



National Audit Office

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## **Report**

by the Comptroller  
and Auditor General

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## **Home Office**

# E-borders and successor programmes

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National Audit Office

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Home Office

# E-borders and successor programmes

Report by the Comptroller and Auditor General

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Sir Amyas Morse KCB  
Comptroller and Auditor General  
National Audit Office

1 December 2015

This report examines the Home Office's border systems improvement programmes to assess whether they have delivered value for money.

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# Contents

**Key facts** 4

**Summary** 5

**Part One**

Managing the UK border 14

**Part Two**

The main causes of programme failure on e-borders, 2003–2010 25

**Part Three**

Reasons for failure of successor programmes, 2010–2015 39

**Part Four**

Prospects for future delivery 47

**Appendix One**

Our audit approach 53

**Appendix Two**

Our evidence base 55

**Appendix Three**

Key events and issues from the e-borders period 57

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## Key facts

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**£830m**

was spent on e-borders and successor programmes between April 2006 and March 2015

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**86%**

Home Office estimate of the proportion of people entering the UK in September 2015 for which transport carriers supplied advance passport data to the Department; compares to 0% in 2003 and a target (set in 2007) of 95% by December 2010

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**April 2011**

target set in 2007 for replacing legacy systems with the new e-borders system; these legacy systems are still in use

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- 118 million** people entered the UK in 2014-15
- 32%** predicted increase in commercial air passengers travelling through UK airports between 2014 and 2030
- 15%** reduction in total spending by the Border Force between 2011-12 and 2014-15. In the same period the number of people arriving in the UK increased by 11%
- 8** programme directors on e-borders and successor programmes between 2003 and 2015
- 10 of 13** external reviews of e-borders and successor programmes rated red or amber/red by the Major Projects Authority or predecessor bodies
- £150 million** settlement made in March 2015 by the Home Office to Raytheon Systems Limited resolving their dispute on e-borders
- £89 million** invested since April 2011 on improvements to the legacy systems that e-borders was intended to replace
- 355** individuals prevented from travelling to the UK by the authority to carry scheme between August 2014 and July 2015

# Summary

## Managing the UK border

**1** In 2014-15, 118 million people travelled to the UK and roughly the same number left. These include UK citizens returning home and people travelling to the UK for tourism or study, to work, to seek asylum or to migrate permanently. People and goods can enter the country by land, sea or air and may have travelled less than 30 miles or thousands of miles. Protecting our border across the many entry points, controlling migration and cross-border criminality, collecting revenues that are due and facilitating the legitimate movement of people and trade is primarily the responsibility of the Home Office (the Department).

**2** About 87% of those crossing the border in 2014-15 were either British citizens or from other European Union states. The Department's ability to decide for itself who from those countries can cross its border is constrained by UK and European law. Where those from outside the EU want to enter the UK, the Department has more freedom on the controls it can exercise.

## The need for advance data on travellers

**3** In 2003 UK border controls relied primarily on systems and procedures that operated at the border itself. In the early 2000s there was a growing realisation in the UK and elsewhere of the need to do more checks before people arrived in the country, and ideally before they left their point of origin.

**4** It was against this background that the Department set up its e-borders programme. The vision for this, which remains broadly similar to that of the current programme, is to enhance the use of traveller information by:

- collecting passenger information from plane, train and ferry carriers about individuals entering and leaving the UK;
- analysing data before individuals arrive at the border, including, in some cases, preventing travel;
- presenting the results of analysis to border officials so they can make better-informed decisions about whether to allow entry; and
- creating traveller records so the authorities know whether persons of interest are in the country, and their travel patterns.

**5** In November 2007, after four years of planning, piloting and procurement, the Department entered a contract with Raytheon Systems Limited, the UK subsidiary of a US-based technology and defence company. In July 2010 the Department terminated this contract claiming failure to deliver against milestones. From 2010 the Department has commissioned a series of successor programmes, including the Border Systems Programme and Digital Services at the Border programmes, to try to realise the original e-borders vision, although the strategy for achieving that vision has evolved over time.

**6** We and the Committee of Public Accounts have been keen to examine the reasons behind the termination of the e-borders contract for some time. However, following termination of the contract, a protracted legal dispute took place between the Department and Raytheon, which we did not want to prejudice. Following an August 2014 arbitration ruling that awarded Raytheon £224 million plus legal costs, the Department's Accounting Officer invited us to conduct a full review. The Department then applied to the High Court, which in early 2015 set aside the arbitration ruling and directed a new arbitration process, without itself producing a final attribution of blame between the parties. An out-of-court settlement was reached in March 2015, after which we concluded our examination.

### Scope of the report

**7** This report covers the Department's programmes for improving the way it collects and uses passenger data. It draws out lessons for current and future programmes and does not evaluate border operations in detail. We have considered three broad time periods: the e-borders period between 2003 and 2010; the successor programmes period 2010 to 2015; and the prospects for the future based on recent changes in approach since late 2014. We have defined good performance as:

- the technical solution is feasible and aligned with the needs of the Department's business;
- the programme has been managed according to good practice principles with appropriate leaders and skills in place;
- governance arrangements align with the chosen method of delivery and facilitate effective review and informed decision-making;
- an appropriate commercial strategy has been adopted to support delivery of the programme; and
- key stakeholders have been identified, have contributed to, and understand the programme's objectives.

We examined the Department's documents, interviewed current and former officials of the Department and spoke to various stakeholders including current suppliers. Raytheon provided a written statement in answer to questions we raised. Full detail of our methods are in Appendices One and Two.



## Key findings

**8 Between 2003 and 2015 the Department spent at least £830 million on the e-borders programme and its successors, delivering some valuable new capabilities but failing to deliver the full vision.** The Department spent over £340 million between 2006-07 and 2010-11 on the e-borders programme, a further £150 million on the settlement with Raytheon and £35 million on legal costs.<sup>1</sup> Between 2011-12 and 2014-15 the Department spent £303 million on the successor programmes. With this expenditure the Department has developed new capabilities to receive and process data on those travelling to and from the UK. In September 2015, the Department received data in advance on an estimated 86% of those travelling to the UK, compared with zero in 2003. However, this is still considerably short of the target in the e-borders business case of 95% by December 2010 and 100% by March 2014 (paragraphs 1.15 and 1.26).

**9 The Department spent £89 million, between 2011-12 and 2014-15, improving vital systems that e-borders should have replaced.** By 2010, the e-borders programme had built a centre, staffed by people from the Department, police and National Crime Agency, to analyse passenger data received in advance, and issue notifications to staff working at the border. However these data were, and remain to this day, processed on two systems that do not share data or analysis effectively. The e-borders contract had expected that these systems would be replaced by April 2011 and following the termination of that contract the Department prioritised improving the resilience and reliability of these systems. Relying on legacy systems means that current processes involve extensive manual effort, duplication of effort and restrictions on the use that can be made of travel history records (paragraphs 1.14, 1.17, 1.18 and 1.23 to 1.25).

## Lessons for the future

**10** Based on the history of these programmes, we have identified four critical success factors for future delivery. These four factors have, to varying degrees across the 12-year period, hindered the delivery of the e-borders programme and its successors.

- The Department has had a consistent vision for the programme but needs a more consistent strategy and realistic plan for implementing it.
- The Department needs to manage a large number of stakeholders well.
- The Department needs stability in its staffing arrangements, to fill gaps in its capability and learn better from history.
- The Department needs a culture that demands and uses high-quality data.

This report sets out the challenges the Department has faced in dealing with these issues to date, before considering the extent to which it is addressing them to maximise its chance of successful delivery in the future.

<sup>1</sup> Amounts for the period before 2006-07 are no longer available.

### **Agreeing how best to realise the vision**

#### **11 The delivery plans for e-borders were too ambitious to be achievable.**

The programme was developed against the backdrop of the July 2005 London bombings and the award of the London 2012 Olympic & Paralympic Games. In this context the Department felt it was necessary to be ambitious on scope and timescale to get the maximum improvement in border security in place by mid-2011. The Department therefore set a demanding timescale for designing and implementing the programme, taking confidence from a technical pilot which had not however tested the full e-borders requirement. The Department underestimated the scale of business transformation required within government agencies and multiple external stakeholders, which each had diverse information systems (paragraphs 2.5 to 2.7, 2.16).

#### **12 Following the cancellation of e-borders, the Department struggled to decide how to take the vision forward.**

The period between 2010 and 2013 was marked by several organisational changes for border operations and a number of changes of leadership. The Department also had to defer upgrades for six months to keep their systems sufficiently stable during the 2012 London Olympics. During this period the Department worked with existing suppliers to improve existing systems and looked to procure another contractor to do a similar job to Raytheon. In early 2014 the Department accepted the recommendation of an options review it had commissioned, with support from the Cabinet Office, proposing a change of approach to developing new systems in-house. The Department anticipated this would enable it to replace legacy systems by March 2016. Since May 2015, the Department has adopted a slower, more realistic approach to improving its systems, which will see the oldest legacy system fully retired in March 2018. It has yet to finalise when the other legacy system will be retired, but the Department's current plans target doing so by March 2019 (paragraphs 1.21, 3.2, 3.9 to 3.12).

#### **13 Throughout the 12-year period there have been some significant changes in the functionality of the proposed border control and security system.**

Some of these changes reflect the constantly changing nature of the threat the Department faces, such as the higher priority now placed on improved systems to target freight and to counter terrorism. But other changes have been tactical. For example, when the e-borders programme encountered difficulties, the Department reduced its expectations for data requirements without properly evaluating and reporting the impact this might have on outcomes from the programme. Similarly, the technical challenges it encountered in integrating border and visa management systems has led to this being de-scoped (paragraphs 1.4, 2.15, 3.13 and 3.14).

### **Underestimating the importance of stakeholder management**

**14 During the period of the e-borders programme the Department made unrealistic assumptions about programme delivery without recognising the importance of managing a diverse range of stakeholders.** Delivering the e-borders vision requires that more than 600 air, ferry and rail carriers supply data on people they are bringing in and out of the country, while around 30 government agencies supply data on persons of interest. During the e-borders period, the contract made Raytheon responsible for connecting e-borders to these stakeholders' systems, under the Department's strategic direction. But carriers and agencies expressed general concerns about the costs and other implications of revising their systems to connect to e-borders, including the interfaces they were expected to use. The contract strongly incentivised Raytheon to deliver the roll-out to the agreed schedules but provided less incentive for Raytheon to offer a wider choice of interfaces. Raytheon's initial plans for roll-out would have placed some carriers at a disadvantage to their competitors in terms of costs and the burdens on passengers. Lack of clarity on what was legal under European law further exacerbated the difficult relationships with carriers. These difficulties affected progress in rolling out e-borders from the outset (paragraphs 2.7 to 2.14).

**15 Since 2010 there have been signs of an improved relationship with plane, ferry and rail carriers.** Following the cancellation of the e-borders contract in 2010, the Department took more direct ownership of external relationships instead of working through Raytheon. Transport carriers told us there is now a better understanding of needs and requirements between themselves and the Department. This is demonstrated by the extension, in April 2015, of data collection to cover all ferry and rail carriers, which was completed without major incident. Such carriers have shown readiness to collect more passenger data than they did before e-borders. However, transport carriers did tell us of ongoing concerns about being placed at a competitive disadvantage due to being treated differently (paragraphs 4.9 to 4.11).

### **An inability to make decisions due to gaps in capability and resourcing**

**16 Across the 12 years, there has been insufficient continuity of key staff and the programme has had to rely on contractors.** During the e-borders period there were five programme directors, including three interim postings. Between 2010 and October 2014 there were a further two programme directors, at which stage the role was split in two and new appointments were made. We also observed high turnover at more junior levels. Since at least 2014, the programme has had to rely on a large number of contracted staff to fill technical roles; 40% of posts in the core programme were filled by non-civil servants in May 2015 (paragraphs 2.21, 3.3 to 3.6).

**17 The Department has not found timely solutions to serious concerns raised by successive internal and external reviews.** Between 2007 and 2015, the Major Projects Authority or its predecessors carried out 13 reviews. Ten of these reviews rated the programme, or the element examined, at serious risk of failure. In 2015 the Major Projects Authority was still raising serious concerns about the deliverability of the programme and flagging weaknesses around governance and capabilities (paragraphs 2.30 and 3.22).

**18 In this context, leaders have made ill-conceived decisions.** The e-borders commercial strategy (fixing the price and deadline but leaving requirements too open) meant transferring risks to the supplier which the Department considers to have been a consistent approach with a number of government ICT programmes at the time. However, Raytheon proved ill-placed to manage these risks. The Department had incorporated Raytheon's proposed design within the contract with the company. But the proposals had been based on too high-level requirements, leading to disputes after contract award over whether proposals would meet actual needs. The Department frequently found Raytheon's solutions unconvincing; conversely, Raytheon felt that requirements were growing and shifting, leading to major disputes, including varying interpretations of different parts of the contract. Nor could Raytheon compel cooperation by agencies or carriers. More recently, the expectation approved in early 2014 that legacy systems could be replaced by March 2016, a timescale significantly faster than that agreed with Raytheon, was overly ambitious. While the approach of taking greater control of the solution in-house was reasonable, and the Department considers the strategy to have been correct, the timeline adopted took little account of the difficulties earlier programmes had encountered and the Department's lack of track record of managing delivery in-house (paragraphs 2.20 to 2.25, 3.9 to 3.12).

#### **A culture that does not demand and use high-quality data**

**19 Data collection and manipulation is at the heart of the entire programme, but the Department has been critically weak in this respect.** The Department has only had measures of data quality since 2014 and these are limited in what they cover. Previously, the Department focused on collecting greater volumes of data from transport carriers and other government agencies and paid less attention to the quality of these data. We identified gaps in the management information used by the Department, including poor information on the number of people checked against the list of persons of interest and poor information on the effectiveness of processes. Our earlier reports on border functions have consistently identified weaknesses in the use of data for intelligence and performance monitoring purposes and it is a concern that such deficiencies persist.<sup>2</sup> Against this background of poor data management it is unsurprising that the Department has struggled to produce robust business cases (paragraphs 3.17 to 3.21).

<sup>2</sup> For example, see Comptroller and Auditor General, *The Border Force: securing the border*, Session 2013-14, HC 540, National Audit Office, September 2013.

## Prospects for future delivery

### **20 Changes since late 2014 give some cause for optimism looking forward.**

The programme is currently led by three individuals who collectively have a mix of operational, technical and stakeholder management experience necessary for delivering it successfully. The Department is adopting a slower approach to developing new systems, which is realistic given its inexperience in developing systems in-house and the likelihood of an evolving threat at the border. There is increasingly effective stakeholder management within the programme. The Department is also renewing its focus on the use of data. In particular, issues such as making full use of the data collected from plane, ferry and rail carriers and improving the timeliness, completeness and accuracy of that data now have more prominence (paragraphs 4.2, 4.3, 4.9, 4.12 and 4.17 to 4.18).

