriers and validators needed to support smart tickets for more flexible fares itself, or require train operating companies to do so through franchise agreements (paragraphs 2.4, 3.17 and Figure 6).

8 **Implementation of further technological developments will require additional funding.** The Programme has helped to introduce smartcards to the national rail network. To enable alternatives to smartcards in the future, such as the ability to read barcodes on e-tickets or to use automated payment methods such as contactless bank cards and payments using smart phones, the Rail Delivery Group or the Department will need to carry out upgrades to the central back office, and to existing validators and ticket barriers, which will require additional funding (paragraphs 1.3 and 2.5).

The Department's oversight and management of the Programme

9 **The Department secured funding for the Programme without an agreed scope or agreement with industry bodies on how the Programme would be implemented.** The Chancellor of the Exchequer awarded £45 million of funding based on a proposal the Department developed at short notice and without consulting the principal delivery agents. Shortly after the Programme was initiated in 2012, the Department experienced difficulties in getting Transport for London, train operating companies and the Rail Delivery Group to agree how the Programme should be implemented. For example, there were disagreements between train operating companies and the Department about the extent to which the Department should lead the Programme and if all operators should be required to use the single back office (paragraphs 3.1, 3.2 and 3.5).

10 **Early in the Programme the Department identified concerns about the feasibility of the timetable and the Programme team's capacity to deliver the Programme.** In 2013, the Department commissioned consultants to carry out a review of the Programme. The review found that the Rail Delivery Group had too few people managing the programme, and that the amount of work required to deliver the Programme meant that timetables would have to be extended (paragraphs 3.7 and 3.8).

11 **The Programme was paused three times and reset twice, and each time the scope was reduced and the budget revised.** The Programme was first paused in December 2012, when train operating companies disagreed with proposals for the central back office. Following concerns raised by the consultants' 2013 review of the Programme about delivery, cost and timetable, the Department reset the Programme and increased its budget to £80 million, largely to cover the cost of increased programme management capability. In April 2016, the Department reset the Programme again, with £61 million to deliver a substantially reduced scope, following a ministerial decision that the rail industry should take the lead in innovating smart ticketing solutions (paragraphs 3.5, 3.10, 3.16 and Figure 7).

12 **The Department's internal audit identified, in 2013 and 2016, weaknesses in the Programme's governance.** In its 2016 audit, which was undertaken between 14 March and 4 April, it found that the Programme's governance and commercial arrangements had been ineffective in holding to account Transport for London, the Rail Delivery Group and the train operating companies for the delivery of the Programme. For example, the Department negotiated funding agreements with train operating companies to implement smart ticketing outside of the Programme's governance, which resulted in a lack of consistency in requirements, such as take-up of smart ticketing (paragraphs 3.14 and 3.21).

Part One

Background to the Department's decision to establish the Programme

The development of the Department's approach to smart and flexible ticketing

1.1 Since the late 1990s, the Department for Transport (the Department) has wanted to implement smart ticketing systems to replace paper tickets to improve the quality of passengers' experience of using the railways, and reducing the cost to train operating companies and the government of running the railways. **Figure 2** illustrates the Department's assessment of the potential benefits of smart ticketing.

Figure 2

Potential benefits of smart ticketing

For passengers

- Saves time with reduced queueing for buying tickets and quicker transit through ticket gates
- More durable than paper tickets
- Increases information about purchases and journey history
- Better value from flexible products – such as part-time season tickets – or tickets that reward travelling off-peak
- Enables passenger to receive reimbursement automatically in the event of delays

For train operating companies

- Lowers retailing costs through less reliance on ticket vending machines and ticket offices
- Less time spent on replacing lost or worn out tickets
- Faster entry through gates reduces congestion
- Reduces fraud and greater revenue protection
- Increases revenue from more innovative tickets stimulating additional journeys
- Better management information about demand and passenger travel patterns

For the Department

- Makes better use of existing rail infrastructure by enabling more flexible ticket types to manage and spread demand across the day
- Reduces or delays the need for capacity enhancements
- Better data about franchises and reimbursing operators
- Delivers manifesto commitments of smart and flexible ticketing
- Reduces costs to the taxpayer

Note

1 The documented benefits of the South East Flexible Ticketing Programme relate to passenger and train operator benefits.

Source: National Audit Office analysis of Department for Transport information, including the Programme's business cases and 2016 briefing on smart ticketing

1.2 Key developments up to 2012 included the establishment in 1998 of the Integrated Transport Smartcard Organisation (ITSO), an organisation supported by the Department, to develop an open specification and standards so that smart ticketing could be used across different types of public transport and transport operators. In 2009, the Department published its Smart and Integrated Ticketing Strategy for implementing smart ticketing systems across the UK's public transport network, including buses, trams and trains.[1] At that point London had high levels of smart ticketing use following the introduction of Transport for London's Oyster card in 2003. The Department aimed to extend smart ticketing to all types of transport in all major cities in England by 2015 and across almost all of the UK bus and rail network by 2020.

