



National Audit Office

Report

by the Comptroller
and Auditor General

Cross-government

Challenges in using data across government

Foreword

The safe and appropriate use of data is an increasingly important challenge for government. Greater use of technology, the proliferation of data and analytical techniques, and better awareness of their risks, have led to a widespread debate over how to manage data in the modern world. Many organisations in the UK are now contributing to better understanding the legal or ethical implications of using data, and this is a critical requirement for establishing public trust.

But the challenge for government's use of data goes beyond concerns about trust and security. Getting the right data in the right place at the right time is a fundamental driver of value for money in government: making services work for the people who use them, improving government's systems and processes, and supporting better decisions. And the steps government needs to take to use data effectively are as much about good management, governance and planning within its existing activities, as they are about learning to work with new technologies. The current focus on the legal and ethical obligations of using data is also an important opportunity for government to tackle these longstanding challenges in how it manages information.

The National Audit Office has reported time and again on the importance of well-informed decisions in government programmes and services. For example, the quality and availability of data in informing decisions has been an issue identified in our recent work on Windrush and Carer's Allowance.^{1,2}

This report sets out what government needs to do with its data to improve services for citizens, the way systems operate and support better decisions. It draws on our previous work, and the main issues that we believe will help government to use and exchange data and information safely and effectively.

Some aspects of data and technology are widely discussed, including the role of open data, new opportunities such as artificial intelligence (AI) and the challenges of protecting information and privacy. But outside of departments' data experts there is insufficient recognition of the importance of data.

1 Comptroller and Auditor General, *Handling of the Windrush situation*, Session 2017–2019, HC 1622, National Audit Office, December 2018.

2 Comptroller and Auditor General, *Investigation into overpayments of Carer's Allowance*, Session 2017–2019, HC 2103, National Audit Office, April 2019.

There are three substantive issues:

- **Data is not always seen as a priority.** Our report on planning and spending across government highlighted the challenges for government in making long-term cross-government investments, and the quality and sharing of data is a clear example of a neglected and poorly planned activity. If government is serious about data being one of its most important assets, it is long overdue a balance sheet review.³
- **The quality of data is not well understood.** Government has pursued the benefits of better use of data but new initiatives often expose the poor quality of the data itself. Good data is not a 'free good' and government needs a structured approach to investing in improving and using data.
- **There is a culture of tolerating and working around poor-quality data.** Evidence-based decision-making is a necessary condition for achieving value for money in public spending. And government needs to develop the capability, leadership and culture to support sustained improvement in the quality of information available.

This report aims to support efforts so far, and those working to make data in government better.

³ Comptroller and Auditor General, *Improving government's planning and spending framework*, Session 2017–2019, HC 1679, National Audit Office, November 2018.

Summary

1 Data is crucial to the way government delivers services for citizens, improves its own systems and processes, and makes decisions. Our work has repeatedly highlighted the importance of evidence-based decision-making at all levels of government activity, and the problems that arise when data is inadequate (**Figure 1**).

2 Government recognises the value of using data more effectively, and the importance of ensuring security and public trust in how it is used. In its 2017 digital strategy, it stated that it would “...take the actions needed to make the UK a world-leading data-driven economy, where data fuels economic and social opportunities for everyone, and where people can trust that their data is being used appropriately”. It plans to produce a new national data strategy in 2020 to position “the UK as a global leader on data, working collaboratively and openly across government”.

3 To achieve its ambitions government will need to resolve fundamental challenges around how to use and share data safely and appropriately, and how to balance competing demands on public resources in a way that allows for sustained but proportionate investment in data. The future national data strategy provides the government with an opportunity to do this, building on the renewed interest and focus on the use of data within government and beyond.