**21 Nevertheless, delivering the programme's vision is very important to the Department and more widely, and this remains at risk.** Increasing the automation of border processes and making earlier and better-informed decisions about those wanting to cross the border have the potential to bring both financial and security benefits that are essential in the current environment. Although progress has been made, continued weaknesses in the programme are not yet fully mitigated and there are early signs of slippage in the programme's current timeline. Three areas in particular need greater focus:

- designing systems in a way that embeds a greater focus on data quality and results in better-quality management information on Departmental processes;
- prioritisation of projects within the programme to maximise business benefits; and
- greater embedding of new ways of working within programme procedures.

We have outlined some key areas of focus for the current programme in our recommendations (paragraphs 4.4 to 4.7 and 4.17).

## **Conclusion on value for money**

**22** By March 2015 the Department had spent at least £830 million on e-borders and its successor programmes. For this it has got some valuable new capabilities to help assess the risk passengers pose before they reach the UK border, although there is limited information available on the effectiveness of these. However, the Department has not yet built an integrated system and as a result border processes remain inefficient with the Department unable to fully exploit the potential of the data it is receiving. Given the elapsed time since 2011 when the e-borders programme was due to deliver, the Department cannot be said to have achieved value for money so far.

**23** There are some early signs that the Department is beginning to grip this vital programme. However, continued weaknesses in areas such as being clear on how best to deliver the vision, oversight of the programme's progress at a senior level in the Department and using data are not yet fully mitigated.

## **Recommendations**

The Department's current programme

- a The Department needs to place much greater priority on understanding and improving the way it uses data given its critical importance for effective border operations and systems.** The Department has limited measures on the quality of data it receives from transport carriers and government data owners. It also has limited information on the volume, efficiency and effectiveness of its processes. Improvements are needed to both areas to maximise the benefit of the programme.
- b The Department now has a more realistic strategy for the programme but needs to tailor its ambitions in the short term so as to build capability and confidence.** The Department has a limited track record in developing new systems in-house and is likely to have constrained financial resources for the foreseeable future. The programme is currently trying to deliver multiple technical and commercial projects, which are likely to stretch its capability too far. Better understanding of its data will help it prioritise the capabilities it does have on the projects with highest value.
- c The Department needs to work out how best to integrate the systems it has developed, and is developing, within its business processes.** The Department has little clear idea of how it expects business processes to change in the future to meet security, immigration and efficiency challenges. It needs to develop this quickly so that it can fully align the work of the programme with the major challenges it faces.

- d **Retaining key staff and reducing the general level of turnover within the programme should be a priority.** A consistent theme in a number of our recent reports has been turnover of key staff on projects. The Department needs to work with the Cabinet Office, HM Treasury and other government departments to identify barriers to retention, such as pay and rotation policies, and find common strategies to alleviate them.
- e **The Department needs to ensure it does not become complacent in the way it manages stakeholder relations.** The Department needs to remain aware of the commercial realities faced by external stakeholders. The programme needs to work closely with the government's new One Government at the Border programme as this has the potential to mean that the Department's own programme is outdated before it has delivered.

### Commercial and programme management

The Department's experience on e-borders provides a salutary case study for government generally, but we emphasise three particular recommendations here:

- f **Departments must procure complex programmes in ways that allocate risks and responsibilities to the parties best able to manage them.** This well-known principle was breached during e-borders, where the contractor bore responsibilities for key relationships with transport carriers that it was poorly placed to understand and manage.
- g **Departments undertaking IT-enabled change programmes should ensure they do sufficient work before awarding contracts to understand how achievable the complete vision is.** Pilots should test not just whether technical challenges can be overcome but also whether the business changes required across participating government or non-government organisations are feasible.
- h **Departments should carefully match commercial arrangements to the nature of the programme.** E-borders used a high-level specification that allowed the contractor to put forward detailed, innovative solutions after the contract was awarded. However, the criticality of the infrastructure being developed, and the need for stakeholder cooperation, meant that the Department was always going to require more control over the solution than a commercial arrangement involving a fixed price and deadline was able to bear. A two-stage contract separating design and build phases, like those commonly used in construction, may have been more appropriate in these circumstances.

# Part One

## Managing the UK border

**1.1** The management of the UK border is primarily the responsibility of the Home Office (the Department). This report looks at the progress of the Department between 2003 and 2015 on improving the systems that collect and analyse data in advance of crossing the border.

- This part of the report (Part One) outlines the challenges the Department faces in managing the UK border and the programmes it has run since 2003 to improve border systems.
- Part Two looks at the main issues within the e-borders period (2003 to 2010).
- Part Three looks at the main issues with the successor programmes (2010 to 2015).
- Part Four considers the prospects for future delivery.

Appendix One details our audit approach and our evaluative criteria and Appendix Two sets out our evidence base.

### The UK border

**1.2** The Department estimates that 118 million people entered the UK in 2014-15, with a similar number leaving. Most movements (87%) were by British and European Union citizens. There are five main forms of transit across the border:

- Commercial aviation – flying into or out of the UK by scheduled airline and most chartered airlines. This route accounts for 83% of known passenger journeys.
- Commercial maritime – travelling into or out of the UK by roll-on, roll-off ferry or by cruise ship. The Department estimates that this accounts for around 9% of passenger journeys.
- Rail – an estimated 8% of individuals travelling into or out of the UK do so through the Channel Tunnel.
- Land – crossing the land border between Northern Ireland and the Republic of Ireland. The Department has no reliable estimates for the number of people that cross the border in this way.
- General aviation and maritime – a combination of smaller, unscheduled air and sea vessels, such as private aircraft and vessels, and some chartered airline routes. The Department has no reliable estimates for the number of people that cross the border in this way.



**1.3** The Department's Border Force directorate is now responsible for border operations. Border operations were also part of the core Department before 2008. Between 2008 and 2012, however, an arm's-length body of the Department, the former UK Border Agency, was responsible for border operations. Border Force has five strategic objectives:

- to deter and prevent individuals and goods that would harm the national interest from entering the UK;
- to facilitate the legitimate movement of individuals and trade to and from the UK;
- to protect and collect customs revenues from trade crossing the border;
- to provide excellent service to customers; and
- to provide demonstrable effectiveness, efficiency and value for money.

**1.4** The Department needs to balance processing of legitimate passengers within targets for service levels with detecting individuals of interest. The threat of terrorism is ever-changing; there is now greater variety in the type of individuals who become terrorists and in the type of attack they plan. The Department's approach to border control uses advance intelligence derived from its border systems, combined with a policy of checking passports at the border.

**1.5** The number of passengers crossing the border has been increasing by an average of 2% each year for some time. It is expected to grow by 6% per annum in the future; commercial aviation alone is expected to carry at least 315 million passengers in 2030 and 445 million by 2050 compared with an estimated 238 million in 2014.<sup>3</sup> Volumes of freight are also increasing and are expected to rise by 2% per annum in the future. The Home Office is having to manage this increase in demand alongside budget cuts. Since Border Force was created in 2011, its budgets have fallen by 15% while passenger volumes have risen by 11% (**Figure 1** overleaf).

**1.6** The UK's geographical and economic position presents challenges for border management:

- There are multiple ways of crossing the border (rail, land, sea and air).
- The UK is geographically close to its European neighbours, limiting the timeframe within which data can be processed following the commencement of journeys.
- European Union (EU) legislation gives individuals from the European Economic Area (EEA) the right to cross the UK border. British and EEA nationals represented around 87% of arrivals in the UK in 2014-15.
- EU data protection laws restrict the Department's ability to get data from individuals travelling within the EEA compared with those coming from outside.

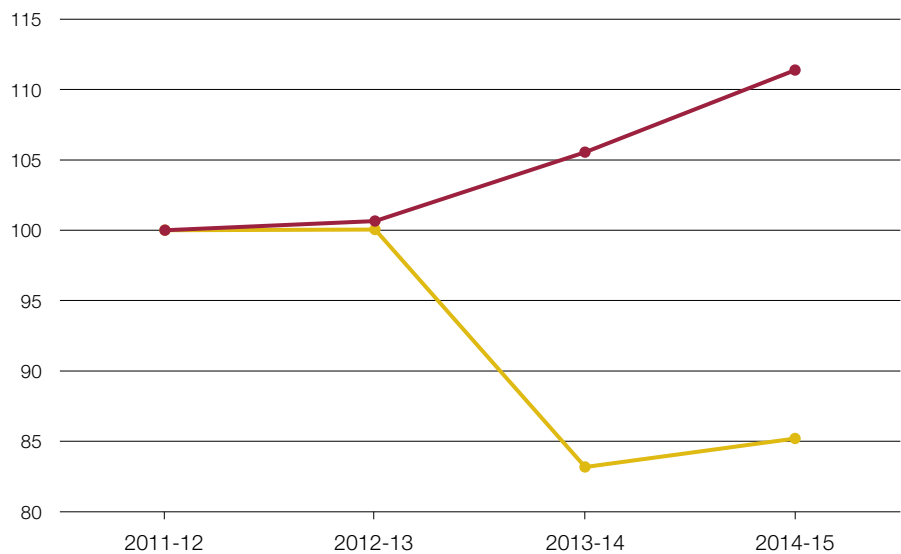
<sup>3</sup> Department for Transport, *UK Aviation Forecasts*, January 2013, Table 5.1, and Civil Aviation Authority airport statistics.

**Figure 1**

Change in the number of passengers arriving in the UK and Border Force expenditure

Since Border Force was created in 2011 its costs have fallen by 15% while passenger volumes have risen by 11%

Change in expenditure and passenger numbers (base year is 2011-12)



● Passenger numbers (index)	100.0	100.7	105.6	111.4
Passenger number (million)	106.3	107.0	112.2	118.4
● Border force gross expenditure (index)	100.0	100.1	83.2	85.2
Border force gross expenditure (£m)	616.4	616.7	512.7	525.1

Source: National Audit Office analysis of the Department’s annual report and accounts and published statistics

**Border systems improvement programmes**

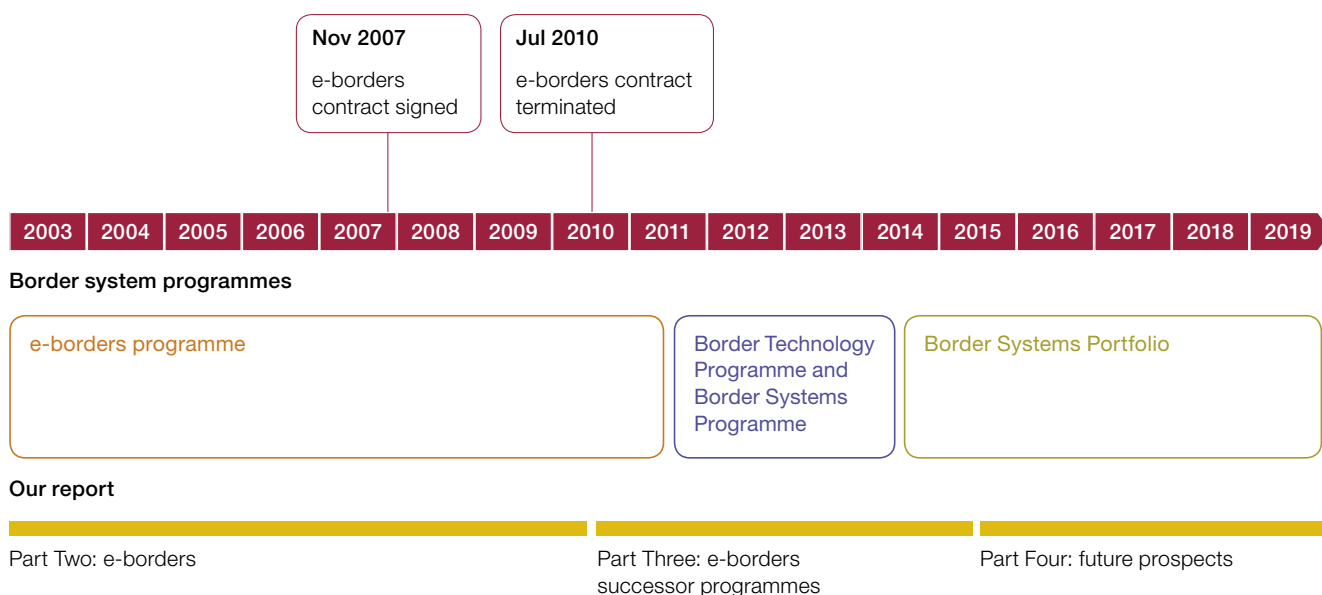
**1.7** In 2003 the UK authorities received virtually no data on people travelling to the UK before they arrived at the border, and collected no data on outbound travellers. Only a minority of travellers required a visa and only the visa decision, without the analysis, would be available to border officers. Decisions at the border were based on what the traveller declared on a landing card, an electronic check of their passport against a database of those of interest to the UK authorities (known as the warnings index), questioning of the passengers’ intentions where appropriate and a forgery and identity check of the individual against their passport. The authorities did not collect data on travel patterns so they were unable to identify suspicious travel patterns across multiple journeys.

**1.8** Since then the Department has operated major programmes aimed at improving the systems and processes it uses at the border (**Figure 2**). These programmes are the subject of this report. They have had very similar vision, but the scope and delivery mechanism have varied. The common vision has been to:

- collect passenger information from travellers entering and leaving the UK;
- analyse data before individuals arrive at the border, in some cases to prevent travel;
- present the results of analysis to border officials so they can make better-informed decisions about whether to allow entry; and
- create traveller records so the authorities are aware of whether persons of interest are in the country, and their travel patterns.

## Figure 2

The border system programmes



Source: National Audit Office

**1.9** Crucial to realising this vision was obtaining and using more information on those planning to travel to and from the UK. Such information takes two forms:

- passport data – for example the name, date of birth and passport number which feature on a passport; and
- booking data – the information a plane, ferry or rail carrier holds for passenger reservations such as their address, place of booking and method of payment.

The intention in 2003 was that if an individual of interest is identified they could either be prevented from travelling, or staff at the border could be alerted to intercept them. The government described this as “exporting the border”.<sup>4</sup>

**1.10** Between 2003 and 2015 there have been related programmes that have brought improvements to the systems used at the border that are outside the scope of this report, as they do not primarily concern the management of passenger data received in advance. For example:

- Travel document security has been improved by using biometric technology embedded in passports and visas.
- Manual passport checks have been replaced at 18 airports with 121 automated ‘e-gates’, which are now processing over 2 million passengers from the UK and other members of the EEA per month.
- Passengers from USA, Canada, Australia, New Zealand and Japan can pay a fee and register to use e-gates as if they were from the EEA. During the first three months of 2015-16, 9,800 passengers applied to do this.

### The legal dispute with Raytheon

**1.11** In November 2007 the Department entered a contract with the UK subsidiary of the US-based technology and defence company Raytheon, as head of a consortium known as Trusted Borders. This contract was expected to deliver the systems required to meet the vision and provide for their support until November 2017.