1.3 Smart ticketing systems could include use of smartcards, contactless bank cards or mobile devices. The Department's preferred technology solution was smartcards compliant with ITSO standards. While it acknowledged that mobile phones and contactless bank cards were likely to have roles in future smart ticketing, the technology was not considered mature enough to provide the range of fares and tickets for rail.

1.4 In 2006, the Department began negotiating the introduction of smart ticketing on the national rail network when it awarded new franchises. Progress proved to be slow and by 2012 only South West Trains, East Midlands Trains and Southern had smart ticketing schemes available in the south-east of England that were compliant with the ITSO standards. These smart ticketing schemes had limited coverage and low take-up. In part, they lacked acceptance by different train operating companies as well as on stations operated by Transport for London, which made smartcards less attractive than paper tickets for passengers. Additionally, train operating companies had little incentive to implement and promote the schemes. The upfront capital investment required, linked to uncertainty about whether there would be a return on that investment over the duration of the franchise, meant that some operators did not consider that they would benefit greatly from the scheme. The last franchise renewal date in the South East was due in 2021, which meant that the full benefits of smart ticketing in the region would not be available until the 2020s.

1.5 Transport for London's Oyster gates and validation machines also had to be upgraded to allow ticket holders with smartcards compliant with ITSO standards to pass through ticket barriers. The Department had agreed in 2009 to provide £60 million of funding for this work, which started in 2011. On completion in 2014, this programme had cost £66 million following changes to the scope of the work.

1 Department for Transport, *Smart and Integrated Ticketing Strategy*, December 2009.

Initiation of the Programme

1.6 By 2011, the Department had concluded that it needed to intervene to incentivise and facilitate more widespread use of smart ticketing. In November 2011, departmental officials submitted a proposal for extending smart ticketing in the south-east of England, for inclusion in the Autumn Statement. This would involve the Department directly funding the infrastructure required to implement smart ticketing systems on existing rail franchises with services terminating in London. In the 2011 Autumn Statement, the Chancellor of the Exchequer approved £45 million of funding.

1.7 In December 2011, Transport for London proposed to the Department that this money should be used to extend its Oyster system and support its contactless infrastructure across the south-east of England. The Department rejected this proposal. The Department's lessons learned report in 2016 stated that this decision was made because the proposal had limited geographic coverage and excluded back-office systems to support customer service processes of train operating companies. There were also risks attached in requiring Transport for London to operate beyond its jurisdiction, which had both cost and legal implications. The proposal was also counter to the Department's approach since 1998 to use open technology, as Transport for London owned the Oyster technology and was supported by a single supplier.

1.8 In January 2012, the Department launched the South East Flexible Ticketing Programme (the Programme). Within the Department, officials initially presented to ministers the Programme's objectives as "to expedite the equipment of commuter routes running into London to enable early roll-out of smart and innovative ticketing – with a focus on introducing 'flexible season tickets'". Publicly, the Department outlined that it would use £45 million "working with operators on installing equipment so that existing season ticket products can start to be transferred to ITSO smart ticketing on some routes in London and the South East from January 2013, and to develop new flexible and more tailored season ticket products for use on ITSO smart ticketing by as early as 2014 on some routes."[2]

2 Department for Transport, *Reforming our Railways: Putting the Customer First*, Cm 8313, March 2012.

Part Two

Progress of the Programme

2.1 The Department for Transport (the Department) produced its first business case for the South East Flexible Ticketing Programme (the Programme) in April 2013. The business case set out the Department's aim to enable passengers to buy season tickets and flexible tickets, including discounted part-time season tickets using smartcards, on 11 franchises running services into London by 2014 at a cost of £45 million. This would require: installing or upgrading equipment and infrastructure, including automatic ticket barriers and smartcard validators; and developing a central back office to communicate with station equipment, secure transactions and process passenger travel data and purchases.

2.2 Since the April 2013 business case, the Department has changed the scope and budget of the Programme on two occasions:

- In June 2014, the Department produced a revised business case. The main change to the objectives of the Programme was that it removed the aim to enable passengers to buy flexible part-time season tickets. Instead, it stated that the aim of the Programme was to provide the infrastructure to enable flexible tickets, but that passengers' ability to buy flexible tickets would depend on changes to government policy on fares.
- In April 2016, the rail minister reduced the scope of the Programme. The Programme would now focus on enabling passengers to buy season tickets on smartcards on five train operating companies.

2.3 In April 2017, the Rail Delivery Group took over responsibility for managing the central back office system, which processes rail journeys by passengers using smartcards.[3] By April 2017, the Department had achieved the following from the Programme:

- Existing season ticket holders from five of the 11 train operating companies in London can hold their tickets on smartcards. The five operators are: South West Trains, c2c, Govia Thameslink Railway, Southeastern and Greater Anglia.
- The Department forecasts that it will spend a total of £54 million for delivery of the reduced scope of the Programme.