Our report

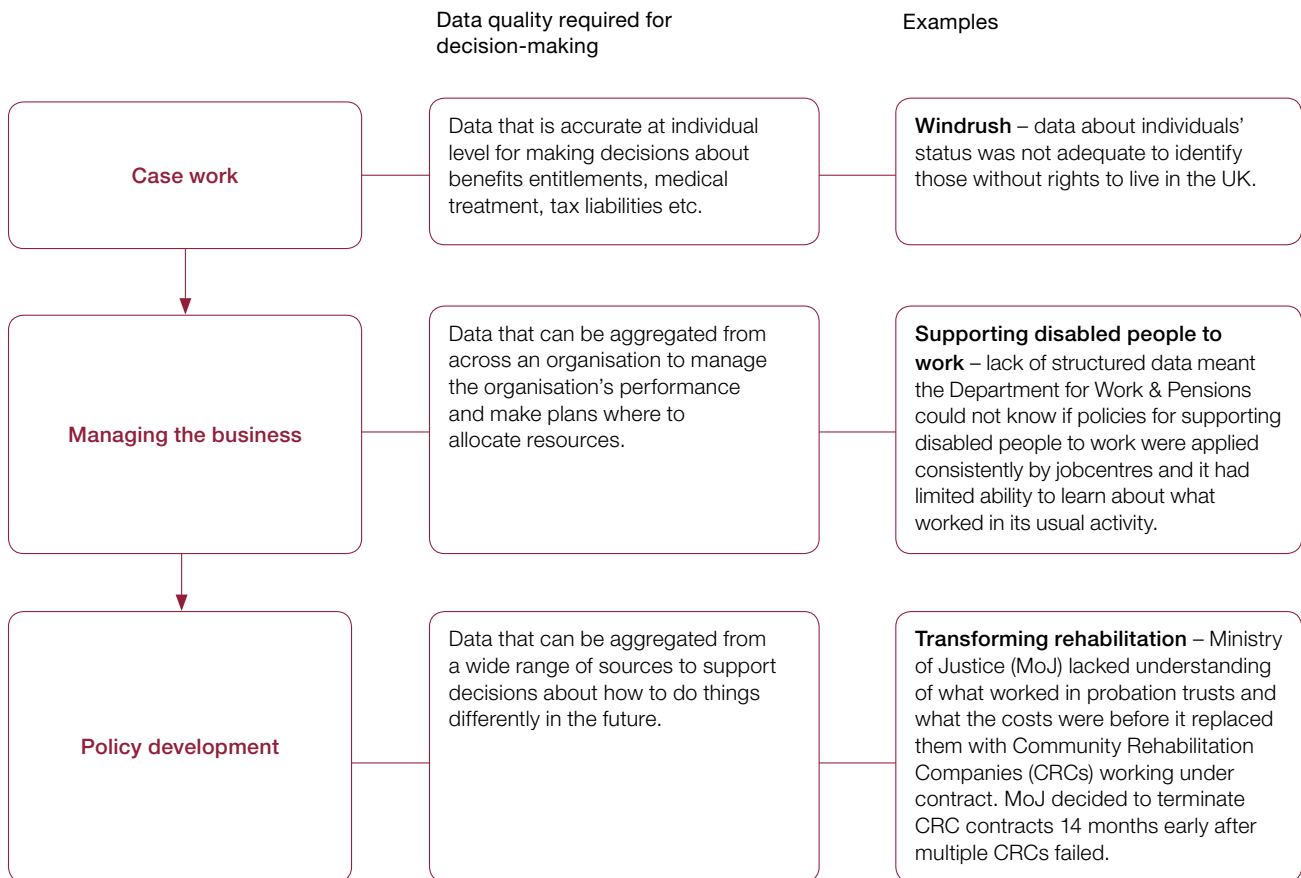
4 This report sets out the National Audit Office’s experience of data across government, including initial efforts to start to address the issues. From our past work we have identified three areas where government needs to establish the pre-conditions for success: clear strategy and leadership; a coherent infrastructure for managing data; and broader enablers to safeguard and support the better use of data (**Figure 2** on page 8). In this report we consider:

- the current data landscape across government (Part One);
- how government needs a clear plan and leadership to improve its use of data (Part Two);
- the quality, standards and systems needed to use data effectively (Part Three); and
- wider conditions and enablers for success (Part Four).

Figure 1

Decision-making and data quality

Problems arise when data is not adequate

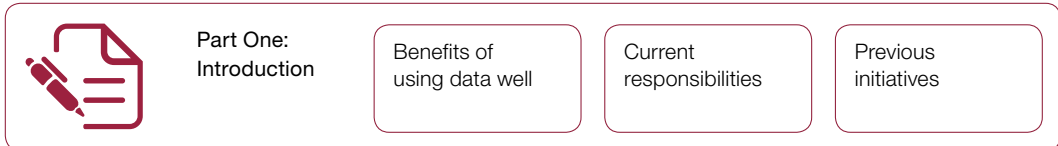


Source: Comptroller and Auditor General, *Handling of the Windrush situation*, Session 2017–2019, HC 1622, National Audit Office, December 2018. Comptroller and Auditor General, *Supporting disabled people to work*, Session 2017–2019, HC 1991, National Audit Office, March 2019. Comptroller and Auditor General, *Transforming Rehabilitation*, Session 2015–16, HC 951, National Audit Office, April 2016