**1.12** In July 2010 the Department terminated this contract citing failure to deliver to agreed milestones. Raytheon disputed this, which led to arbitration proceedings. In August 2014, arbitrators ruled that the Department’s termination of its agreement with Raytheon had been unlawful. They awarded Raytheon £224 million plus legal costs. In February 2015 the High Court set aside this ruling on grounds of serious irregularity, and injustice resulting from omissions in the arbitration. The Court directed a new arbitration process to properly consider the issues concerned with both sides’ performance. The parties settled out of court in March 2015, with the Department owing Raytheon £150 million. This dispute cost the Department an additional £35 million in legal costs.

4 Home Office, *Rebuilding confidence in our immigration system*, July 2006.

**1.13** We and the previous Committee of Public Accounts have been keen to look at the e-borders programme since its termination, but waited until the arbitration process was complete to ensure we did not prejudice the legal ruling. Following the August 2014 ruling the Department asked us to conduct a review.

### Deliveries by e-borders and its successor programmes

**1.14** When the contract with Raytheon was signed, e-borders had two main measurable deliverables:

- to collect advance passport data on 95% of passengers, inbound and outbound, by December 2010 and 100% by March 2014; and
- to replace two existing systems with an integrated system for receiving and analysing data in advance and at the border by April 2011.

Neither of these targets had been achieved by the time this report was finalised.

### Collection of data

**1.15** **Figure 3** shows that the Department was collecting no data away from the border when the programme began and that, by September 2015, it was collecting advance passport data on 86% of passengers travelling to the UK and nearly 100% of passengers leaving the UK. Some, but not all, ferry companies have been providing passport data since 2012. In April 2015, all ferry and rail companies started providing outbound data as a result of the exit-checks programme, but the Department is still not receiving inbound passport data from the majority of ferry and rail passengers.

## Figure 3

### Estimated coverage of passport and booking data

	2003	December 2010	March 2014	Latest (September 2015)
	(%)	(%)	(%)	(%)
Passport data, inbound	0	54	80	86
Passport data, outbound	0	54	80	100
Booking data	0	Unknown	Unknown	20
e-Borders target (passport data only)		95	100	

#### Notes

- 1 Most data are received in advance of departure although some are only received after the vehicle has left its port of origin. Inbound passengers will also be subject to passport verification at the border itself.
- 2 Data are calculated based on number of journeys enabled to provide data to the Department and estimated number of passengers on the flight/train/ship concerned. It does not take account of whether data were actually received or not.
- 3 Journeys to and from the UK by land, general aviation and general maritime are excluded.
- 4 Data for December 2010 are currently based on a March 2011 estimate, as this is the earliest comparable estimate available within the Department. If travel within the EU is excluded then the estimate rises from 54% to 87%.
- 5 Booking data coverage was only measured from March 2015.

Source: National Audit Office analysis of Department data

**1.16** Booking data provide a richer data set than passport data and are considered by the Department, and others that operate at the border, as essential to improving intelligence capabilities. However, contractual targets for collecting booking data were never agreed with Raytheon. The Department has a 100% target for processing booking data but the Department has found it challenging to collect booking data for intra-EU journeys as interpretations of European legislation differ (see paragraph 2.14). The Department is only collecting booking data on 20% of journeys. The Department is taking steps to improve the situation and the EU is considering a new directive that may clarify the position. However, even taking this restriction into account the Department's estimates show that, in September 2015, it was collecting booking data on just 80% of passengers arriving on flights from outside the EU.

### Developing an integrated system

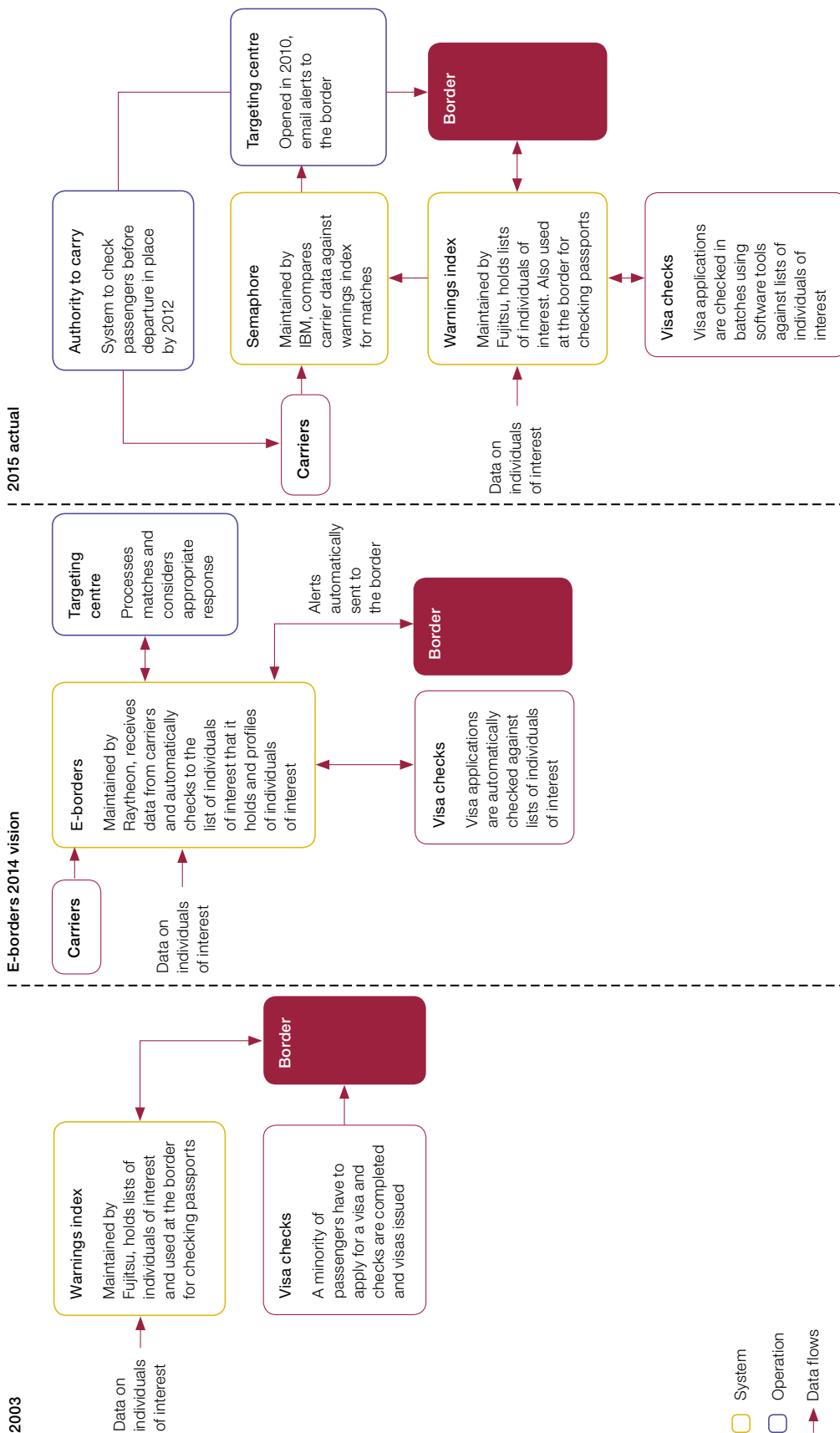
**1.17** In 2003 the Department operated a single system, the warnings index, which compared passports of those crossing the border against a list of persons of interests for either security or immigration reasons. By the time the contract with Raytheon was signed in 2007, the Department had introduced a new system, semaphore, to receive and analyse advance data. The Raytheon contract was intended to replace these systems with one integrated system to improve the efficiency and effectiveness of operations. By 2010, the Department was benefiting from a new centre, delivered by Raytheon and staffed by people from the Department, police and National Crime Agency, to analyse passenger data received in advance, and issue notifications to staff working at the border. However, the contract with Raytheon was terminated about nine months before the older systems were due to be fully replaced and, in 2015, the Department was still using the two older systems (**Figure 4**).

**1.18** With the failure to develop an integrated system, the Department was left reliant on two unstable legacy systems so it had to spend £89 million between April 2011 and March 2015 on improving the resilience of these. This was 29% of programme spend during this period. It was made up of:

- £38 million improving the resilience of the warnings index system; and
- £51 million on semaphore in 2011-12 to improve it from a pilot to a front-line system.

**1.19** The warnings index was developed in 1995 and initially expected to last seven years. It is classified by the government as a critical piece of national infrastructure due to its function in identifying travellers of particular concern.

**Figure 4** Border systems in 2003 compared with the e-borders vision for 2014 and the systems in place in 2015



**1.20** Between 2011-12 and 2013-14 the Department spent £15 million on technical refreshes to the warnings index system. Despite this, the system was highly vulnerable as it was run out of a single server room that was not fit for purpose and did not have full disaster recovery capabilities. Between April 2012 and December 2014 the Department spent a further £23 million migrating the warnings index to a new, more resilient, data centre. This migration was delivered over 12 months later than originally planned, but its eventual success is viewed by the Department as a turning point in its relationship with its supplier, Fujitsu. Performance data from the Department shows that the resilience of the warnings index system has improved as a result of this spend. However, in our opinion it is still far from good, with the system suffering from an average of two high-priority incidents a week.<sup>5</sup>

**1.21** The Department's current plan is that the warnings index will retire in March 2018, some seven years later than planned. The replacement system is planned to have automated feeds from semaphore, which will mitigate some of the manual working currently required. The Department has not yet taken the decision to replace semaphore but the working assumption within the Department is that it will be replaced from March 2019.

**1.22** In addition to improving the resilience of semaphore, the Department spent £25 million in 2012 and 2013 improving its technical capability. Most significantly, the Department added the capability to interact with carrier systems to prevent the highest-risk passengers from travelling. The legal regime to use this capability has evolved. In 2012, the Department was only permitted to prevent airlines from carrying foreign nationals to the country, although it did some other work by agreement with carriers. However, since April 2015 the authority to carry scheme has been in place which allows the Department to prevent all carriers from carrying anyone who presents a terrorism or other security-related risk, irrespective of their nationality or whether they are travelling to or from the country. The Department told us that between August 2014 and July 2015 it used this capability to prevent 355 individuals reaching the UK.

### Impact of the failure to develop an integrated system

**1.23** The failure to develop an integrated system has had three main impacts. First, it has resulted in more expensive service and routine change costs. The Department currently estimates that it will save around £12 million each year once it has an integrated system.

<sup>5</sup> A high-priority incident includes situations where a component of the warnings index system is not available (or performing so slowly as to effectively be unavailable) or 30% or more of border control points are unavailable at a port or airport.



**1.24** Second, it has contributed to border operations that are highly manual and inefficient. We visited air, rail and maritime terminals to observe border control, as well as visiting the national targeting centre established by the original e-borders programme. We noted that:

- Relevant systems at the targeting centre are not linked, resulting in multiple databases across three separate computer systems. Each system, and many of the individual databases, had separate passwords and log-ins and users were not always able to copy and paste text.
- Staff checking passports at the border do not have access to the semaphore system. They have to check passport details manually against lists of individuals identified by the targeting centre. They do not have details of cases cleared by the targeting centre resulting in cases being re-checked at the border. Such checks often have to be carried out away from the border crossing point itself due to system constraints and the sensitive nature of the work.
- Where intelligence staff have identified suspicious vehicle registrations, staff at the border may have to manually check licence plates against a printed list.

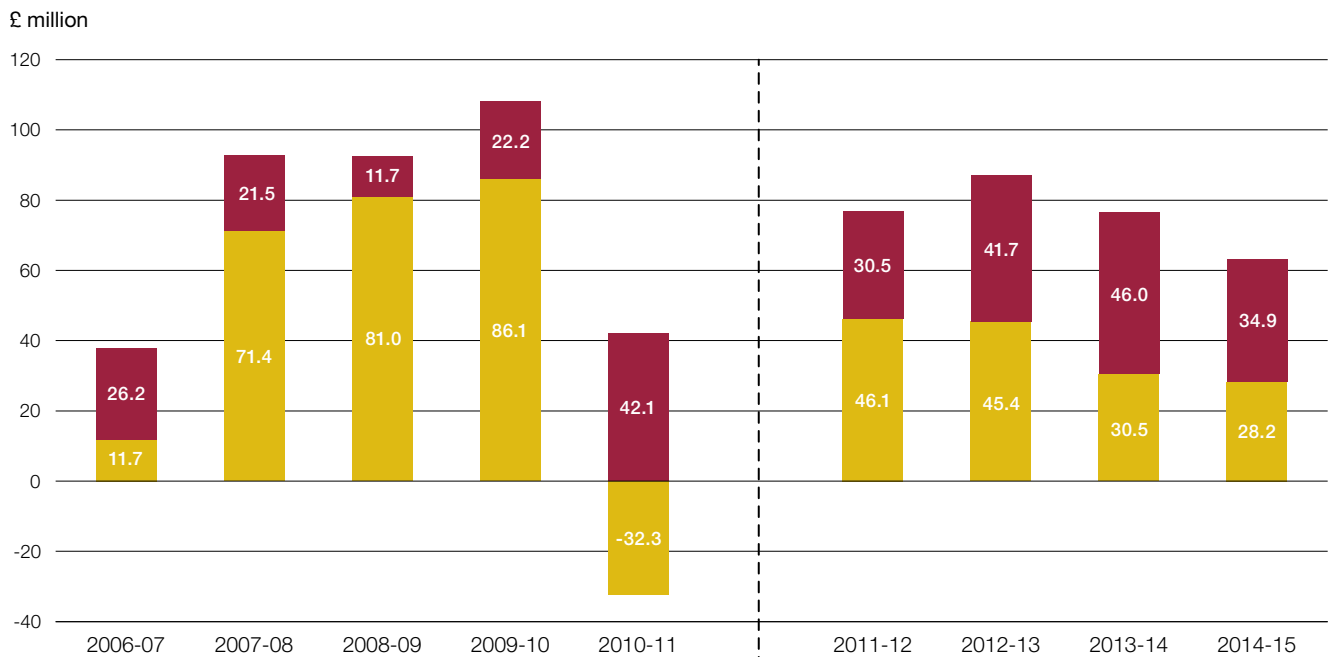
**1.25** Finally, using legacy systems restricts the Department's intelligence capability as its ability to search passenger travel history or integrate data with other systems is limited.

### **Overall cost of e-borders and successor programmes**

**1.26** The Department has invested heavily in e-borders and successor programmes, spending at least £830 million between 2003 and March 2015 (**Figure 5** overleaf). In July 2015 it was forecasting that it would need to spend a further £275 million by March 2019 to replace the warnings index and semaphore. After April 2006 the Department spent £527 million on e-borders, including settling the legal dispute with its contractor Raytheon. The Department does not have data prior to 2006 due to changing its accounting systems. Successor programmes, in particular the Border Systems Programme and Border Systems Portfolio, have spent an additional £303 million to March 2015. In 2007 the Department forecast that it would need to spend a maximum of £600 million to replace legacy systems and achieve 95% collection of advance passport data.