3 The Department handed over all assets to the Rail Delivery Group for day-to-day management in January 2017, and between January 2017 and April 2017 there was a handover and shadow transition process as the Programme was closedown.

- The central back office and test facility were operationally ready by August 2015, and available to train operating companies from across the national rail network to use to process payments and journeys using smartcards.
- Three of the Programme's five train operating companies are using the central back office. The other two (South West Trains and Govia Thameslink Railway) are currently using their own back-office systems. The Rail Delivery Group has estimated that the central back office is currently using around 5% of its capacity and can handle more smart ticketing schemes. The Rail Delivery Group is also promoting the capability of the central back office to train operating companies across the country. By March 2017, two operators outside the south-east of England were using the central back office. The Department is in discussion with the new owners of the South West Trains franchise about using the central back office.

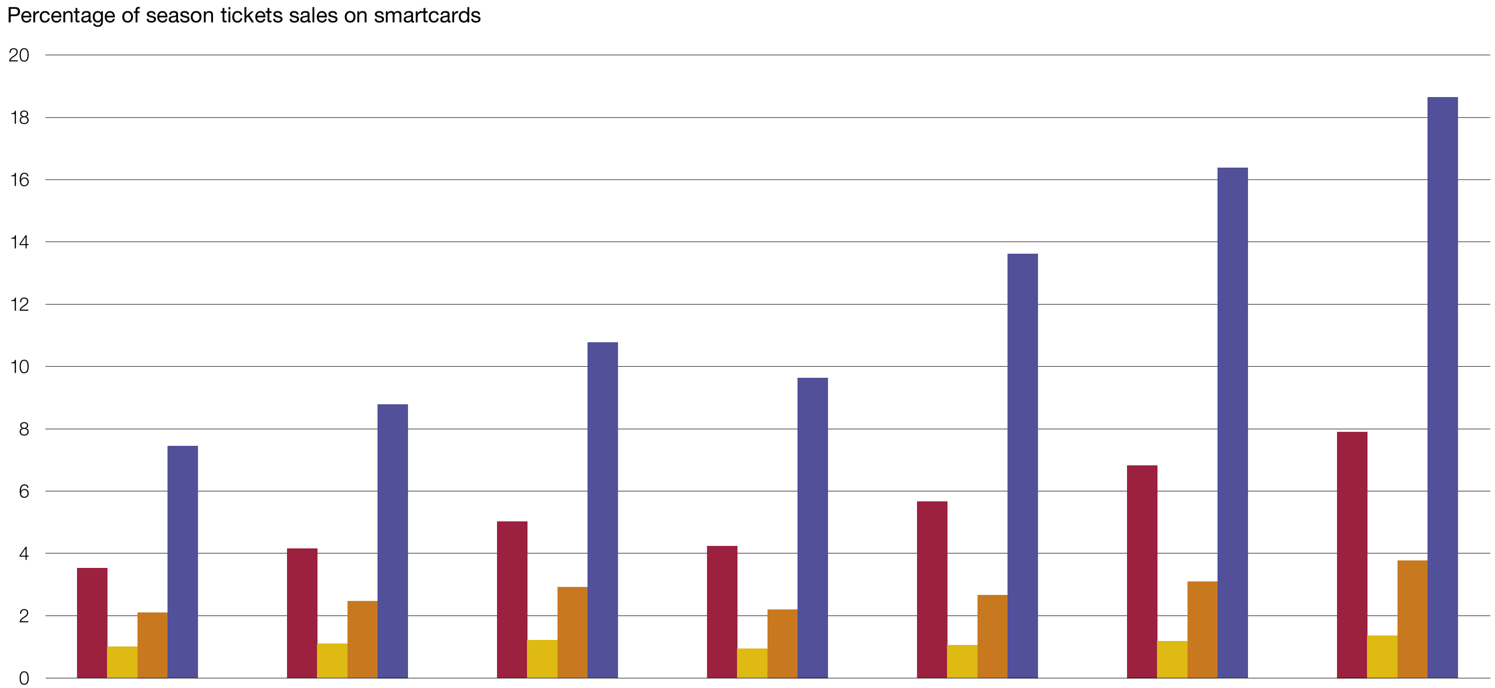
2.4 To deliver the objectives of the 2014 business case for smart ticketing in the south-east of England, the Department will need to carry out further work. For example, to provide part-time season tickets the Department would need to either pay for the additional infrastructure, such as platform validators in ungated stations, needed to support smart tickets for more flexible fares or singles and returns itself, or require train operating companies to do so. In April 2016, the Department estimated that it would cost £96 million to deliver the full scope of the 2014 business case – to enable passengers of all 11 train operating companies to purchase season tickets and other flexible tickets on smartcards. Some of the participating operators already have the infrastructure in place to offer wider smart ticket products to passengers: two operators (South West Trains and c2c) offer single and return tickets, and one (c2c) has introduced automated payments for delays and flexible season tickets.