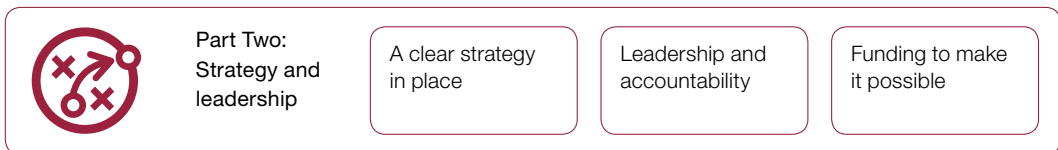
Figure 2

Principles for government and its service providers for successful use of data

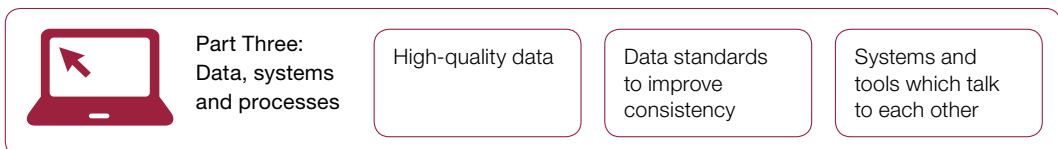
1 Understand the current landscape



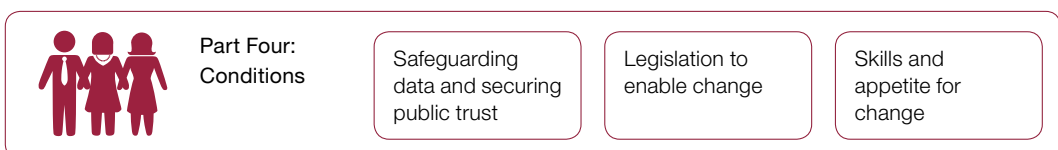
2 Have a clear understanding of what it is trying to achieve



3 Have the infrastructure in place to make it work



4 Have the conditions in place to make it work



5 We have focused our review on the use of data to support delivery of public services, but many of our findings are equally relevant to data to support decision-making and improve performance, including through research and thematic analysis. Within this context, it is important to ensure that data is used safely, sensitively and appropriately, with proper ethical considerations.

Challenges and barriers

Strategy and leadership

6 Government does not treat data as a strategic asset. The Department for Digital, Culture, Media & Sport (DCMS) is the only department that refers to data as a strategic asset in its 2018 single departmental plan. Five departments of the seven we examined in detail have data strategies, and these were of varying maturity. By contrast, for government property there are long-term funding plans, with publicly available strategies for the whole of government collectively and individual departments (paragraphs 2.2, 2.3 and Appendix 2).

7 There has been a lack of leadership across government. Responsibility for data policy and data ethics sits within DCMS, but it has not made the progress it expected in establishing its leadership or developing the national data strategy, largely because staff were diverted to EU Exit work. The Government Digital Service (GDS) and the Office for National Statistics also have an interest in data policies and provide support to departments. In 2017, the government committed to appointing a new chief data officer for government by 2020. It has not done this yet. The two cross-government groups on data have not met regularly in 2019 (paragraphs 1.7, 1.8, 2.4 to 2.9, Figure 5 and Appendix 3).

8 Funding pressures can inhibit progress on data projects. Data projects have sometimes been set aside when funding is under pressure. There are examples of the government funding projects to automate data feeds, for example the Department for Work & Pensions using HM Revenue & Customs real-time information to support benefit payments. This has the potential to provide benefits, but this has often been driven by new policies rather than fixing ongoing problems (paragraphs 2.3, 2.12 to 2.16, Figure 8 and Appendix 2).

Data, systems and processes

9 Data quality is often inadequate. We commonly find that the effectiveness of programmes is compromised because data quality is poor. For example, the Windrush situation demonstrated the effect of decisions based on poor data. It takes manual effort to make the data usable and to extract the relevant information. This limits the benefits of new policies or systems unless the underlying data quality is improved (paragraphs 3.2, 3.3, 3.6 and Figure 9).

10 A lack of standards across government has led to inconsistent ways of recording the same data. We found more than 20 ways of identifying individuals and businesses across 10 departments and agencies, with no standard format for recording data such as name, address and date of birth. The problem is replicated in local areas where information is recorded differently across local and constitutional boundaries. This makes it difficult for government to maximise its data asset, for example by allowing thematic analysis across different sectors to help understand economic challenges or systemic problems (paragraphs 3.4, 3.13, 3.14 and Figure 10).

