National Audit Office

Report
by the Comptroller
and Auditor General

Home Office

Digital Services at the Border

HC 1069 SESSION 2019–2021 9 DECEMBER 2020

Key facts

141m

passenger arrivals to the UK in the year to March 2020 (reduced to 103 million in the year to June 2020 due to the coronavirus pandemic)

56

ports where the Home Office (the Department) plans its Border Crossing system will be live from July 2021

£311m

total expected cost to the Home Office of building systems in its Digital Services at the Border (DSAB) programme, 2014-15 to 2021-22

£120 million	was spent by the Home Office on building systems in its DSAB programme up to March 2019 (£79 million less than it had planned)
£191 million	is the amount the Home Office expects to spend completing delivery of systems in its DSAB programme from start April 2019 to end March 2022
1,050	searches per minute required from the watchlist for the new Border Crossing system
36	months is how long the Department has delayed the programme, from end March 2019 to end March 2022
4	senior responsible owners were appointed by the Department for the programme from 2014 to 2019
4 of 5	reviews by the Infrastructure and Projects Authority rating the programme as Amber-Red in the five years 2014 to 2019
298	eGates are currently used at ports of entry to the UK

Summary

1 In 2019-20 there were 141 million passenger arrivals in the UK, with around 40 million being from the European Union (EU). These arrivals included 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 fewer than 30 miles or thousands of miles. Protecting the border at over 270 crossing points and 56 major entry points, controlling migration and cross-border criminality and security, collecting revenues that are due and facilitating the legitimate movement of people and trade is primarily the responsibility of the Home Office (the Department). Border Force, a law enforcement command within the Department, has the lead operational responsibility for securing the UK border by carrying out immigration and customs controls on people and goods entering the UK.

2 In securing the border, government has two overarching objectives:

- *to protect the public* from terrorism, crime, illegal immigration, trafficking and the importation of illegal goods; and
- *to facilitate legitimate movement* of people and goods across the border as quickly as possible, to promote national prosperity.

3 Upgrading or replacing legacy systems and improving information at the border through digital transformation programmes has been an ambition of the Department since the launch of its e-borders programme in 2003. E-borders, due to be delivered in 2011, aimed to improve data collection by improving and automating systems and processes at the border. But in 2010, the Department cancelled its contract to deliver a single e-borders system, citing failure to achieve milestones, as set out in our 2015 report *E-borders and successor programmes*.[1] In 2014, the Department started its Digital Services at the Border programme (the programme), as a new attempt to achieve its objectives by March 2019 through replacing the legacy systems Warnings Index and Semaphore (which are respectively 26 and 16 years old). The Department considers these legacy systems increasingly expensive, difficult to maintain and unfit for the future needs of government.

1 Comptroller and Auditor General, *E-borders and successor programmes*, Session 2015-16, HC 608, National Audit Office, December 2015.

4 The Department intends that the programme will provide UK Border Force staff with better information to make decisions about people crossing the border than current systems. The programme is crucial to delivering the Department's overall objectives for national security at the border. Since 2014, the Department has changed its strategic priorities to support its broader ambition for a digitised immigration system (Future Border and Immigration System, FBIS) and provide the border controls required following the UK's decision to leave the EU. It also needed to accommodate a government change to the classification of security data in its design of systems, as well as an emerging Departmental ambition for improved intelligence, combining passenger and freight data to improve targeting of resources towards areas of higher risk.

5 In 2019, due to these changes, scope creep and poor programme performance, the Department decided to reset the programme, reducing some elements of its scope (and adding new elements) and pushing delivery back to the end of March 2022. The main effect of the reset was to prioritise those elements of the programme required for FBIS after the UK's departure from the EU, with the Department planning to deliver elements of the original programme scope in other ways. The Department's ambition is that successful delivery of its planned reset work, together with other planned improvements to its analysis and use of data, would deliver significant improvements in its capability at the border.