2.5 Rail passengers and the public more generally are now becoming more familiar with alternative ticket types and methods of payment such as e-tickets downloaded to mobile devices with barcodes, contactless bank cards and payments using smart phones. To provide passengers with these options, the Rail Delivery Group or the Department will need to carry out upgrades to the central back office, and to existing validators and ticket barriers, which will require additional funding.

2.6 The 2014 business case assumed 95% take-up of season tickets on smartcards within five years, of which the first and second years would achieve take-up levels of 25% and 50% respectively. **Figure 3** overleaf shows that 8% of passengers purchased season tickets (weekly, monthly and annual) on a smartcard in the 12 months up to March 2017. The figure is higher for annual season tickets, with 19% purchased on smartcards in the same period.

Figure 3
Take-up of smart season tickets reported between September 2016 and March 2017

Annual season ticket holders most likely to use smartcards



Reporting period is on rolling 13 period rail year	20 Sep 2015 to 17 Sep 2016	18 Oct 2015 to 15 Oct 2016	15 Nov 2015 to 12 Nov 2016	13 Dec 2015 to 10 Dec 2016	10 Jan 2016 to 7 Jan 2017	7 Feb 2016 to 4 Feb 2017	6 Mar 2016 to 5 Mar 2017
All season types	4	4	5	4	6	7	8
Weekly season	1	1	1	1	1	1	1
Monthly season	2	2	3	2	3	3	4
Annual season	7	9	11	10	14	16	19

Notes

1 The Department's preferred measurement of take-up is on a rolling 13 period basis that reports smart season tickets sold over the last 12 months to minimise the impact of seasonal variations.

2 Rail data are reported on a period of 4 weeks.

3 Values are rounded to nearest whole percentage point.

Source: National Audit Office analysis of the Department for Transport data of season ticket sales of five participating train operating companies

2.7 Train operating companies have attributed the low levels of take-up to a number of factors. These include:

- the lack of price incentives to encourage passengers to replace paper tickets with smartcards; and
- problems with the customer experience. For example, some operators were unable initially to swap passengers to smartcards until their paper tickets had expired, while other passengers encountered problems picking up smartcards from ticket machines, and Transport for London did not allow passengers to collect products on smartcards related to the Programme from stations it operated.

2.8 Further barriers to high take-up were low awareness of smart ticketing schemes resulting from a lack of promotional and marketing activity, passenger benefits not being well understood, and a lack of clarity about how to get a smartcard, given the unfamiliarity of the process to passengers. Key learning about take up identified by the Department's lessons learned review include: setting targets for train operating companies that are specific and time bound; consulting fully with stakeholders at the start; and the need to adequately incentivise or compel take-up by train operating companies and passengers.

The potential benefits of the Programme relative to costs

2.9 Since 2013, the Department has updated its assessment of costs and benefits on three occasions. **Figure 4** overleaf shows that between 2013 and 2016 the Department's estimate of the benefit–cost ratio of the Programme reduced from 2.13:1 to 0.21:1. This was the result of a range of factors including:

- an increase in costs between 2013 and 2016, from £45 million to £61 million;
- reduced programme scope with fewer train operating companies resulting in fewer journeys; and
- changes to the assumptions used by the Department about levels of take-up of smartcards by passengers. The 2013 and 2014 business cases assumed take-up levels of 75% and 95% respectively for season tickets, while the estimate based on the Programme's reduced scope in 2016 assumed take-up of 20%. In addition, the 2016 update assumed that the Department would do nothing itself to promote smartcards to improve take-up.

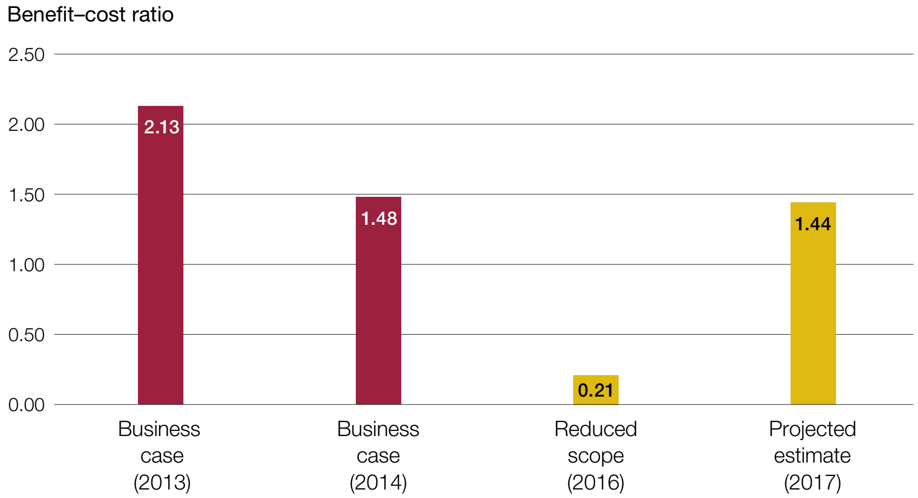
2.10 The Department refreshed the benefit–cost ratio of the Programme in February 2017, following increases in take-up reported by train operating companies. The revised benefit to cost ratio is 1.44:1, which, according to the Department's own measures, represents 'low' value for money. However, the Department also quantified benefits that were not included in earlier appraisals, for example, improving the customer experience. This increased the benefit–cost ratio to 1.6:1. The 2017 analysis assumes that 80% of season ticket holders will use smartcards and that the option to hold single and return tickets on smartcards is introduced.