**Figure 5**  
Expenditure on e-borders and successor programmes

The total cost of e-borders and successor programmes from 2006-07 to 2014-15 was £829.9 million



■ Resource  
■ Capital

E-borders – total expenditure

	(£m)
Resource	123.7
Capital	217.9
Plus	
Out of court settlement	150.0
Legal costs from arbitration	34.9
<b>Total</b>	<b>526.5</b>

Successor programmes – total expenditure (to date)

	(£m)
Resource	153.2
Capital	150.2
<b>Total</b>	<b>303.4</b>

← Total whole-life cost of e-borders and successor programmes: £829.9 million →

**Notes**

- 1 2010-11 capital spending was negative due to a reversal of previously accrued capital costs.
- 2 Data are not available for 2003 to 2006 as the Department changed accounting systems in 2006.
- 3 Totals exclude expenditure on programmes outside of the scope of this report, such as e-gates.

Source: National Audit Office analysis of Department data

## Part Two

### The main causes of programme failure on e-borders, 2003–2010

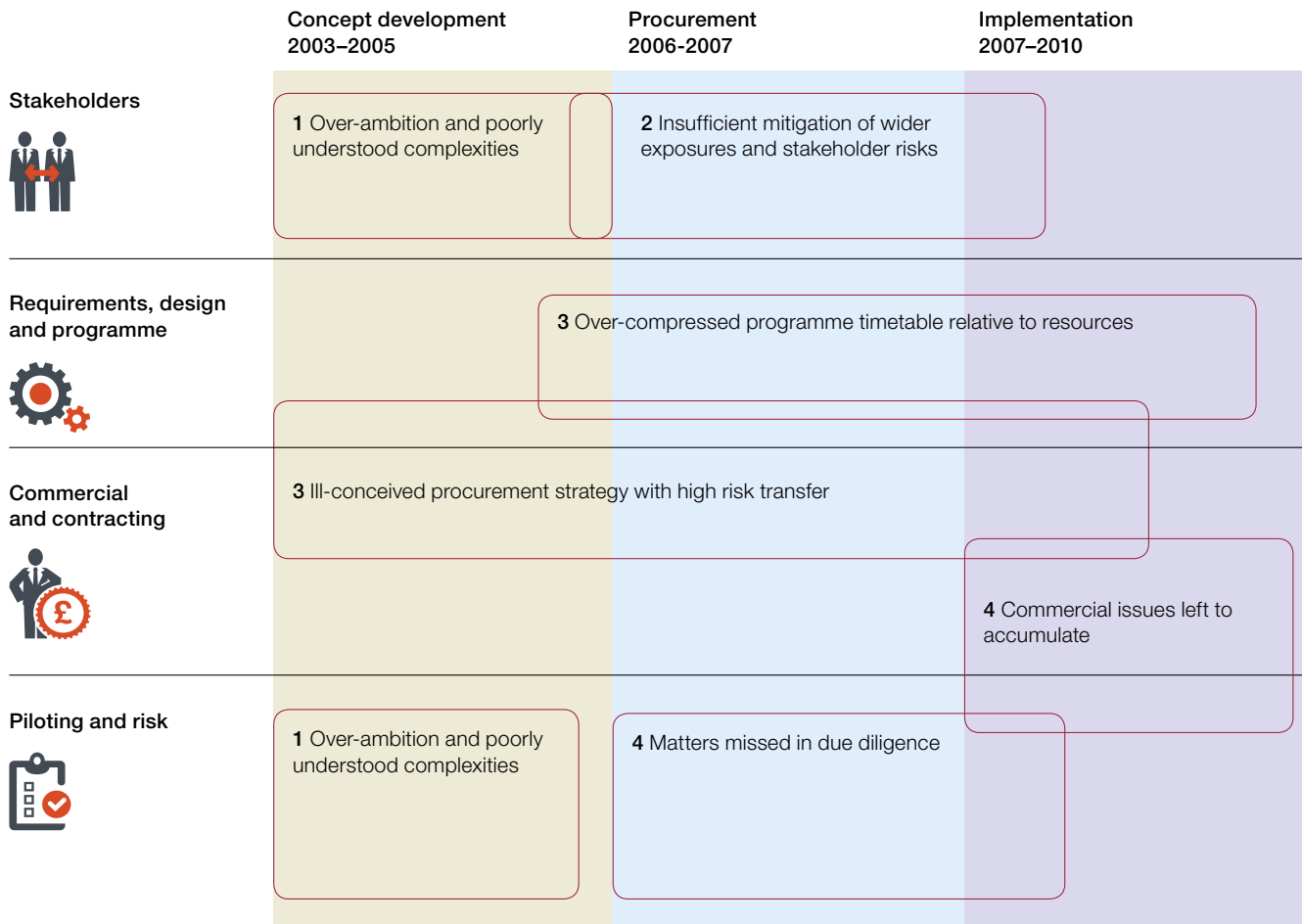
**2.1** Over the years, our reviews of major government programmes have identified various technical, management and commercial challenges that have contributed to delay or additional cost, without necessarily causing failure. This part of the report identifies four key factors in the e-borders programme that combined to result in its contract being terminated in 2010. These were:

- failure to understand the ambition and achievability of the vision;
- insufficient identification and mitigation of key dependencies of cooperation by government and wider stakeholders;
- the effects of acute time pressure and high risk transfer on key decisions by programme leadership and its contractor, Raytheon Systems Limited (Raytheon); and
- the accumulation of unresolved commercial differences between the Home Office (the Department) and Raytheon.

A detailed map illustrating how these four factors combined in the e-borders programme is at Appendix Three and **Figure 6** overleaf provides a simpler overview of the effect they had on the e-borders programme at various stages in its history. The first two factors have most direct relevance for successor border system programmes. The last two featured prominently in the dispute between the Department and Raytheon and are relevant to public bodies managing major change programmes. We noted differing views among stakeholders on the relative importance of these factors to the outcome of the programme.

**2.2** The e-borders programme took place between 5 and 12 years ago. Our findings reflect analysis of extensive contemporary documentation and interviews with individuals involved from the public and private sectors. Raytheon provided a written statement, which we have taken into account. **Figure 7** on page 27 sets out the key events from the e-borders period.

**Figure 6**  
Key issues during the e-borders programme (2003 to 2010)



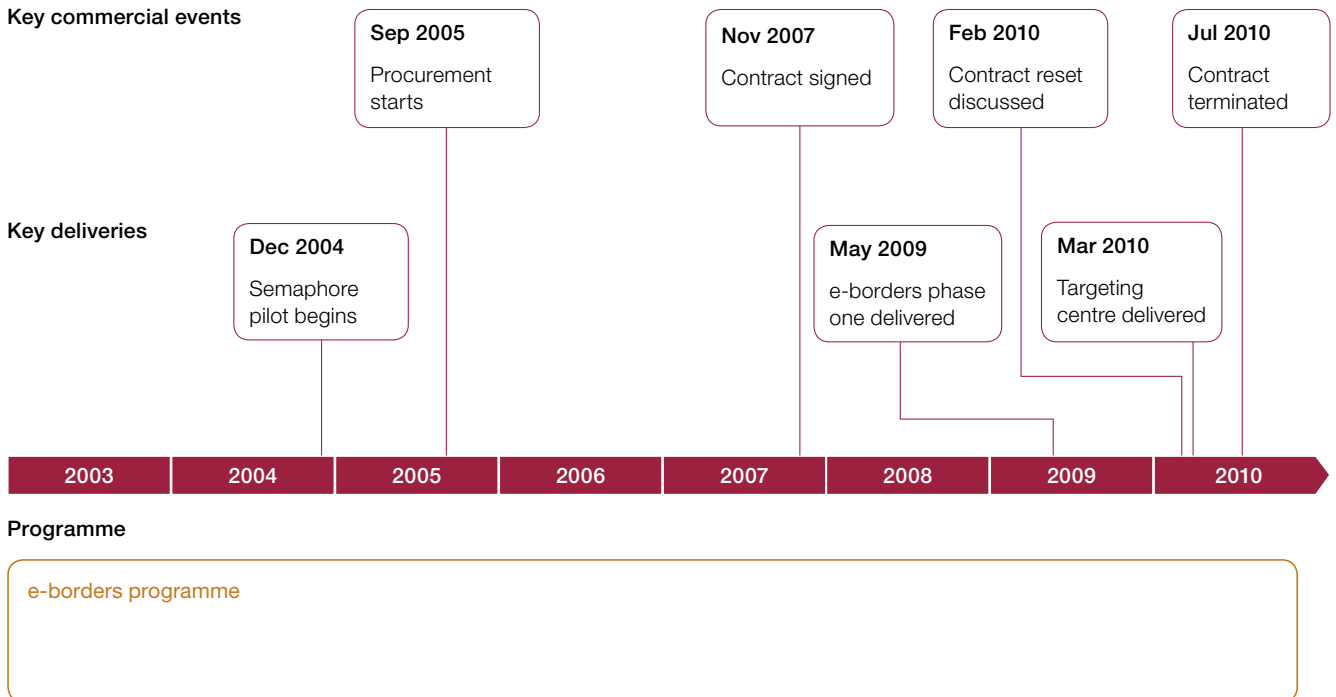
**Note**

1 A detailed programme map is in Appendix Three.

Source: National Audit Office assessment

**Figure 7**

Key events in the e-borders period



Source: National Audit Office

## Understanding ambition and achievability

**2.3** The e-borders procurement that started in September 2005 followed several years of development. During this time the programme's scope was progressively extended, partly in pursuit of wider government benefits. It evolved to include:

- the maritime and rail industries, as well as smaller-scale general aviation and general maritime carriers;
- advance information on passengers leaving the UK as well as entering it;
- checking advance passenger information in sufficient time to prevent high-risk travellers from starting their journey to or from the UK; and
- sharing of data on travellers with other government departments, such as HM Revenue & Customs, the Department for Work & Pensions, the Department of Health and the police, to capture wider benefits, such as financial savings and arrests of wanted persons.

**2.4** As expanded, the e-borders vision was unique internationally. The 2007 business case noted border systems in several countries, citing the USA and Australia as the most mature comparators. However, neither country's system then captured and analysed rail and ferry passenger data, or had freedom of movement legislation equivalent to the European Union's, and both dealt mainly with long-haul flights, which give more time for processing and analysing advance passenger information. The business case did not draw conclusions from this comparison about implications for achievability.

**2.5** The Department took prudent steps to establish that the core functions of e-borders were technically deliverable. It received advice that the proposed system was based on an appropriate model, with most components available 'off the shelf'. In December 2004 with IBM it began the semaphore pilot, which by early 2006 had demonstrated that it was possible to capture passport details and transfer them from air carriers for analysis at a targeting centre. The semaphore pilot quickly yielded tangible successes such as arrests of criminals passing through airports. It did not, however, test and provide equivalent assurance across the full e-borders requirement, particularly in areas of later difficulty such as:

- rail and maritime movements, where carriers did not routinely capture passenger names and identification details before travel;
- interfaces with both the Department's and other government agencies' information systems, and the extent of system changes required of those other bodies;
- how to handle booking information; and
- technical and legal challenges that would emerge from demanding passenger data across a much wider range of air carriers, system interfaces and routes than the UK-based scheduled carriers, such as British Airways, which had been involved in semaphore.

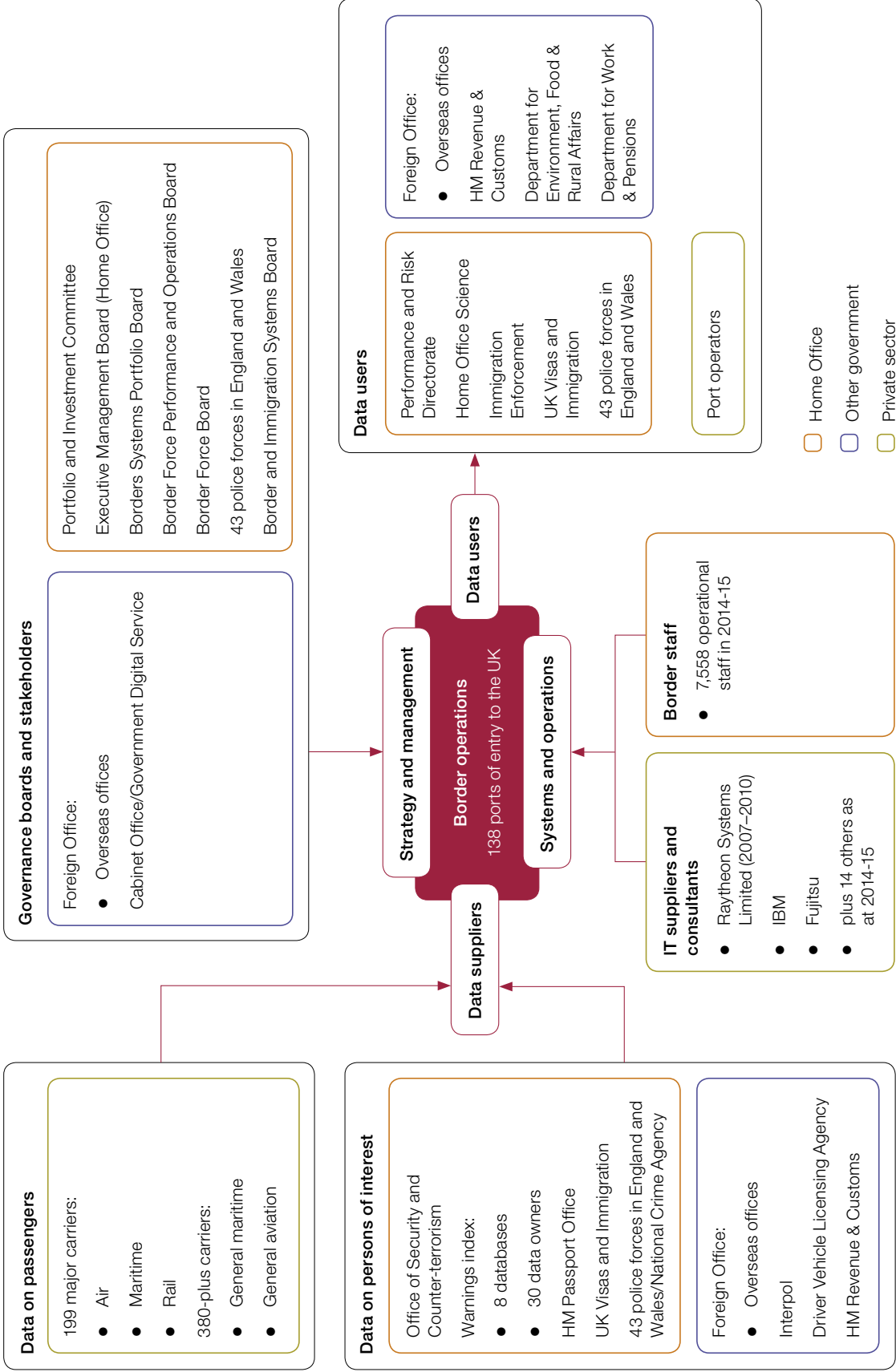
**2.6** Official reviews of the semaphore pilot noted that the timescales for procuring e-borders did not leave sufficient time to feed in all the lessons potentially derived from its later trials.