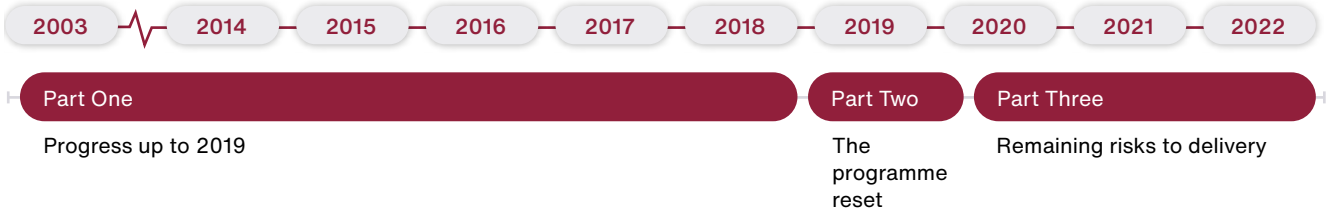
6 This report assesses the Department's progress in delivering the programme (**Figure 1**). It examines:

- progress in achieving the Department's objectives for digitising the border up to 2019;
- the Department's reset of the programme; and
- the remaining risks facing the Department in delivering the programme.

7 Our audit approach is set out in Appendix One. Appendix Two sets out our evidence base.

Figure 1
The border system programmes

How this report assesses the Home Office's progress



Legacy systems currently in use	
Warnings Index	A 26-year-old system maintained by Fujitsu, holds lists of individuals of interest known as a watchlist and is used at the border for checking passengers against.
Semaphore	A 16-year-old system maintained by IBM for analysing advance passenger information provided by carriers.
Freight Tracking System + 35 others	HM Revenue & Customs systems that monitor goods crossing the border.

Digital Services at the Border programme 2014 vision	
Border Crossing	A more advanced, theoretically quicker watchlist to check passengers against.
Advance Border Control	A more advanced and quicker replacement of Semaphore providing analysis of watchlist data to law enforcement and other agencies.
Advanced Freight Targeting Capability	Proposed replacement for Freight Tracking System, aimed at implementing technology to identify and target goods deemed at risk of illegal entry.

Source: National Audit Office

Key findings

Progress in achieving the Department's objectives for digitising the border up to 2019

8 The Department's vision for its digital programmes has been consistent, but it has had difficulties setting a manageable scope and plan to deliver. The Department's vision for the programme was not matched by a realistic implementation plan. The Department faced pressures to increase the scope of the programme since it began in 2014, and it had not clearly defined what the programme was required to deliver. It sought to accommodate changing technologies and new requirements, including a 2014 government change to classification of security data, as well as demand for improved intelligence on areas of risk and better targeting of resources, with insufficient consideration of their impact. The changed requirements also stemmed from the UK's decision to leave the European Union and in 2018 the Department decided that the programme should support a new digitised immigration system and a set of border controls as part of its FBIS (paragraphs 1.9 to 1.11, 1.18 and 2.3).

9 The Department did not deliver the three main systems it planned to its original timetable of March 2019, so spent less than it intended by this date. When the Department started the programme it lacked clear objectives, a timetable for delivery and a budget. From 2014 the Department developed some parts of the required Advanced Freight Targeting Capability and Advance Border Control systems. But by March 2019, it had failed to deliver these new systems as planned, with the pilot Border Crossing (version 0.3) system being the only one of the programme's planned three systems that was in live operation. An expanding scope and lack of clarity over the scope of related projects, such as how the Department would hold data provided by law enforcement and other agencies, impacted delivery of the three main systems. The Department expected to spend £199 million building its new systems, but by March 2019 it had spent £120 million, £79 million less that it had planned (paragraphs 1.12, 1.15, 1.16, 1.19 and 2.3).

