



National Audit Office

Report

by the National Audit Office

Over-optimism in government projects

DECEMBER 2013

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Our public audit perspective helps Parliament hold government to account and improve public services.

The National Audit Office scrutinises public spending for Parliament and is independent of government. The Comptroller and Auditor General (C&AG), Amyas Morse, is an Officer of the House of Commons and leads the NAO, which employs some 860 staff. The C&AG certifies the accounts of all government departments and many other public sector bodies. He has statutory authority to examine and report to Parliament on whether departments and the bodies they fund have used their resources efficiently, effectively, and with economy. Our studies evaluate the value for money of public spending, nationally and locally. Our recommendations and reports on good practice help government improve public services, and our work led to audited savings of almost £1.2 billion in 2012.

Foreword

This report looks at a particularly persistent risk management problem – the difficulties caused for government projects by unrealistic expectations and over-optimism.

Initiating projects on the basis of unrealistic assumptions is not new. It is a long-standing problem widely recognised by public sector managers and covered in HM Treasury guidance. Yet all too frequently over-optimism results in the underestimation of the time, costs and risks to delivery and the overestimation of the benefits. It undermines value for money at best, and in the worst case leads to unviable projects.

This does not mean that government should shy away from doing innovative and risky things. But decision-makers need to be confident that investment decisions are based on realistic estimates and assumptions, that there are clear plans for mitigating known risks and that matters about which there is inherent uncertainty have been identified. With a greater level of understanding, government can be creative and seek innovative approaches to delivery.

Government is having to deliver more with fewer resources. It is moving to strengthen project delivery skills and to increase the capacity for independent challenge by bringing non-executives on to departmental boards. We support these actions, but alone they are not enough.

Over-optimism, whether unconscious or deliberate, must be tackled. Decision-makers should be intolerant of optimism bias in the planning and delivery of projects. This is about more than changing processes, although there is considerable scope for improvement. At the heart of the issue are also organisational behaviours and incentives and the strength of personal accountability. Government needs to have a better understanding of how these contribute to over-optimism.

Our back catalogue illustrates the consequences of over-optimism and we have identified some important contributory factors. This document is intended to raise awareness of the issues and prompt discussion and action to address the underlying causes.

The problem

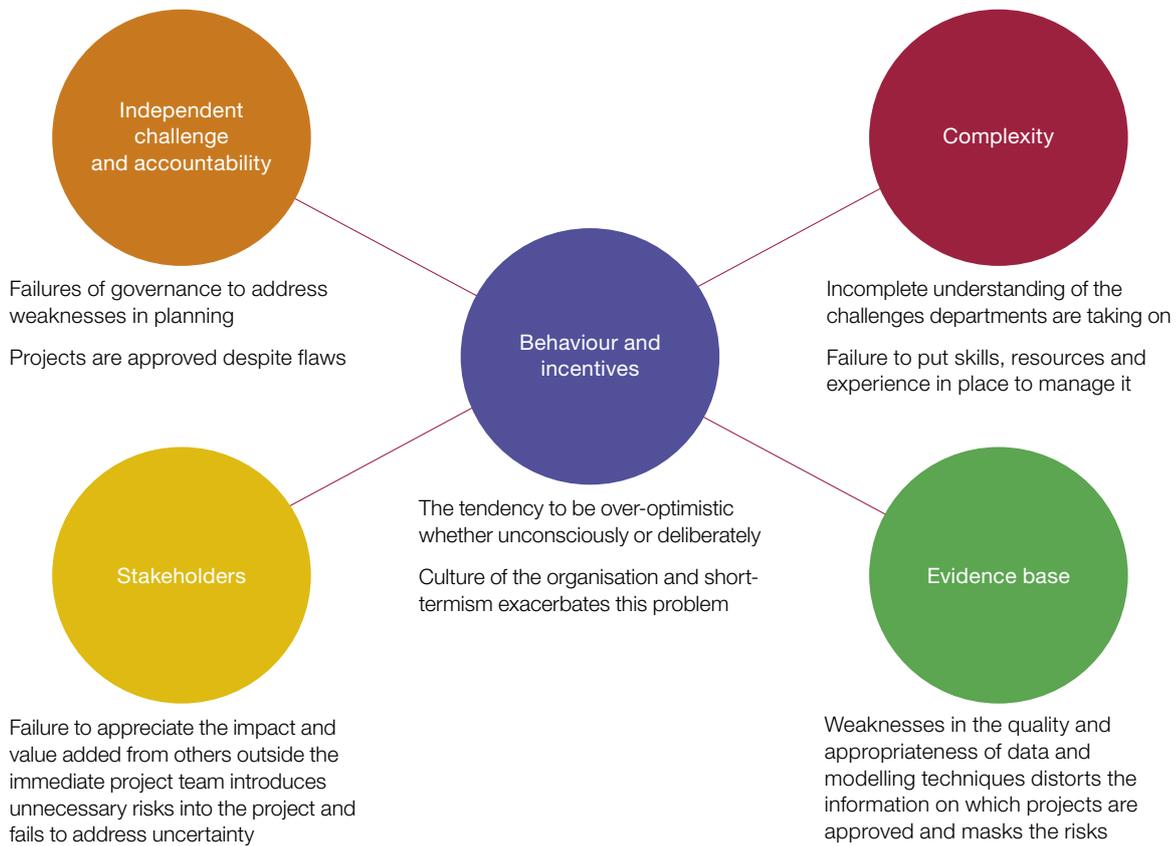
1 Ninety-five per cent of government policies are delivered through major projects. Successful project delivery is therefore essential to government delivering its promises and objectives. The 191 projects in the Government Major Projects Portfolio are, together, worth £354 billion. Yet we frequently report on major projects that fail to deliver the outcomes expected. Historically, the majority of major projects in government have not delivered the anticipated benefits within original time and cost expectations.