2.11 The benefits that the Department quantified in its business cases were passenger time savings from travelling more quickly through gates and reduced queueing. The wider benefits that the Department aims to deliver, such as reducing the cost to train operating companies of selling tickets or reducing expenditure on infrastructure, were not quantified, although the Department has estimated that if they were quantified, the benefit–cost ratio could be above 2:1, which would represent 'high' value for money. Realising these benefits relies on introducing flexible tickets and increased levels of take-up. Appendix Two lists the quantified and non-quantified benefits of the Programme, which are grouped around realising innovation in retailing tickets; operational efficiencies in running the railway; and improving the passenger experience.

Figure 4

The Department's estimate of the Programme's benefit–cost ratio

Realising the benefits depends upon a high level of take-up



Notes

1 The 2016 and 2017 benefit–cost ratio estimates are based on the reduced scope of the five participating train operating companies in contrast to the full scope of the business cases.

2 The 2017 projected estimate is informed by actual 'number of journeys' data provided by participating train operating companies, which indicated the analysis for the 2014 business case understated the number of journeys and subsequently the expected benefits.

3 The Department anticipates that if unquantified benefits were included, the Programme would provide a 'high' return (a benefit–cost ratio between 2:1 and 4:1).

4 In 2017, the Department quantified additional benefits that were not included in previous analyses; this increases the benefit–cost ratio to 1.60, which indicates a 'medium' return.

Source: National Audit Office analysis of the Department for Transport's business cases of 2013 and 2014; April 2016 ministerial submission; and February 2017 benefit–cost ratio refresh analysis

Part Three

The Department's oversight and management of the Programme

Setting up the Programme

Agreeing the scope and initial business case: November 2011 – April 2013

3.1 The South East Flexible Ticketing Programme (the Programme) secured funding before the Department for Transport (the Department) wrote a business case or developed the scope. In November 2011, the Secretary of State for Transport requested ideas for the Autumn Statement to support the growth agenda. The Department developed a one-page bid to bring forward the benefits of smart and innovative ticketing on commuter routes into London by 2015. It proposed funding of £45 million using broad assumptions and without consulting train operating companies.

3.2 Although the Department's 2009 strategy noted that delivering smart ticketing could not be realised without collaboration, train operating companies first became aware of the Programme when it was announced in the 2011 Autumn Statement. The Department's own lessons learned review concluded that progress was slow because of difficult relations with the Department's partners in the early days due to insufficient consultation with the industry.

3.3 Delivering the Programme required integrating technology and the brokering of commercial agreements between the various parties, including the Department, train operating companies, the Rail Delivery Group and Transport for London. This involved working collaboratively with the Department in designing and procuring a central back office and test facility that is used by several train operating companies. **Figure 5** overleaf outlines the roles and responsibilities of key stakeholders. The Department identified early in the Programme that individual train operating companies had different levels of experience and understanding of smart ticketing; this increased the challenge of agreeing technological solutions and commercial agreements, delivering the Programme and deciding which types of smart ticketing products would be launched.

Figure 5

Key stakeholders delivering the South East Flexible Ticketing Programme

Key dependency areas	**The Department** Sponsor and funder of the Programme. Provides ultimate sign-off and approval for all Programme expenditure	**Rail Delivery Group** The Programme's delivery agent with programme management function to ensure central coordination of delivery	**Train operating companies** Responsible for project management of implementing and promoting smart ticketing systems on their routes	**Transport for London** Advisory role on the Programme. Responsible, through separate programme, for upgrade of its systems on its estate to interact with train operators' smart ticketing
Managing deeds of amendment or franchise arrangements	✔		✔	
Designing the Programme's central back office	✔	✔	✔	
Building and testing of the Programme's central back office		✔		✔
Development of industry agreements to operate the Programme	✔	✔	✔	✔
Implementing train operating companies' delivery projects		✔	✔	✔
Increasing customer take-up	✔		✔	
Transitioning and handover of the Programme	✔	✔		

Note

1 Transport for London's programme to update its systems and infrastructure to be able to read smartcards of train operating companies was separate to the Programme, although a critical element in ensuring that passengers using smartcards from the south-east of England could travel seamlessly into and out of London.