### Consequences of such a broad programme

**2.7** Senior officials told us that they had understood that the programme was ambitious. They also cited efforts to reduce the scope of the programme before the contract was awarded. But it does not appear that they had fully appreciated the multiple challenges and risks inherent in such a broad programme spanning different travel industries and with so many diverse carriers and government bodies with varied systems (**Figure 8**). Programme records indicate that Raytheon would have to link e-borders with the systems of:

- at least 159 major air carriers;
- 134 maritime carriers; and
- over 380 small carriers in the general aviation and general maritime sectors.

**Figure 8**  
Border system stakeholders



Source: National Audit Office analysis

**2.8** The Department's business case for e-borders rested mainly on non-financial benefits to national security, which are more challenging to quantify. The business case was approved on the basis of an overall net financial cost. It identified £884 million of costs to government partly offset by £314 million of benefits, lying mainly with other government departments. Some of these benefits subsequently proved unobtainable. For example, the Department for Work & Pensions was expected to save £181 million through identifying and stopping benefit payments to individuals living abroad, but policy and legal constraints over sharing such data between agencies prevented this. Reviews at the time noted that erosion of financial benefits put additional pressure on the programme to demonstrate value for money.

### **Inadequate management of external stakeholder relationships**

**2.9** Achieving the e-borders vision depended crucially on obtaining the cooperation of air, rail and ferry carriers. The contract required and incentivised Raytheon to link carriers' electronic systems, to a tight schedule, so that these could pass data to e-borders in the format required. At the same time Raytheon was required to treat carriers equitably and minimise burdens related to compliance. Carriers raised two main issues with supplying data: first the burden on their costs and their passengers; and second whether requiring data from passengers was consistent with European law and with data protection rules in each country of departure.

#### Controlling burdens on carriers

**2.10** As it began to implement the programme, Raytheon encountered increasing difficulties with air carriers, particularly those operating from Germany, France, Ireland and Italy. Contemporary programme reports noted insufficient timely engagement by Raytheon with carriers, who felt that their views were not being heard and that there was too much focus on security and not enough on the effects on passengers or carrier costs. Crucially, air carriers considered that Raytheon had tried to impose a standard interface on very diverse systems. Raytheon told us that it had provided the interfaces it had contracted for with the Department. It considers that carriers were resistant primarily to the programme rather than as a result of any shortcomings in its engagement. By 2009 carriers estimated that the costs to the industry of supporting e-borders would be some £100 million a year, rather than the less than £5 million claimed by the Department in 2006.

**2.11** One example of the types of dispute that arose between Raytheon and the Department regarding stakeholder management during this period concerned the carrier-by-carrier roll-out of e-borders agreed in the contract. This involved connecting complete airlines in succession, an approach that was more economical for Raytheon. Two months after award of the contract it was clear that some carriers strongly demanded country-by-country roll-out, which avoided putting individual airlines at a commercial disadvantage to competitors on the same routes. The Department and Raytheon blamed each other for being unaware of the industry's preference. The roll-out approach was changed and the estimated additional costs were carried forward for later negotiation between the Department and Raytheon.



**2.12** Stakeholder difficulties were most acute with ferry routes. Many of the practical issues faced in collecting ferry data were unresolved when the contract with Raytheon was terminated in 2010. As early as 2005, the UK Chamber of Shipping, on behalf of the UK shipping industry, highlighted the need for specific solutions for ferries, where most passengers were not booked individually as in aircraft, but were counted as groups travelling within a registered vehicle. Many passengers also turn up and travel without advance booking on ferry routes. The Department responded positively by establishing carrier and port liaison teams, which worked with industry representatives from 2006 to early 2007 to look at challenges and broad solutions. However, after award of the contract, ferry carriers expressed serious concern at the lack of provision in the contract for vehicle-based passengers and that the useful work previously done had been lost. Raytheon considers that the Department had been responsible for identifying the requirements of ferry carriers before award of the contract and that Raytheon, like other bidders at that stage, had received only limited direct interaction with the industry.

### Confirming legality

**2.13** Again as early as 2005, the UK Chamber of Shipping questioned the legality of requiring passenger data for travel to and from European ports. We reviewed documents from as early as 2003 that suggest the Department was aware of potential obstacles to collecting passenger data in Europe. Former officials told us that they had expected greater consistency with the USA to drive expanded and improved data collection over time, and had anticipated that obstacles along the way could be overcome. They noted that coverage has increased through continued negotiations and persuasion with carriers. Internal legal advice given in 2005 suggested that data could be collected, and no substantive response to mitigate the risks was put in place until 2009. Programme managers acknowledged to us that with hindsight more should have been done to evaluate these risks. As a result, when the Department signed the e-borders contract in late 2007 the business case still included no specific acknowledgement of these legal constraints. Publicly the Department continued to express confidence that its proposals were lawful and acceptable to the European Commission and to national data protection authorities. We have found no evidence that it had verified these assumptions. It first commissioned specialist external advice on these matters in April 2010.

**2.14** Against this background in April 2008 the UK Chamber of Shipping requested the European Commission's opinion on whether the UK could require the supply of passenger data. The Commission's opinion in December 2009, which the Department does not fully agree with, concluded that requesting advance passport data for travel within the EU would be legal as long as:

- the member state of the carrier processing the data accepted the UK's need for the information; and
- EU citizens exercising their rights to freedom of movement would not be prevented from travelling if they declined to provide passport information in advance.

The Commission did not give an opinion on the legality of collecting booking data within the EU as the Department gave assurances that it would not collect such booking data until EU legislation had been adopted. Carriers expressed discontent that they had invested in data collection that might be unlawful, and raised concerns over the need for further modifications of their data systems. The Department and Raytheon continued to dispute these issues of who was to blame for stakeholder mismanagement, though the arbitration ruling in 2014 did not attribute responsibility to either party.

### Impact on the e-borders vision

**2.15** Despite these difficulties, many carriers continued to connect their systems to e-borders and provided data for some, if not all, of their routes over the period, producing an upward trend in data collection to the levels achieved by 2010 (Figure 3). However, stakeholder issues led to several compromises against the original vision for e-borders, including:

- The Department not collecting booking data, beyond passport data, for intra-EU travel.
- No EU citizen or family member would be prevented from travelling because they had not provided data.
- Raytheon's contractual obligation to capture 100 million recorded movements by April 2009 was reduced to 89 million, largely because German-based airlines did not provide passenger data, to remain compliant with their national data protection standards.
- Where airline carriers identified difficulties supplying data, the Department reduced the number of times data was supplied from two to one. In these cases carriers passed data to e-borders once the aircraft had departed, rather than at check-in, reducing the time available to analyse and respond to it. This would be a more critical constraint for short-haul flights.
- The Department agreed to additional technical interfaces that airlines could use to link to the e-borders system, leaving the cost implications to be negotiated between Raytheon and the Department.

## **Time and resource pressures on leadership and key decisions**

### Timescales and costs

**2.16** The e-borders programme was developed against the backdrop of the July 2005 London bombings and the award of the 2012 Olympic and Paralympic Games to London. The Department felt it was necessary to be ambitious on scope and timescale to get the maximum improvement in border security in place by mid-2011. The time pressure translated into a series of specific ministerial commitments announced in 2005-06, which the Department was determined to meet. These commitments coincided with a challenging period for the Department when its immigration functions had been described by the Home Secretary as “not fit for purpose”. Ministerial commitments required the e-borders system to handle 60% of passenger movements across the UK border by 2009, and 95% by the end of 2010, respectively two and three years after the contract was awarded in November 2007. The pressure of meeting these commitments increased over time, particularly as procurement took eight months longer to complete than originally expected.

**2.17** The Department’s assessment of competing bidders placed emphasis on bidders’ readiness to meet the requirement to deliver a working system by 2010. By mid-2007 the competition shortlist had reduced to two bidders: Raytheon and BT Emblem. Each bid included major companies. Raytheon’s bid included many suppliers with extensive UK public sector experience. BT Emblem’s bid brought previous experience with the police sector, HM Revenue & Customs and the semaphore system.

**2.18** In the final stages of procurement in late 2007, BT Emblem challenged the extent of delivery risk that the Department required. It sought important amendments to the proposed contract, for example by indemnifying BT Emblem against actions or decisions of the Department or carriers. In contrast, Raytheon largely accepted the Department’s proposed contract. Crucially, BT Emblem also set out a much longer timescale for delivery, proposing to complete the project in March 2016, compared with May 2011 as proposed by Raytheon. As a result, Raytheon’s bid scored higher than BT Emblem’s against the Department’s agreed selection criteria for the competition and won the contract. We consider that the difference in bids represented an opportunity for the Department to pause and query the need for longer timescales, but we found no evidence that this was raised for consideration.

**2.19** Before awarding the contract the Department negotiated with the two final bidders to reduce their costs. Both bids were similarly priced and Raytheon won the contract with a fixed price of £681 million.

## Consequences of pressures for programme management

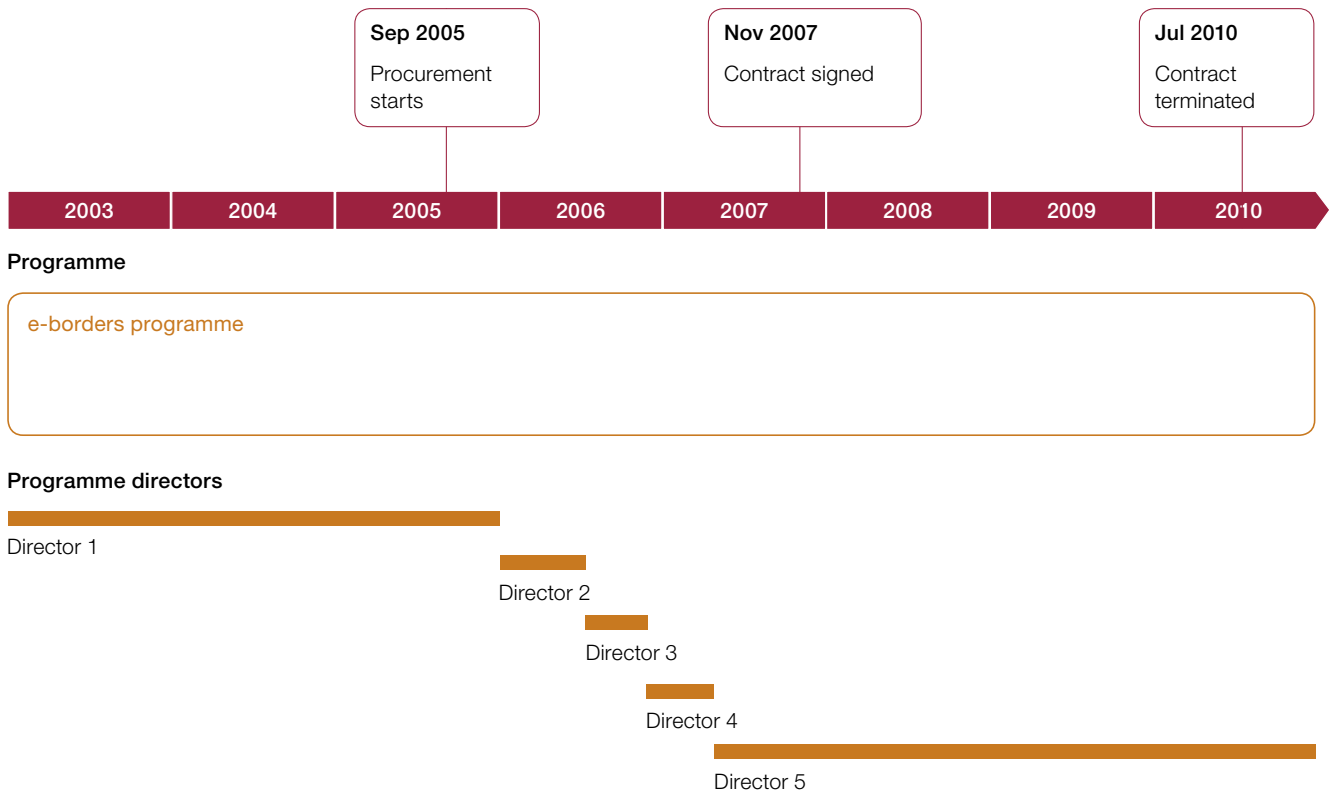
**2.20** The e-borders contract, which the Department considers to have been consistent in approach with a number of government ICT programmes at the time, strongly incentivised Raytheon to keep to the timetable by linking payments to achievement of milestones. Raytheon had agreed to fund the costs of development until milestones were achieved. Our analysis of Raytheon's financial model showed that just three months' delay would halve Raytheon's profit, and that even if all went to plan the contract would not generate a cash surplus until 2012. Raytheon therefore needed to progress design and development to the agreed schedule. Records indicate that Raytheon started design work before it had been awarded the contract, an approach which should not have surprised the Department as this had been revealed through bid evaluation in 2006. As a consequence:

- Design work was done before designers were fully aware of the Department's detailed requirements. Department officials told us that they had expected to work out the detail of requirements after contract award. But Raytheon told us that it had devised a solution which met the contract requirements and that the Department had no rights to further elaborate requirements after contract award. The contract did not define agreed acceptance criteria to enable the parties to agree whether designs were acceptable. Disputes quickly arose.
- The work of Raytheon's sub-contractors was insufficiently integrated, resulting in inconsistencies in the design work.
- Early delays in design work limited the availability of skilled staff to work on later phases.
- Conversely, when later phases started, design work overlapped with earlier work on which it depended.

**2.21** The Department was not well placed to respond to an early wave of designs for rapid approval. External programme reviews had already expressed concern about its ability to staff the team with skilled and experienced people in the time available. With hindsight, programme managers felt that the technical team was under-resourced. The team continued to be overstretched into 2009, and the 112 civil servants employed were supplemented by some 63 external consultants and contractors. At a senior level, these resourcing difficulties were compounded by the level of turnover in leadership. For example, the Department appointed five successive programme directors (including three interims pending permanent appointments) between 2004 and termination of the contract in 2010 (see **Figure 9**), a tendency which continued under subsequent programmes (Part Three).

**Figure 9**

Changes in e-borders programme directors



Source: National Audit Office analysis

**2.22** Underlying the difficulties with programme management was a fundamental disagreement over the Department's role in reviewing and approving Raytheon's designs, and a lack of unambiguous acceptance criteria for the designs. The Department wanted assurance that the designs would ultimately work. Raytheon expected much lighter reviews consisting only of checks that design development was on course, leaving issues to be resolved later; its schedule, embodied in the agreed contract, allowed the Department only three days to review Raytheon's designs and issue its acceptance.