11 Legacy systems often only work for the policy they were built for.

Departments have historically developed IT to support specific policy objectives. Even within the same department, data cannot be extracted or shared easily. A lack of common data models and standards within and between departments makes it difficult and costly to combine different sources of data. Some government departments have not always prioritised replacing older technology, but until they do so there will be ongoing costs and inefficiencies in decision-making (paragraphs 3.6 and 3.8 to 3.12).

Conditions

12 The General Data Protection Regulation (GDPR) has heightened citizens' interest on how their data is being used. Government's use of data is shaped by the need to keep it secure. Digital ways of working and risks of criminal attacks on organisations' data mean that keeping data secure has become more important. Data must be handled according to data protection laws and with an appropriate legal basis for sharing. Well-publicised misuse of data has increased concerns and undermined efforts to communicate benefits. Departments' concerns about retaining public trust can discourage them from looking for legal solutions to use data to maximise its potential (paragraphs 1.6, 4.2 to 4.10 and Figure 12).

13 Government has put in place the legislation to make effective and appropriate use of data easier. The Digital Economy Act 2017 provides a legal framework for establishing data-sharing arrangements to support delivery of public services and to help deal with debt and fraud. The Information Commissioner's Office has been consulted by the government to ensure that the codes of practice for the Digital Economy Act comply with GDPR. DCMS has provided support to departments on how to use the Digital Economy Act to support public services, but departments still lack confidence (paragraphs 4.11 to 4.13, 4.20 and Figure 13).

14 Silo working can inhibit progress. There are boundaries between civil servants as well as systems. The Data Advisory Board found that return on investment for a department can often be difficult to justify in data projects because the benefits might be seen elsewhere in government. Sharing data is difficult and may be expensive and ultimately unsuccessful unless organisations understand each other's data needs before they start commissioning technical solutions (paragraphs 4.14, 4.15 and Figure 14).

Concluding remarks

15 Past examples such as Windrush and Carer's Allowance show how important good-quality data is, and the consequences if not used well. Without accurate, timely and proportionate data, government will not be able get the best use out of public money or take the next step towards more sophisticated approaches to using data that can reap real rewards.

16 But despite years of effort and many well-documented failures, government has lacked clear and sustained strategic leadership on data. This has led to departments under-prioritising their own efforts to manage and improve data. There are some early signs that the situation is improving, but unless government uses the data strategy to push a sea change in strategy and leadership, it will not get the right processes, systems and conditions in place to succeed, and this strategy will be yet another missed opportunity.

Recommendations

17 We direct these recommendations at DCMS and the Cabinet Office, who are responsible for drafting the data strategy and for cross-government leadership and coordination. The departments should:

- a Use the data strategy to identify and address the barriers to better use of data.** It should include a clearly articulated plan of work to overcome these barriers. This should provide an assessment of fundamental data issues, including safeguarding data and public trust, and plans for improving the communication of government's approach, and potential benefits of using data more effectively.
- b Set up clear cross-government accountability, governance and funding for data to support delivery of the data strategy.** Joint working and cross-government groups need to have clearly assigned responsibilities that are aligned with the levers available including funding, controls and operational resources. These arrangements should be clearly communicated across government to alleviate confusion of where responsibilities lie.
- c Develop cross-government rules, standards and common ways to collect, store, record and manage data.** Where multiple standards are used, government should develop a consistent approach to balancing competing demands between standardisation and local requirements, including implications for future decision-making and costs. This should include a regular review of departments to ensure that they are applying these standards and principles to their data collection.
- d Identify datasets that are critical to government functions,** look at how to share them easily and examine how they can be enhanced by process improvement and automation. This should include an analysis of the processes, systems and data flows so their use is fully understood.

18 We direct the following recommendations at departments, recognising they are at different levels of maturity. Within this context, departments should:

- e Put in place governance for data,** including improving executive team understanding of the issues associated with their underlying data and the benefits of improving their data.
- f Set out data requirements in business cases.** This should include an assessment of the current state of the data, implications for confidence in spending decisions, and the improvements or new data that are needed to support implementation of the project. These assessments should have an explicit consideration of the ethics and safe use of the data under discussion.
- g Implement guidance for front-line staff for handling data.** This needs to recognise the effort and resource required to fully and consistently adopt the policy and principles created by government into the working practices of the department, including standardisation, data ethics and quality.