Source: Department for Transport, programme definition document and memorandum of understanding

3.4 In May 2012, the Department, Transport for London and the Rail Delivery Group signed a memorandum of understanding.[4] This set out their agreement to have infrastructure in place to allow smart and flexible ticketing by January 2014. The memorandum designated the Department as the Programme's sponsor and funder, the Rail Delivery Group as the delivery agent, with Transport for London providing advice and assistance in its responsibility for separate programme to upgrade its systems to read train operating companies' smartcards. There was no agreed outline plan or timeline for how the Programme was to be delivered. In March 2013, the Department's internal audit reported that the Programme did not have a high-level summary plan of key activities and milestones in place.

3.5 Between January 2012 and April 2013, the Department worked with train operating companies and other stakeholders to develop the business case and scope of the Programme. It became clear that there were disagreements between stakeholders about the approach. Stagecoach and Go-Ahead preferred to continue to use their own back-office systems rather than join the proposed central back office. This was because, for example, they felt that the central system was as yet untested.[5] Transport for London questioned the feasibility of delivering the Programme before 2015 with the agreed delivery approach and offered to take over running of the Programme.

3.6 It took until April 2013 to resolve these issues and to approve an outline business case. This business case confirmed:

- a budget of £45 million, and stated that any cost increases would be contained by reducing the number of stations covered by the Programme;
- the objectives as set out in the 2012 memorandum of understanding, with the additional objective that the Programme would encourage passengers to adjust their travel patterns to relieve congestion at peak times;
- the Programme would continue to build the central back office for processing ticket transactions, but would not mandate train operating companies to use it; and
- the aim that every train operating company in the South East was to be fully smart-enabled by the end of 2014.

4 The Rail Delivery Group was then known as the Association of Train Operating Companies.
5 Stagecoach is the owning group of South West Trains, East Coast and East Midlands Trains. Go Ahead is the majority shareholder in Govia, which runs Govia Thameslink Railway and Southeastern.

Planning implementation: May 2013 – October 2013

3.7 The Programme Board, on which the Department, Transport for London and the Rail Delivery Group were represented, was still discussing the full scope of activities after the Department approved the business case. For example, it was unclear if using contactless cards to pay for journeys was in scope; and there was uncertainty around the functionality of systems for the central back office. Within the Department there were concerns about the practicality of the timetable and programme management. In March 2013, prior to the approval of the business case, the Department's internal audit had reported that the Programme's controls and processes were immature and that the complexity and timescale in which it was to be delivered would require stronger stakeholder commitment and clearer understanding of the sequencing of activities.

3.8 The Department appointed an external consultancy in July 2013 to provide additional resource to develop key programme documents and strengthen project controls. This consultancy also reviewed the capability of the programme delivery team. In October 2013, it reported to the Department that:

- the amount of work required to deliver the Programme's objectives was much greater than in the documented plans;
- plans for the central back office lacked detail about how to deliver more advanced flexible ticketing options;
- there was little consideration of how to integrate the back-office system with those of train operating companies using their own systems;
- there would need to be a significant increase in the size and capability of programme management, including increasing the size of the project management team from 22 to around 50 people;
- the timetable for implementing the central back office was unrealistic to achieve the objective of most journeys being on smart tickets by the end of 2014; and
- the Programme could need an extra two years to complete, at an estimated cost of between £65 million and £98 million.

The Programme is paused: November 2013 – June 2014

3.9 Concerns about progress towards the 2014 deadline and increasing costs led the Department to pause the Programme to undertake a fundamental review between November 2013 and June 2014. As part of the review it considered closing the Programme and returning to the pre-2012 delivery approach of inserting smart ticketing obligations in rail franchise agreements. However, senior officials in the Department reached a consensus in early 2014 that only an active programme and not the franchising approach would deliver the vision for smart ticketing as set out in the *Rail Fares and Ticketing Review*, which was published in October 2013.

3.10 With regard to the scope of the Programme, the Department concluded that it would prioritise existing rail ticket products. This was because introducing more flexible and innovative products would require further discussions with train operating companies to reach agreement on commercial and technical changes.

A revised business case is approved and the Programme reset: June 2014

3.11 In June 2014, the Department approved a revised business case, which reset the Programme so that it would be delivered in two steps. It also increased the budget to £80 million, of which £60 million was for step 1:

- **Step 1** expected to deliver by September 2016: season tickets to all 11 train operating companies with routes into London; a central back office (by mid-2015); and a trial of the use of contactless bank cards on Chiltern Railways. During this phase, the Department would develop plans for how the smart ticketing schemes would be coordinated by the Rail Delivery Group and how it would maintain the central back office and promote interoperability of tickets with train operating companies.
- **Step 2** would see the installation of ticket validators at all ungated stations operated by train operating companies in the Programme to enable future roll-out of other ticket types including singles, day-returns and flexible season tickets; and implementation of widespread contactless capability in the South East. This step was to be completed by 2017.