**2.23** Difficulties continued into later phases of e-borders. By November 2008 the Department had raised some 4,700 un-prioritised comments on the design of just one of the four phases of delivery. The parties struggled to work through and prioritise such a lengthy list and the Department withheld its approval of designs while the programme continued to slip. Programme risk registers from mid-2008 clearly show that the first reported problems on e-borders originated with uncertainty over detailed requirements and designs. The Department also had difficulty managing the detailed requirements of other government users, which were in a position to assert their needs but were not meeting the contractual cost. Raytheon highlighted to us the lack of memoranda of understanding that would have helped manage the different demands of user agencies.

## **Growing commercial and contractual differences**

**2.24** Commercial arrangements for e-borders were ill-conceived from the outset given a fixed price contract with high risk transfer to Raytheon. Reviewers at the time noted that such an approach is most appropriate when procuring a commodity, product or service that can be rigorously defined and for which the risks are known and are manageable by the contractor. Neither of these conditions applied to the e-borders programme when the contract was awarded.

**2.25** In the challenging context of time pressures and slow progress, relationships between the Department, Raytheon as prime contractor, and its sub-contractors became still more difficult. Indicators of friction included:

- the absence of a working partnership agreement, envisaged in the contract to encourage cooperative working between the parties;
- the lack of an agreed programme plan which the Department and Raytheon were both confident would deliver a completed system; and
- failure to co-locate the Department's staff with suppliers working on e-borders.

## **Managing emerging issues**

**2.26** As e-borders progressed, significant issues were exposed that had not been highlighted by the Department's due diligence before the contract was signed. These included:

- Not enough professional staff were available within Raytheon from the beginning to ensure the programme progressed as quickly as the Department had expected. Programme managers expressed surprise to us that Raytheon initiated a major public recruitment campaign within days of contract award. Raytheon cited difficulties obtaining timely security clearances for new staff from the Department and considers these delays to be less significant than others to the programme.
- Raytheon's consortium appeared less cohesive to the Department during implementation than it had been during bidding. Raytheon considers the same of the Department.
- Reviewers reported sub-contractors as being kept at arm's-length from the Department and working in isolation. Raytheon paid sub-contractors for their work before it had achieved the milestones that would trigger payment from the Department. By August 2009 Raytheon was forecasting a cash-flow deficit of £160 million against a projection of £75 million. The deficit grew further by the time the contract was terminated. Raytheon denies that problems with its agreements and working arrangements with its sub-contractors were a factor in meeting its obligations to the Department, and likewise considers the Department to have interfered in its management of sub-contractors.

## Managing changes and clarifications

**2.27** In difficult circumstances suppliers have a greater incentive to minimise their costs and realise their entitlements to additional payments from customers. Similarly, customers working within fixed budgets have a greater incentive to resist contract changes that generate additional costs. Raytheon appears to have expected significant income from changed or clarified requirements requested by the Department. But the Department conceded relatively small changes, totalling less than 2% of the £681 million initial contract value. Many other changes, estimated to cost at least £40 million, were left unresolved. These included:

- changing the location of the national targeting centre from the Midlands to Manchester, made at the Department's request to facilitate staffing;
- changed interfaces with the IT systems of other parties, particularly carriers or government agencies;
- provision for handling less structured passenger data such as booking data; and
- capability to provide robustness and disaster recovery in e-borders.

**2.28** The Department and Raytheon frequently disagreed about the hours and rates that would apply to pricing entirely new work not covered by the contract. They also disagreed about the clarity and detail of the Department's original requirements and Raytheon's proposed solution, both of which had been incorporated in the signed contract and which attracted different interpretations.

**2.29** Programme records also indicate underlying issues of mutual incomprehension between the different business cultures of the Department and a US-based contractor more experienced in defence work. For example, the fact that a US-based contractor had to recruit extensively in the UK following award of the contract should not in our view have come as a surprise to the Department. And crucially the parties were separated by different perspectives when interpreting the contract, particularly on the proper role of the Department when approving Raytheon's designs.

## Sustaining progress

**2.30** Despite growing commercial differences the Department and Raytheon agreed to keep up the momentum of work on e-borders, pending an agreement on costs. Raytheon, for example, worked to address its staff shortages by importing staff from the US, at significant additional cost. Both parties learned lessons from the early design phases of e-borders and worked more cooperatively in later phases. Following two amber-rated reviews in 2007, three successive reviews of e-borders during implementation by predecessors of the Major Projects Authority consistently rated delivery confidence for the overall programme as amber-red, suggesting successful delivery of the programme was in doubt with major risks or issues in a number of key areas. Other reviewers were similarly critical. Programme managers we interviewed acknowledged that internal reports on e-borders in this period should have been even more critical in highlighting probable failure, but the prevailing culture inhibited conveying bad news.

## Consequences of commercial differences

**2.31** By mid-2009 commercial differences had accumulated, leading to estimated additional costs of over £88 million, with more costs still to come. The Department and Raytheon began negotiations to reach a revised deal in mid-August 2009, but concluded without agreement at the end of the year. The parties could not close the gap between the Department's offer of £30 million and Raytheon's best offer of £36.5 million, and other contractual and commercial issues remained to be resolved. Each party blamed the other for failure to agree a deal. It is concerning that programme risk assessments throughout implementation made little reference to the accumulation of commercial issues, other than that commercial disagreements might impede the progress of work.

**2.32** In early 2010 the parties discussed restructuring the programme. Proposals included bringing in Fujitsu, the existing supplier of the warnings index and giving the Department a more hands-on role in integrating the work of suppliers and contractors to ensure that the complete system worked. At the same time, external reviewers concluded that the Department was not sufficiently resourced or skilled to integrate systems on the scale required. Raytheon quoted £787 million to deliver the restructured programme but the Department considered this unaffordable and poor value for money since it delivered less than the original proposal at higher cost. Raytheon's view is that the revised cost reflected additional scope and functionality.

**2.33** Against this background the Home Secretary terminated the contract with Raytheon in mid-2010. An internal review by the Department in 2015 concluded that the advice provided to Ministers was based on the best available assessment of potential risks and implications at the time, not just for the Department, but in terms of wider public protection and value for the taxpayer. The review identified scope for clearer recording of the role and authority of individuals and bodies providing input into the contractual decision-making process, and of the basis for decisions taken by Ministers, particularly where these involved significant legal issues. It also recommended wider sharing of lessons from these events across government, now being taken forward. However, it concluded that none of these measures would have changed the decisions taken in any material way.



# Part Three

## Reasons for failure of successor programmes, 2010–2015

**3.1** Part Two evaluated why the Home Office (the Department) failed to deliver the e-borders programme by 2010. This part evaluates three reasons why successor programmes have failed to deliver the e-borders vision between 2010 and 2015. These are:

- wider organisational change and priorities;
- lack of consistency in personnel;
- lack of clear strategy and scope; and
- inability to progress data and programme management issues key to the programme's success.

### **Wider organisational change and priorities**

**3.2** Between 2010 and 2013 border operations within the Department went through organisational change and a number of changes of leadership.<sup>6</sup> The successor programmes are, in 2015, run out of the Department's Border Force directorate. The Border Force was created in March 2012 by removing functions from an arm's-length body, the former UK Border Agency. This restructuring was intended to strengthen departmental oversight, given lost confidence in the information the UK Border Agency was providing to ministers. Immediately following the transfer, the Department identified that it was struggling to manage queuing times at major ports such as Heathrow which, with the Olympic and Paralympic Games starting in July 2012, became a major priority. In the six months before the Olympics the Department deferred upgrades to its systems to maintain stability. Between July 2010 and March 2013 there was also a high turnover of senior officials, with five people responsible in quick succession for running the Border Force. Since March 2013 the same individual has held this role.

<sup>6</sup> For further information on this period see Comptroller and Auditor General, *The Border Force: securing the border*, Session 2013-14, HC 540, National Audit Office, September 2013.

## **Lack of consistency in personnel**

**3.3** The structure of the programme has changed three times since the termination of the e-borders contract (**Figure 10**). The current portfolio structure was introduced in June 2014 following a Major Projects Authority review. The portfolio approach was intended to allow for greater senior focus on elements of the vision, clearer scope and deliverables, and a central function to ensure consistency. The core programme to replace existing systems is now known as the Digital Services at the Border programme.

**3.4** The high turnover of senior staff, identified as a problem under e-borders, has continued. Between 2010 and July 2015, the core programme for replacing existing systems has had three programme directors (**Figure 10**). In the same period there were five senior responsible officers, albeit with some consistency at this senior level as the current head of the Border Force held the senior responsible officer role for the programme after his appointment in March 2013 until June 2014 and now chairs the portfolio established in June 2014.

**3.5** Turnover among junior staff also appears to have been high. We asked the Department for firm data on this, which it has been unable to provide. However, in interviews we carried out in June and July 2015, we found that only 9 of 22 staff we interviewed had been working on the programme before April 2014.

**3.6** The programme has had to rely on a large number of contract staff, particularly in technical roles. In May 2015 over 25% of all those working on the portfolio, and 40% of those working on the core programme, were contract staff. Large numbers of contract staff can stretch management, make knowledge retention more complicated and increase cost.

## **Lack of clear strategy and scope**

### Strategy

**3.7** The Department's e-borders vision has remained largely intact since the e-borders business case, but its strategy for realising it has changed twice since 2010.

**3.8** The initial strategy was to split the e-borders contract into a number of smaller contracts, principally to separate applications (software) from hardware. This would still have seen most changes managed by a single supplier, as they were under the e-borders contract. The Department formally informed the market about this strategy through a prior information notice in December 2012.

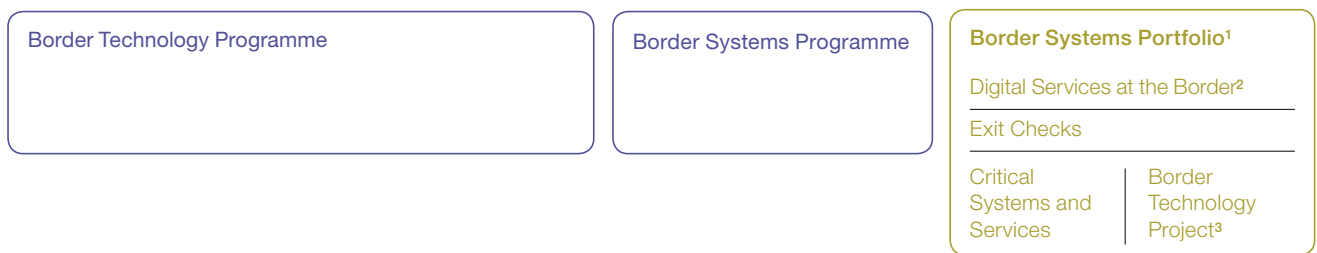
**Figure 10**

Programme changes, capability delivered and leadership turnover since the e-borders period

**Capability delivered**



**Programmes**



**Senior responsible officer (SRO)**



**Programme directors**



**Notes**

- 1 The Cyclamen programme to improve nuclear detection equipment at the border is part of the Border Systems Portfolio, but not within the scope of this report, so is not shown on the diagram.
- 2 Digital Services at the Border is the programme developing the replacement border systems and the senior responsible officers and programme directors from April 2014 correspond to this programme.
- 3 Critical Systems and Services became a smaller project known as the border technology project on 1 April 2015. Some of the work in this programme, such as the development of e-gates, is not within the scope of this report.
- 4 Phase 1 of the Exit Checks programme involved working with ferry and rail carriers to put in place a system to collect, from April 2015, data on their passengers as they left the country. The Department estimates that it now collects passport data on nearly all people leaving the country, compared with 83% of passengers in March 2015.

Source: National Audit Office

**3.9** However, in 2013 the Cabinet Office told the Department that it could not support its proposed approach as it risked repeating many of the mistakes of the e-borders contract. The Department therefore commissioned an options review supported by key stakeholders in the Cabinet Office. This review recommended managing delivery in-house, supported by specialist contractors, rather than procuring from the market. The review argued that an in-house option could be built quickly, leading to the retirement of legacy systems by March 2016 at a cost of less than £70 million. The review anticipated that procuring from the market would take until January 2018 to replace legacy systems, cost £100 million more than an in-house option and provide less functionality.

**3.10** We consider that managing delivery in-house, with appropriate external support, was a sensible step but that the options review was overly optimistic and failed to properly understand the lessons from history. Despite the options review claiming to have put forward an incremental approach, the timeframe for implementation was over 12 months quicker than that agreed with Raytheon and the cost about 80% lower. Furthermore, the Department in early 2014 had very limited experience of managing delivery in-house and the options review did not take proper account of this low base.

**3.11** The Department considers the strategy to have been correct and accepted the recommendations of the options review in February 2014. Its timelines, however, quickly proved to be optimistic. A report by the Major Projects Authority in 2014 highlighted that the Department lacked the digital capability and specialist knowledge it needed to deliver the programme. Although a prototype interface for use at the border was developed in April 2014 this was never integrated into existing systems. It has since been largely abandoned in favour of building an integrated solution from scratch, although some learnings were carried forward. By May 2015 both the Major Projects Authority and the Department's own Portfolio Investment Committee were voicing serious concerns about the prospects for the programme's successful delivery.

**3.12** May 2015 was also when the fifth senior responsible officer since 2010 took over. The Department has since retained the idea of managing the development of a new system in-house but abandoned the rapid development approach of the options review, encouraging the programme to adopt a slower approach instead. We evaluate this in the next part of this report.

## Scope

**3.13** The e-borders programme was passenger-focused and did not extend to freight. With the merging of some customs responsibilities into the Department in April 2008, the Department became more aware of the need, and opportunity, for improved targeting of freight. In 2012, freight was added to the scope of the programme. An initial improvement to freight targeting, covering sea containers, was delivered in April 2014 at a cost of £2 million.

**3.14** Alongside bringing freight within the scope of the programme in 2012, the Department dropped integration between visa and border systems due to the technical complexity involved. In 2010 visa applicants were checked against the warnings index using a manual process. Since 2013, the Department has been working on improving its visa management system through its immigration platform technologies programme. This is being developed using a similar technical specification to that of the current e-borders successor programme. This may facilitate the sharing of data between immigration and border systems in the longer term.

**3.15** In August 2015 the programme took on responsibility for improving data-handling capabilities covering private aircraft and some chartered aircraft, known as general aviation. This is currently at an early stage of planning.

### **Inability to progress issues key to the programme's success**

**3.16** The successor programmes to e-borders have struggled to make progress on both data management and programme management. The first of these is crucial to understanding the vision of the project, the second is crucial to implementing it.