10 The Department underestimated the technology requirements of the programme and the capability it needed to deliver them. The programme board received reports of resourcing shortages, particularly of technical staff, eight times in 35 months between July 2015 and May 2018, with the Department categorising programme resourcing risk at the highest possible level in July 2019. It struggled with technical delivery, with its Border Crossing pilot not performing as well as it had planned to the timescales it intended. However, the Department considers that lessons from this pilot are supporting its rollout of Border Crossing. The Department found it complex and expensive to build physical storage centres required to hold Secret level data, following the change to classification of security data introduced in 2014, and by May 2019 this issue also attracted the highest risk-rating category, and had not been resolved (paragraphs 1.14, 1.18, 1.19, 1.23 and 2.11).

11 Until 2019, the Department lacked appropriate oversight, leadership and governance to ensure progress was made and to manage programme risks effectively. Between 2014 and 2019, external reviews and governance boards for the programme identified delivery issues which the Department did not resolve. The Infrastructure and Projects Authority (IPA) rated its confidence in programme delivery as Amber-Red in four of the five years leading up to 2019. Of the risks reported to the programme board from 2014 to June 2019, 26% were rated Black or Red for at least six months, and almost half of these were Black or Red for at least 12 months (paragraph 1.13).

Progress since the Department reset the programme in July 2019

12 In July 2019, the Department decided to reset the programme, extending its delivery timescale by three years and increasing costs. In July 2019, the Department decided to undertake a reset and refocus the programme on its core national security requirement to provide more control over who enters the UK. The reset meant it would continue rolling out its Border Crossing system; stabilise and improve, rather than replace, the Semaphore system; remove the flow of goods from the programme's scope; and run legacy systems for three more years. The total estimated cost of delivering the new systems from 2014-15 to 2021-22 is £311 million. The decision to extend the programme's duration by 36 months to the end of March 2022 added £191 million to the cost of delivering the systems, and the need to keep legacy systems running over this period added a further £145 million, which means that the total cost increase resulting from delayed delivery is £336 million (2019-20 to 2021-22). However, this cost increase is reduced because the Department spent less than planned by March 2019 and it does not start to pay the running costs of the new systems until 2022-23. The Department therefore estimates that the net impact of not delivering to its original timetable of March 2019 is an additional cost of £173 million (paragraphs 2.2, 2.4, 2.6 and 2.9).

13 The Department will not meet all the user needs and requirements it originally planned through the programme by its new end of March 2022 delivery date. The Department had planned that the programme would meet the data requirements of law enforcement organisations and other agencies to enable them to better identify unknown threats. This included tools to apply risk-based checking of people and goods crossing the border. The Department removed this requirement from the programme following the reset and transferred responsibility for delivering it to another Departmental team, which is working with stakeholders to set out the timetable for delivery of this work (paragraph 2.17).

14 The Department is dependent on the delivery of Border Crossing to meet new demands on border management arising from the UK's decision to leave the EU. The Department has additional requirements for its FBIS, as EU passengers from outside the Common Travel Area will need to demonstrate their immigration status when crossing the border. The most significant requirement will be to enable electronic visas, settled status and other status, which will be official digital permissions allowing entry to the UK, to be checked at the border for these passengers. The successful rollout and operation of Border Crossing is a key dependency for the Department's post EU Exit plans (paragraph 2.5).

15 The Department has faced technical challenges but it is now confident it has people with the right skills to deliver the programme. Technical issues affected the availability of the Department's Border Crossing version 0.4 system when it was live from September 2019, causing progressively increased downtime (both planned and unplanned). In December 2019, six out of the seven pilot ports were using it to check fewer than 20% of passengers. In March 2020 the programme board suspended Border Crossing to improve system stability and support. In total it had been available for 54% (84) of the days it was in live operation. As part of the reset, the Department increased the number of technical staff working on the programme. The Department is confident that it now has the technical capability and resources it needs to deliver the programme (paragraphs 2.12 and 2.14).