Implementation of the Programme: June 2014 – summer 2015

3.12 From June 2014 to summer 2015 some elements of the Programme were implemented. In November 2014, train operator c2c became the first operator under the Programme to launch smart season tickets from the South East into London. By December 2014, the Rail Delivery Group signed the key procurement contracts with suppliers for developing the central back office. The Department declared that the central back office was operationally ready in August 2015 and Greater Anglia became the Programme's first train operating company to use the system when it launched in February 2016.

3.13 Other aspects of the Programme were less advanced. The contactless trial was effectively abandoned by December 2014 as cost estimates increased from £3 million to more than £10 million. This was largely because changes to Transport for London's systems to accommodate the national rail fares structure so that contactless did not cost more than the cheapest paper ticket were more complex than originally anticipated. Suppliers to train operating companies who were upgrading systems did not meet initial planned dates as they had other commitments outside of the Programme.

3.14 The arrangement for funding train operating companies to install or upgrade smart ticketing systems was through contracts called deeds of amendment. These set the Programme's requirements within the overall commercial governance of franchises to avoid creating shadow contracts outside of franchise arrangements. This meant that the Department negotiated these deeds directly with train operating companies and separately from the Programme's governance boards. This resulted in requirements, for example on take-up targets, being specified inconsistently and in fragmented individual plans. In 2016, the Department's internal audit found that the governance structures and commercial agreements were generally ineffective in holding train operating companies, Transport for London and the Rail Delivery Group to account for delivery of the Programme.[6]

Ministers review the Programme: Summer 2015 – January 2016

3.15 In the summer of 2015, prompted by concerns over progress and approach, ministers asked officials to provide a series of briefings on the Programme in order to make a decision about its future. At this point, the Department had signed deeds of amendment with five train operating companies, one of which had launched smart ticketing. In November 2015, the rail minister informed officials she was minded to close the Programme and instructed officials not to enter into agreements with the remaining train operating companies as planned in the 2014 business case. In January 2016, the then rail minister announced that future innovation in smart ticketing could and should be led by the rail industry and the Department should not have an active role in delivery.

The Programme's scope is refined and delivered: January 2016 – April 2017

3.16 While there was no formal change in scope in early 2016, the rail minister had provided a steer to officials: not to continue funding for the Programme and to close it on current contracted commitments; and that all future rail franchise competitions should require bidders to propose smarter ticketing solutions, with the Department monitoring progress. Consequently, the Department made plans to close the Programme early and to transfer ownership of the scheme and assets to the Rail Delivery Group from April 2017.

3.17 In April 2016, the Department appointed a new senior responsible owner who presented four options to the minister for the Programme. These ranged from delivery of the full scope to variants of a reduced scope to deliver existing commitments (see **Figure 6**).

6 The Department's internal audit function undertook the audit between 14 March and 4 April 2016 and reported on 6 June 2016.

Figure 6

Programme options presented to the rail minister in April 2016

Option	Description	Number of operators	Estimated budget (£m)	Estimated benefit–cost ratio
1	Reduced scope – deliver existing commitments only as agreed with three train operating companies using the central back office	5	60.7	0.21
2	Risk adjusted reduced scope – delivering existing commitments with only one train operating company using the central back office	5	59.0	0.17
3	2014 business case – deliver scope of 2014 business case plus additional funding to improve customer experience and drive up take-up	11	95.6	0.60
4	Existing commitments and product parity – deliver existing commitments and additional funding to provide comparable products of seasons, singles and returns across train operating companies	5	70.6	0.55

Note

1 Estimated benefit–cost ratio shown reflects estimates of take-up based on then current trends.

Source: Internal submission from officials to ministers, April 2016

3.18 The minister decided to proceed with option 1: the reduced scope. Subsequently, the Department produced a revised programme scope and budget for the Programme with activities refocused around:

- delivering existing commitments between the Department and train operating companies; in particular, launching smart ticketing on the Southeastern franchise, the last of the five participating train operating companies;
- bringing other train operating companies onto the central back office, including the migration of c2c and integration with operators using their own systems;
- driving take-up of smart cards; and
- handing over day-to-day responsibility for maintaining the central back office to the Rail Delivery Group.

3.19 The budget for the reduced scope was set at £61 million on the basis of £41 million expenditure to date and an estimate of £20 million to meet remaining commitments. **Figure 7** summarises the changes to the costs over the life of the Programme. The Department forecasts a total expenditure of £54 million for the reduced scope of the Programme. Reasons for the lower outturn include actual expenditure by train operating companies was less than agreed in the deeds of amendment and unused contingency.