#### Data management

**3.17** Delivery of the e-borders vision relies on obtaining and using data more effectively. Despite this the Department has not focused enough on the completeness, accuracy and timeliness of data, both in operational use and in managing process performance. Our previous reports have consistently highlighted weaknesses within the Department in managing data. For example, our 2013 Border Force report found that out-of-date information stored on the warnings index system was delaying processing of passengers at arrival as officers sometimes need to leave passport control to double-check entries.<sup>7</sup>

**3.18** During the e-borders period, the Department had the capability to “fuzzy-match” data received from carriers, or at the border itself, against persons of interest on the Warnings Index, identifying possible matches and evaluating the quality of the match. In general, though, before 2013 the e-borders programmes and its successors focused on the quantity of advance passport data the Department was collecting and did not consider the quality of the data. We define good quality data as that which is complete, received when needed and accurate.

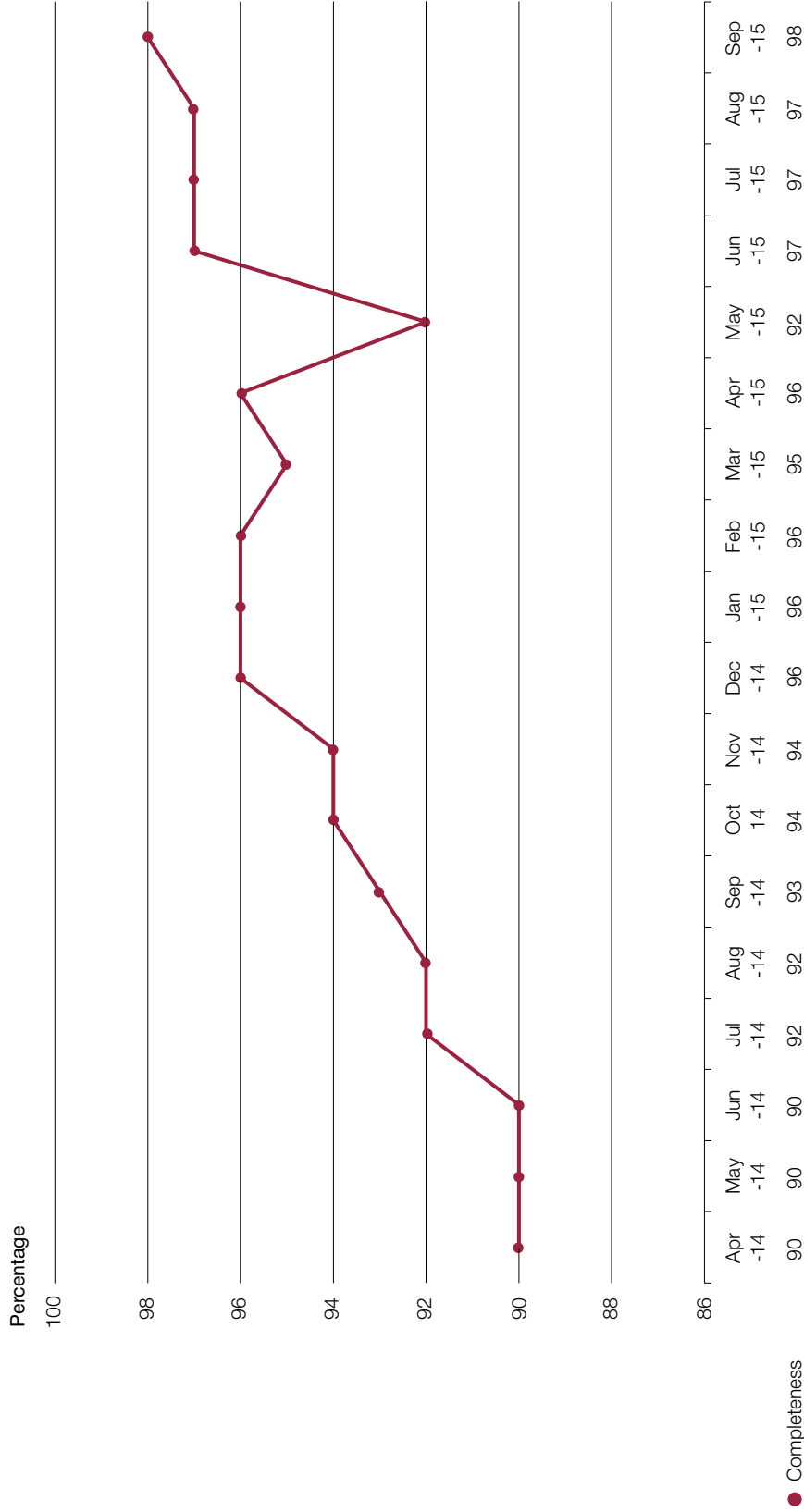
**3.19** Since April 2014 the Department has had measures of the completeness of the data that it receives from carriers. These measures show that performance is good with typically over 90% of the expected data provided by carriers and that this has risen over time (**Figure 11** overleaf).

<sup>7</sup> Comptroller and Auditor General, *The Border Force: securing the border*, Session 2013-14, HC 540, National Audit Office, September 2013.

**Figure 11**

Completeness of passport data, April 2014 to September 2015

The completeness of passport data the Department receives in advance has risen gradually since April 2014



**Notes**

- 1 Completeness is a measure of whether required records for a journey were provided by carriers. It is a sub-set of the coverage data in Figure 3 as it assumes that carriers are connected to the system.
- 2 Results apply to flights inbound to the UK only.

Source: National Audit Office analysis of departmental data

**3.20** However, there are significant weaknesses in the way the Department manages data in general.

- Although the Department has a measure of the timeliness with which airlines provide data, it is poor quality as it measures timeliness relative to a scheduled rather than actual time of departure and is therefore incorrect for flights that take-off early or late.
- Although the Department has some measures of the accuracy of advance passport data, these do not adequately assess whether the person they were told was on the flight actually presented themselves at the border.
- The Department has so far given little attention to measuring the quality of booking data or the data on the warnings index against which passport data is compared. It has plans to look at how it can measure the quality of booking data in the future.
- Although the Department measures the outputs of new capabilities, such as the number of arrests and quantity of seizures (**Figure 12**), it does not measure the effectiveness of the new capabilities. For example, it could not provide us with information on how many people would have been arrested without new capabilities, the impact on arrest numbers of the growth in passenger volumes, and how many people were not arrested that should have been.
- The Department also does not get routine information out of the warnings index on, for example, the number of people who have their passports checked at the border. It also does not have a reliable estimate of the number of people crossing the border who require a visa.

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### Figure 12

Outputs achieved following analysis of data received in advance

	2010	2011	2012	2013	2014
Passengers tracked or stopped and searched on suspicion of carrying illegal commodities	334	477	287	451	798
Passengers tracked or stopped on suspicion of breaching immigration rules	4,187	2,989	2,615	1,775	2,616
Arrests made	2,888	2,696	2,647	3,202	4,750
Drugs seized (kg)	149	210	56	58	56

#### Notes

- 1 Data are normally for a calendar year except for passengers tracked or stopped in 2010, for which the period is May 2010 to December 2010.
- 2 Outputs are the result of a notification being sent to the border from the targeting centre (see Figure 4). Further outputs will arise as a result of action at the border not initiated by the targeting centre.
- 3 Outputs are not necessarily incremental to what would have been achieved without the targeting centre and the Department has not evaluated the incremental benefit of the targeting centre.

Source: Home Office

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**3.21** Overall, we observed a culture within the Department that does not demand or use high-quality data. This has hampered the programme in developing business cases, which have instead had to rely on non-quantified intelligence benefits. In a period of austerity, with the Border Force directorate having undertaken 15% funding cuts since 2011-12, this has made it harder for the programme to secure medium-term funding. It has also meant that a number of building blocks for the programme's success are not in place, making delivery slower and harder. As explained in Part Four, the Department has taken recent steps to improve its data culture.

### Programme management

**3.22** Since 2010 there have been eight reports by the Major Projects Authority, or its predecessor body, on the e-borders and successor programmes. Seven of these reviews were rated red or amber/red, pointing to serious concerns with the deliverability of the programme. We reviewed these and all other major reviews of the programme by external parties and Internal Audit since 2010 and identified consistent themes:

- **Governance:** there was a lack of clarity around roles and responsibilities, and prolonged disagreements over critical issues.
- **Strategy:** overall strategy was often found to be poorly defined.
- **Risk management:** reviews identified issues with tracking and management of risks, and with project resilience, disaster recovery and business continuity capabilities.
- **People:** problems were identified with recruiting and retaining adequately skilled staff.

As late as May 2015 the Major Projects Authority was rating the programme amber-red and finding that the programme management office was not fit for purpose and programme controls were unsatisfactory. Following this, the programme recruited a new head of the programme management office, took steps to improve its governance and controls, and clarified roles and responsibilities within the programme.

**3.23** The consistency of the themes and overall ratings in these reviews point to failings among senior officials in the Department in not putting in place governance and leadership that could progress the programme at pace.



# Part Four

## Prospects for future delivery

**4.1** Based on the 12-year history of the e-borders and successor programmes, we have identified four critical success factors for delivering the programme in future. This part of the report describes recent progress, and highlights where significant risk still exists against each of these factors. The four factors are:

- strategy and approach, where a more realistic incremental strategy is in place but the programme is not yet prioritising projects sufficiently well to benefit from the strategy;
- stakeholder management, where signs are more promising than they have been in the past;
- capability and resourcing, where stronger leadership is in place but stable and embedded processes have not yet been achieved; and
- use of data, where the barriers to success seem most significant.

### Strategy and approach

**4.2** In April 2015 the programme board was clear that, given slow progress for many years, it needed to quickly demonstrate that it could deliver and bring benefit. Following this, the programme worked to develop a slower, more realistic approach and timeframe for implementation. It also sought to integrate its various projects, particularly those looking at freight and passenger movement data, into a coherent programme with clear costs and benefits. This work came together in an updated business case in November 2015 which represents a significant improvement on earlier programme business cases.

**4.3** In interviews in June and July 2015 the Home Office (the Department) told us that it was developing a more modular or incremental strategy to the programme. This seems sensible given the evolving nature of the threat at the border and various demands that could be placed on the programme to respond to this. We are not convinced, however, that the Department's November 2015 business case, and the behaviours we observed in the programme between April 2015 and November 2015, provide a good basis for prioritising projects and implementing this revised strategy. In our opinion, four related factors need to be addressed.

**4.4** First, we are concerned that the programme is trying to deliver too many projects at once. In the period from April 2015 to November 2015, the programme was attempting to develop multiple technical projects, a business case and commercial work. To this was added new work on general aviation in August 2015 (see paragraphs 3.13 to 3.15). Trying to progress so many projects at once is likely to stretch capacity within the programme at both a junior and senior level. Under the new approach outlined to us we would expect to see better awareness of the relative merits of individual projects, leading to greater prioritisation.

**4.5** There are emerging signs of slippage in the timelines for the current programme. In April 2015 the programme agreed a set of targets with the Departmental investment committee for delivery within six months. We observed progress on these in early November 2015 and found that there had been some slippage (**Figure 13**), although programme officials told us that this would not affect overall delivery.

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### Figure 13

#### Digital Services at the Border targets and progress in 2015

##### Target set in April 2015 for delivery in September 2015

Complete initial development stage of technology application that will replace the warnings index.

Continue initial development of the freight targeting applications for ferries and rail. Plan and begin initial development of the freight targeting applications for other forms of freight (two projects – air and fast parcel).

Plan and begin initial development of new tool to integrate with Interpol databases.

Begin delivery of the replacement contract for the warnings index and extend the semaphore contract.

Submit next iteration of the programme business case for approval.

##### Progress as at November 2015

The initial development stage will not now be completed until the end of November 2015.

Development of freight applications changed in the summer of 2015 to a single shared application rather than multiple applications as originally planned. Project is on track.

On track.

Semaphore contract with IBM extended in September 2015.

Preferred bidders for the warnings index replacement contracts are now expected to be announced in February 2016, four months later than targeted in April 2015.

Submitted 2 November 2015.

Source: Targets – programme business case, April 2015, adjusted for programme planning in July 2015. National Audit Office assessment of progress, November 2015

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**4.6** Second, we consider that the level of benefits currently articulated by the programme are smaller than we would expect given the manual nature of current processes and do not facilitate effective prioritisation. The November 2015 business case represents significant progress by the programme in quantifying and agreeing benefits with business owners. However, the programme has still only agreed £47.5 million of benefits, of which only £2.5 million were in the Department's operational functions; the rest will accrue to other departments or wider society. The £2.5 million represents less than 1% of Border Force's current staff costs. The programme has identified further benefits that have yet to be agreed, but even with these the benefits for the Department would still be less than 3% of Border Force's current staff costs. Programme staff have told us that it is doing further work on its benefit expectations.

**4.7** Third, the programme needs to do more work to clearly articulate how the technical capabilities under development will change the way staff work. The November 2015 business case included some emerging narrative on the operational changes planned, but these were not fully developed. Without these it is difficult for the programme to quantify the benefits it can bring.

**4.8** Lastly, although not within the programme's control, more work is needed within the Department to develop a detailed plan, known as a target operating model, for how the Border Force directorate as a whole will operate in the future. This plan will help the programme identify the areas of business change that have highest priority more widely and the most important technical capabilities that it needs to develop. The Border Force directorate began developing such a plan in July 2015 but had to pause this work to focus on the 2015 Spending Review. The risk now is that the Spending Review constrains the capital available to, and benefits required from, the programme without sufficient consideration of how best to tackle the evolving nature of the threat faced at the border. In our 2013 report on the Border Force we commented on the length of time it was taking to finalise its target operating model.<sup>8</sup>

## **Stakeholder management**

**4.9** Stakeholder management has got no simpler since the e-borders period but there are signs that the programmes are doing better recently. Since the cancellation of e-borders in 2010, the Department has operated with a team of people to liaise with plane, ferry and rail carriers. The Department has also been more careful in explaining the benefits of the programme to carriers, emphasising security rather than commercial benefits. We met with representatives of carriers and they agreed that relationships with the Department had improved, albeit from a low base.

<sup>8</sup> Comptroller and Auditor General, *The Border Force: securing the border*, Session 2013-14, HC 540, National Audit Office, September 2013.

**4.10** The introduction of the Exit Checks programme in April 2015 demonstrates that the Department's stakeholder management has improved. For this programme to succeed, train and ferry carriers had to invest in their own systems and change their business models. This was completed without major incident, although some carriers told us that the changes had contributed to delays in processing passengers at the border. Some carriers also told us of perceptions of unequal treatment with the Department, in their opinion, requiring their competitors to make less-costly changes to their business model than them.

**4.11** Looking forward, the Department will need to closely manage its relationship with the new One Government at the Border programme. This started at the end of 2014 under the joint sponsorship of HM Revenue & Customs and the Cabinet Office. It is examining the activities of more than 20 government agencies that have responsibilities at the UK border and identifying opportunities to align or merge policies and procedures. One Government at the Border is in its early stages and is initially focused on freight. However, its overall objectives extend to passengers, which would have implications for the Department's programme.