16 In September 2019, the Department revised its programme governance arrangements to address the oversight and risk management issues it had faced. In May 2019, a Department-commissioned review found that programme leadership had failed to understand the technical requirements of the programme and that staff leading the programme had bred a culture of manipulated communications towards key stakeholders and senior leadership. In September 2019, the programme board became the sole decision-making body and amended its attendee list, to make board discussions more focused on the priority issues, with appropriate stakeholders present to inform decisions. In doing so, the board aimed to improve the clarity of its remit, encourage informed decision-making and clarify authority. However, the Department had not reviewed the management information the board received and how technical delivery was reported and understood across the programme (paragraphs 1.14, 2.19 and 2.20).

The remaining risks facing the Department in delivering the programme

17 Since the Department reset the programme in July 2019, it has amended its approach, changing its scope risk rating in August 2020. The Department has changed its approach to delivering its solution for managing the watchlist of people of interest. Its solution will now replace the old watchlist in two phases rather than one. Recognising this change and, to ensure focus on it, the Department amended its programme scope risk to Red (paragraph 3.2).

18 In August 2020, the Department set a challenging schedule to deliver its new systems by the end of March 2022. Building on work it has done since the reset, the Department has 16 months from December 2020 to introduce its new systems. This includes delivering the more technically complex aspects of the programme, which it has previously struggled with (paragraph 3.6). The Department has already missed some planned dates since reset (paragraph 2.8). The key elements it plans to deliver are:

- **Border Crossing.** Re-introduction on 30 November 2020, with 24/7 service availability from April 2021 and national rollout by mid-June 2021 to all 56 ports covered by the programme. This far exceeds the scale and pace of rollout it achieved with its previous version of Border Crossing, although its approach to rollout has been informed by it (paragraphs 3.7 and 3.8).

- **Upgrading of Semaphore.** The Department has not fully developed a detailed timetable for the modernisation of Semaphore. Its plans are already slipping as its work to move Semaphore to a cloud-based environment and to stabilise the system is delayed (paragraphs 2.7, 2.8 and 3.9).

- **Replacement of the watchlist.** The Department is now planning how it will deliver its long-term watchlist solution. It has decided to introduce a two-phase solution to support its objective to replace Warnings Index by the end of March 2022 (paragraph 3.10).

19 The Department depends on the delivery of other Departmental programmes by 2023-24 to meet its wider objectives at the border. In July 2020, the Department began its Data Futures programme, which includes re-use of work from its earlier development of Advance Border Control. It plans that Data Futures will meet the requirements that it removed in the reset, as well as additional requirements. Until its planned delivery of Data Futures by 2023-24, the Department will mostly have replicated, rather than improved, legacy system functionality (paragraph 3.3).

20 The Department has significant interdependencies to manage with other programmes as well as interdependencies between programme activities. From July 2021, the Department intends to check at the border whether EU passengers have settled status in the UK. From October 2021, it also plans to prevent most people travelling to the UK on an identity card rather than a full passport. To do this, it will need to have Border Crossing in full operation with the ability to check passenger status, otherwise Border Force officers will need to make additional checks on existing systems which might cause disruption and delays. Other interdependencies include, during 2021, upgrading all 298 eGates used at 15 ports: upgrading software, changing connection to the Department-owned network and moving them onto the Border Crossing system. The Department also plans to improve resilience of a Department-owned network at ports through its Port Office Infrastructure programme. This is necessary to enable Border Crossing and eGates to cease using the Warnings Index network by the end of March 2022 (paragraphs 3.11 and 3.12).

21 The Department's engagement of front-line users in developing systems has been limited but is now increasing. The Department's Border Crossing (version 0.4) covered 28% of ports and 11% of all front-line Border Force staff. Border Force officers had been embedded in the programme team during the design and development of the Border Crossing system and have remained so. However, after the Department suspended Border Crossing 0.4 in March 2020, most front-line officers did not receive communications about future plans for the system for several months. In August 2020, the Department re-engaged with users, with some front-line officers attending workshops outlining changes to the system. The Department scheduled for its embedded officers to undertake user testing between 16 and 22 November 2020 before the launch of its latest version of Border Crossing on 30 November 2020. As the Department's suspension of Border Crossing 0.4 demonstrates, releasing a major update presents risks of technical issues and system instability only emerging during live use with limited time to remedy them, but the Department considers that embedding front-line officers in the programme team will help mitigate these risks (paragraphs 2.13, 2.14 and 3.17).