3.20 The Department implemented changes to governance, financial management and reporting to make them more effective following the limited assurance given by internal audit in 2016 of its governance and management controls. For example, in July 2016 it created a new Programme Board with the aim of making it more commercially focused by including franchise commercial managers from the Department. It also established a benefits realisation plan in October 2016 to track the benefits. Between September and October 2016, the Department undertook a lessons learned review of the Programme.

3.21 One of the improvements made by the new Programme team in the Department was to improve how it would track the benefits and monitor take-up. In November 2016, the Department agreed with participating train operating companies a standard approach for reporting take-up. The Department now reports monthly to ministers on the number of season tickets purchased on smartcards against all season tickets purchased. Previously, the Department did not define how it would measure take-up. The deeds of amendment had not set binding take-up targets nor had they required train operating companies to report on take-up.

3.22 Following the launch of smartcards by the fifth and final train operator in December 2016, the Department began to close down the Programme and transfer responsibility to the Rail Delivery Group.

3.23 Ensuring ongoing operation of the central back office and smart ticketing systems introduced requires a number of agreements to be in place. These cover, for example: the maintenance of technical support for the central back office; requirements for train operating companies to continue to meet agreed standards; the cost charged to train operating companies to use the central back office; and requirements for Transport for London to maintain the infrastructure which allows smart tickets to be used on its estate. As at March 2017, scheme agreements between the Rail Delivery Group and the relevant train operating companies were agreed and signed; and draft agreements between Transport for London and relevant train operating companies were awaiting formal approval.

Figure 7
Programme budget and forecast outturn (£ millions)

Cost category	Description	Full scope 2013 business case (£m)	Full scope 2014 business case (£m)	Reduced scope 2016 budget (£m)	Reduced scope 2017 outturn (£m)
Central system costs	Development of central back office and test facility to operate smart ticketing systems	10.7	16.2	17.6	10.4
Train operator costs	Installation of equipment to read or dispense smart ticketing, such as upgrades of ticket vending machines and gate readers, purchase of handheld inspection devices	27.4	44.5	20.7	17.3
Central delivery team	Programme design and management functions to deliver the Programme[1]	3.1	19.1	22.4	26.2
Contingency	Funding to manage risk of overspend	3.8	–	–	–
Total		**45.0**	**79.8**	**60.7**	**54.0**

Notes

1 Comprises the Department and Rail Delivery Group's system design, system integration and delivery of the Programme including consultancy support.

2 From the 2014 business case onwards, the Department did not report contingency as a separate budget line.

3 Figures do not sum due to rounding.

Source: Department for Transport

Appendix One

Our investigative approach

Scope

1 This report is the result of an investigation into the Department for Transport's (the Department's) progress in implementing the South East Flexible Ticketing Programme (the Programme). The focus of the report is on the Programme, but it also places the Programme in the wider context of the Department's smart ticketing objectives, and includes reference to projects that preceded the Programme, but which have contributed to the current level of access that passengers have to smartcard capability on the national rail network. This reports sets out the facts in relation to:

- the progress of the Programme; and
- the Department's oversight and management of the Programme.

Methods

2 In examining these issues, we drew on the following sources of evidence:

a Programme documentation and management information, including papers to governance boards, internal audit reports, submissions from officials to ministers, business cases, and other published information about the Programme.

b We carried out interviews and had discussions with:

- the Department;
- train operating companies;
- the Rail Delivery Group; and
- Transport for London.

Appendix Two

The Programme's benefits

Figure 8

Identified benefits of the Programme

Benefit	Quantified in the business case
Improving passenger experience	
Passengers will spend less time at ticket offices replacing worn tickets	Yes
Passengers will spend less time at ticket offices replacing lost tickets	Yes
Passengers will spend less time purchasing and collecting tickets	Yes
Faster entry and exit through the rail networks	Yes
Improved customer satisfaction surveys relating to smart ticketing	No
Increasing operational efficiencies in the railway	
Reduction in fraudulent travel	No
Reduction in the costs associated with retailing tickets	No
Management information will be available that could be used to inform future ticketing strategies	No
Train operating companies will not have to spend time replacing worn out tickets	No
Train operating companies will spend less time replacing lost tickets	No
Train operating companies will spend less on managing paper tickets (for example, printing costs, replacing worn ribbons, and so on)	No
Providing capability to the railway to enable innovation in ticket retailing	
A scheme and underpinning technology platform will be in place to enable Programme members to introduce new ticket types	No
Train operating companies will use the Programme to roll out new ticket types	No
Enable seamless smart ticket travel across train operating companies' boundaries	No
Will not require a major upgrade due to obsolescence or due to increase in volumetric growth and performance targets in five years following launch	No

Note

1 Programme benefits as structured to support benefits realisation activity.

Source: The Department for Transport and the Rail Delivery Group, *Programme Definition Document v5.0*, December 2016

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