### **Capability and resourcing**

**4.12** In May 2015 the chief operating officer for the Border Force directorate became senior responsible officer for Digital Services at the Border, the main programme now charged with delivering the e-borders vision. Those we interviewed consistently cited this appointment as a key reason for optimism about future delivery. Since late 2014 the programme has built a leadership team which brings an appropriate mix of experience:

- a senior responsible officer with a background in the Border Force business;
- a programme director with experience of working with key government stakeholders; and
- a portfolio director with experience of delivering technical programmes.

**4.13** Recruitment and retention of sufficient experienced staff within the programme remains a challenge and turnover at a middle and senior level remains high. Recruiting sufficient staff was the second highest risk at the September 2015 programme board (after securing sufficient funding in the government's Spending Review). Recruitment and retention issues had a strong impact on the warnings index replacement project, which operated with only one developer until mid-September 2015 when a group of developers from a major ICT company were brought in.

**4.14** The revised strategy adopted by the programme is in line with techniques and approaches mandated by the Cabinet Office for services going into operation after April 2014.<sup>9</sup> The use of agile and iterative development techniques are relatively new to government. We observed how the Department was implementing these techniques and found that:

- project management and governance had been updated to enable better oversight of the new approach;
- staff with experience of using the new techniques had been brought into the programme; and
- industry-standard tools to plan and record progress had been introduced.

However, at the time of our observations the programme was still embedding these new approaches.

**4.15** In October 2015 the Department's Internal Audit function noted improvements, particularly in governance, risk management and control since an earlier review they had completed in June 2015. However, it still found significant weaknesses in the control framework around communication, change processes and assurance.

**4.16** We were not convinced that senior leadership outside the programme team sufficiently recognised how inexperienced the Department was in using these new techniques. In interviews we were told that the Department could now be confident in delivering new capabilities because it had delivered projects like the warnings index migration and Exit Checks (see paragraphs 1.15 and 1.20). However, these projects were delivered using more traditional techniques and were technically quite different from the current programme.

<sup>9</sup> Government Digital Service, *Digital by Default: Service Standard*, 2015. Available at: [www.gov.uk/service-manual/digital-by-default](http://www.gov.uk/service-manual/digital-by-default) [Accessed: 21 September 2015].

## Use of data

**4.17** A changed culture within the Department in the way data are used is essential if the programme is to succeed. Two relatively recent governance changes may help with this:

- In October 2014, a data stream from within the portfolio was moved to a central departmental team and integrated with the Department's carrier engagement team to better focus expertise. We observed how this had the potential to make changes across the Department through providing common data structures. We also saw how this had led to the development of clearer data definitions for carriers, a portal that facilitates feedback to carriers on data quality, and the potential for fines for failing to provide high-quality data.
- Governance arrangements for data have evolved. A data governance board was established in April 2015 to provide a central forum for deciding on issues of data acquisition, management and quality within the Border Force directorate. This replaced an earlier board, with more limited membership, involving the Office of Security and Counter-Terrorism and national operational functions within Border Force.

**4.18** In addition, the Exit Checks programme (see Figure 10) is now in its second phase and seeking to match the data on people leaving the country with data on those entering so there is a more complete picture of who is, and is not, in the country. This should help target the work of immigration removal staff and enable the Department to prevent those who previously over-stayed their visas from coming to the country again.

**4.19** There is still much for the Department to do. For example, we observed how, in September 2015, there were difficulties within the Department in progressing the development of a new shared database to combine traveller, freight and immigration data and this had become a risk to the timely progress of the programme. We also saw that in replacing the functions of the warnings index, the programme had initially replicated the Department's old system, despite there being significant anecdotal concerns about the quality of data in this legacy system. Unless the Department puts better use of data at the heart of the programme it seems unlikely that it can be sure that the Border Force is making the right decisions and deploying its staff efficiently.

# Appendix One

## Our audit approach

1 This study examined the Home Office's (the Department's) border systems improvement programmes to assess whether they have delivered value for money. We assessed:

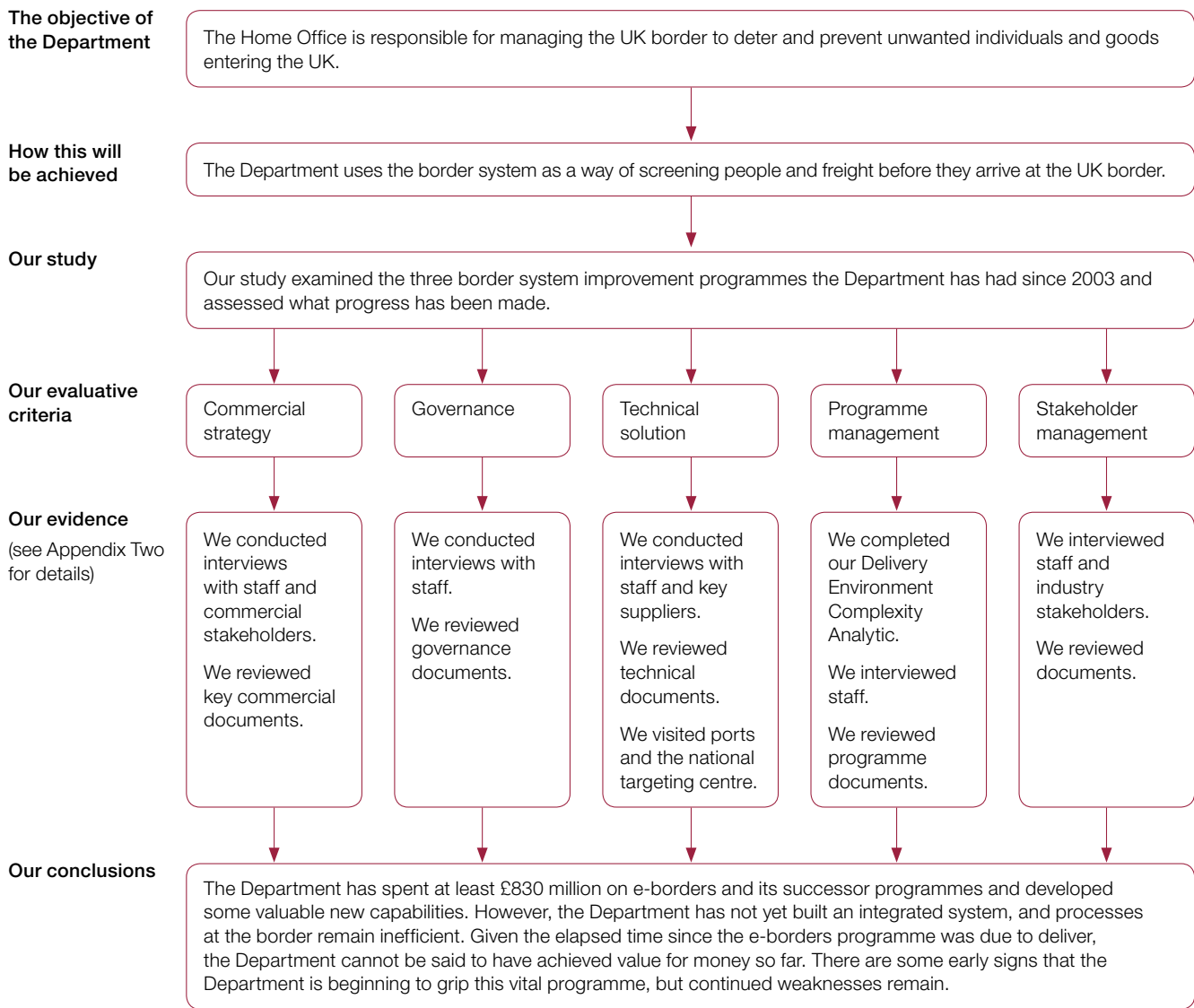
- the reasons why the first programme, known as e-borders, failed to deliver;
- what the Department has achieved since 2010 and whether it has addressed the issues in subsequent border programmes; and
- the Department's prospects for future delivery.

2 Our evaluative criteria focused on five broad categories:

- **Technical solution.** The solution is feasible and aligned to the needs of the Border Force business.
- **Programme management.** The programme has been managed according to good practice principals and appropriate leaders and skills are in place.
- **Governance.** Governance arrangements align with the chosen method of delivery and facilitates effective review and informed decision-making.
- **Commercial strategy.** An appropriate commercial strategy has been adopted that supports delivery of the programme.
- **Stakeholder management.** Key stakeholders have been identified and have contributed to, and understand, the programme's objectives.

3 Our audit approach is summarised in **Figure 14** overleaf. Our evidence base is described in Appendix Two.

**Figure 14**  
Our audit approach



Source: National Audit Office



# Appendix Two

## Our evidence base

**1** We reached our independent conclusions on whether the Home Office (the Department) achieved value for money after analysing evidence between December 2014 and September 2015. Our audit approach is outlined in Appendix One.

**2 We assessed the key learnings from the e-borders programme.**

- We conducted an extensive **document review** of papers produced for the legal arbitration between the Department and the main supplier, Raytheon. We also reviewed programme documentation held by the Department.
- We conducted **semi-structured interviews** with key individuals employed by the Department during the e-borders period. This included individuals who have subsequently left the Department. Raytheon provided a written statement, which we have reviewed.
- We conducted **semi-structured interviews** with representatives from the airline and maritime industry.
- We assessed the e-borders programme against our **Delivery Environment Complexity Analytic** to provide a baseline for assessing the current programme. You can find more details of this analytic on our website.<sup>10</sup>

**3 We assessed what the Department had done since the termination of the e-borders programme and how it has addressed the causes of the e-borders failure.**

- We conducted a **focus group** with senior members of the current border system programme to identify which lessons from the e-borders period were most relevant to the current programme.
- We completed a **document review** of key business documents to assess the progress made since e-borders and how its plans have evolved over time.
- We performed **financial analysis** on the Department's data to assess the total costs of the programme. The Department could not give us data on the period from April 2003 to March 2006 as it no longer holds these data.
- We **analysed** the Department's data on staffing, passenger numbers and targeting centre performance data to understand what has been achieved during this period.

<sup>10</sup> National Audit Office, *The DECA: Understanding challenges in delivering project objectives*, October 2013.

**4 We assessed the Department's prospects for future delivery.**

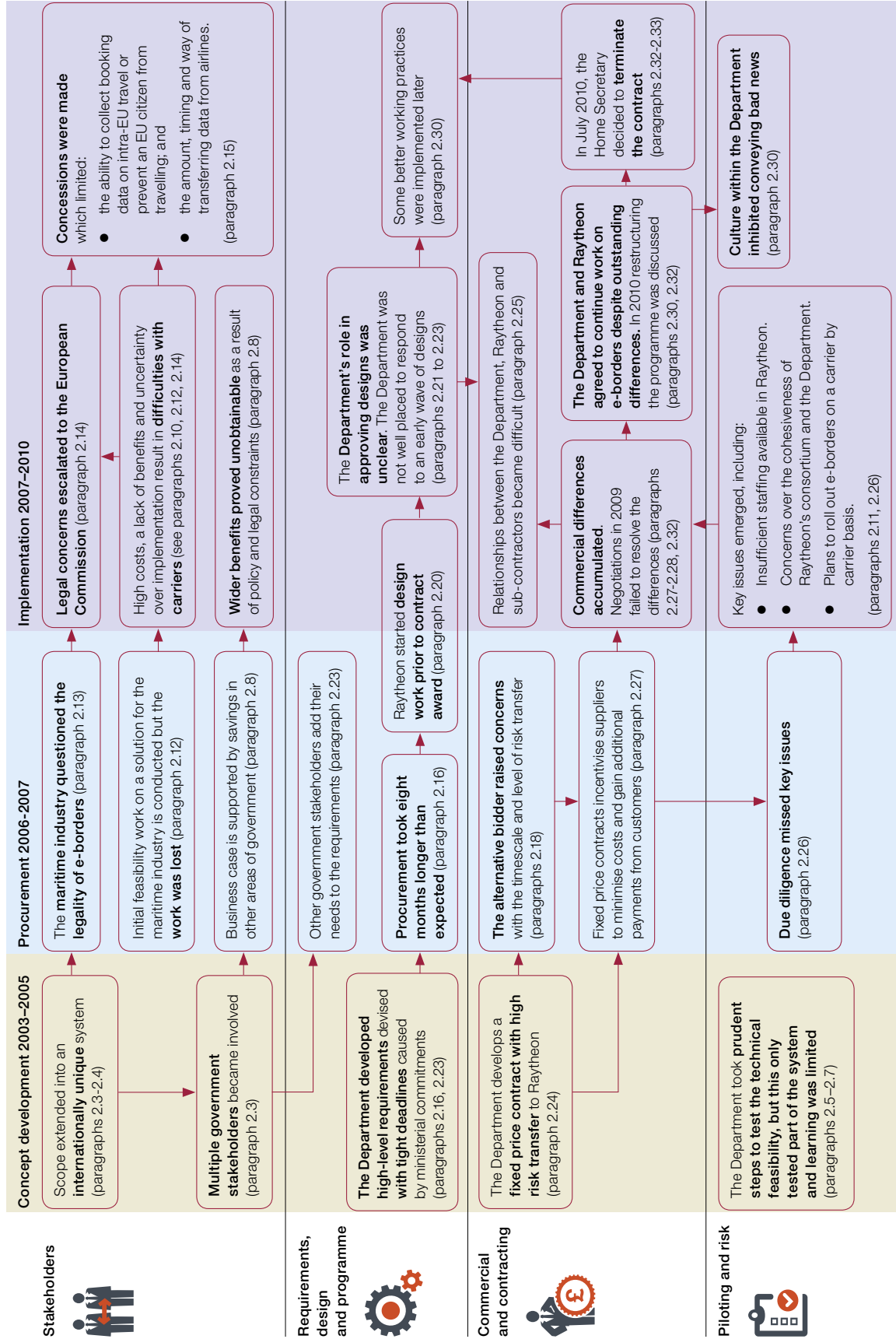
- We **visited** the national border targeting centre, London City Airport, Dover port, Coquelles port and Cheriton port to better understand the current border system and the impact on the airline, rail and maritime industries. We observed exit checks being applied at St Pancras International rail station.
- We conducted a **document review** of the Department's current plans to assess how they have mitigated risks for the e-borders period and how they are managing new risks.
- We completed a **Delivery Environment Complexity Analytic** with the Department to understand the current challenges they face.
- We contacted authorities within the USA, Canada, Australia and New Zealand to understand how the Department's work sits in an **international context**. We also conducted internet and journal reviews of information on border systems in other jurisdictions.
- We observed the November 2014 project assessment reviews, carried out by the Major Projects Authority on the programme. We also **reviewed reports** from all reviews by the Major Projects Authority and its predecessors.

# Appendix Three

Key events and issues from the e-borders period

**Figure 15** overleaf.

**Figure 15**  
Key events and issues encountered by the e-borders programme



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