22 Stakeholders depending on the programme's watchlisting services face uncertainty about how and when their requirements will be met. After it reset the programme, the Department developed a new plan for communicating with its stakeholders. However, we found that the majority of law enforcement stakeholders depending on the programme's watchlisting services remained unclear about how and when their requirements would be met. Furthermore, together with partners across law enforcement and government, the Department has yet to work through the implications for the programme's stakeholders of not using the Schengen Information System II (SIS II), the most widely used information sharing system for security and border management in Europe, to which it may not have access after the end of transition following EU Exit. If an agreement with the EU cannot be reached about participating in SIS II, the Department intends to use Interpol channels to exchange information with EU member states, alongside other bilateral channels (paragraphs 3.2 and 3.16).

23 Since March 2020, board and external reviewer confidence about programme delivery has increased, but significant risks remain. In June 2020, IPA increased its delivery confidence to Amber from Amber-Red in February 2020. It reported that, since February, significant progress had been made, with the leadership team and delivery capability strengthened dramatically. It observed that the issues and challenges facing the programme were well understood and being addressed. It also observed that significant risks and uncertainties remained including: development capability; Border Crossing service availability; and delivering secure software, servers, storage and networking. Given the past shortcomings with the Department's oversight and management of the programme (paragraph 11), it is of particular importance for the Department to sustain developments in its ability to track progress, including keeping sight of how the remaining risks are managed, and to understand the performance of the many systems that comprise the programme (paragraphs 3.18 and 3.19).

Conclusion on value for money

24 Between 2014 and 2019, the Department did not achieve value for money against its plans to deliver the Digital Services at the Border programme. As a result of both internal and external factors, the Department did not deliver the programme by its original timetable of March 2019, with only one of the programme's planned three systems (Border Crossing) in live operation at that point. These difficulties meant that the Department had to continue using legacy systems which are increasingly expensive and difficult to maintain and delayed its objective of giving UK Border Force officers better information with which to make decisions about people crossing the border.

25 The Department's decision in July 2019 to reset the programme provides it with a clearer focus on Border Crossing and offers a more realistic delivery plan. Since March 2020, board and external reviewer confidence about programme delivery has also increased. The Department has strengthened the programme's governance, leadership and delivery capability, better understands the challenges it faces and is working to address them. But the reset decision has extended the programme's delivery timescale by three years and the additional cost to the taxpayer of not delivering to its original timetable is £173 million. The Department is re-using some work done prior to reset but has missed some post-reset milestones, has only recently re-engaged with users, needs to complete the more technically complex aspects of the programme and must manage multiple key dependencies. Therefore, the Department still faces significant risks in delivering and integrating its new systems against a challenging timetable. And there are wider risks to value for money if it cannot successfully integrate Border Crossing, Semaphore changes and other interdependent programmes in order to deliver its ambitions for the digital border as a practical reality.

Recommendations

26 The Department should:

a build on the recent progress the programme board has made in understanding risks, and its tracking of progress, to set up ways of working in line with the scale and pace of implementation it now requires to deliver the programme. This should include ensuring that feedback mechanisms with front-line users allow it to respond rapidly to their views;

b check and plan for the implications of its mitigation actions if key elements of the programme are not ready or working effectively to the timescales it requires;

c continue to monitor its technical capability and skills to deliver the programme during rollout and urgently rectify any key shortfalls it identifies;

d set out and monitor the dependencies between the programme and the delivery and performance of other, related activities, and the consequences of further delay upon the benefits it expects to realise from the new systems; and

e analyse the key dependencies the programme has with other Home Office systems, both current and planned, and set out its high-level plans for managing the time and functionality dependencies between programmes.