2 There are many reasons why projects fail to meet expectations, such as poor project management and the impact of external factors beyond the control of those responsible for the project. However, the challenges of delivering government projects are compounded by the endemic over-optimism which characterises decisions to commit to projects and the subsequent management of them. This undermines the likely success of a project, often leading to substantial cost overruns, delays in completion and failure to deliver the benefits.

3 The Civil Service Reform Plan recognises that the consideration of policy and the practical implementation of it need to be brought together – “too often policy draws from too narrow a range of views and evidence, and does not ensure that policy is capable of practical implementation” and “policy makers should have a clear understanding of what works based on robust evidence”.¹

4 These views are supported by our back catalogue of reports, which clearly illustrate that over-optimism is widespread and has many causes and adverse effects. This report sets out some of the contributory factors: they are neither exhaustive nor mutually exclusive – over-optimism typically has multiple causes (**Figure 1**).

Figure 1
Factors that contribute to over-optimism



Source: National Audit Office analysis

Complexity

5 The tendency to be overly optimistic leads public bodies to underestimate the delivery challenges of what are often complex projects. They may have financial and timing constraints, have multiple stakeholders, be interlinked or relate to other major projects, and be dependent on organisational or citizen behavioural changes.

6 Our back catalogue shows that, in planning projects, government does not always take time to understand the complexity and, as a result, over-estimates its ability to deal with the challenges. Too often, government commits to a 'solution' without fully understanding the context and exploring alternative options to determine which solution matches the real need.

When the Department of Health introduced the **National Programme for IT in the NHS**, the scope, vision and complexity were wider and more extensive than any ongoing or planned healthcare IT programme in the world.² The deployment of systems was complicated by the diverse nature of the NHS organisations and their IT systems and a shortage of skills in project management and IT. In 2011, shortly before the programme was cancelled, we reported that the NHS was getting far fewer systems than planned³ and the Comptroller and Auditor General commented that the Department had fundamentally underestimated the scale and complexity of the programme.⁴

In 2011, we examined the Department of Energy & Climate Change's **preparations for the roll-out of smart meters**.⁵ We highlighted there was very little time contingency before the start of mass roll-out to address the risk that design approvals, procurement and testing take longer than planned, and the need to identify review points before taking decisions that may be irreversible. In May 2013, following consultation with industry and in advance of final procurement decision for data and communications services, the Department put the proposed start date for mass roll-out back from 2014 to autumn 2015 to allow more time to design, build and test the system. The Department also announced that it had decided to move the completion date for the mass roll-out from end of 2019 to end of 2020.

Our work on the successful **Olympic and Paralympic Games** highlighted the value of the work done by the Government Olympic Executive to map the programme interdependencies and coordinate the various elements. Up to 2009, the programme had been characterised by individual organisations focusing on specific elements for which they were responsible such as construction and transport.⁶

² Comptroller and Auditor General, Department of Health: *The National Programme for IT in the NHS*, Session 2005-06, HC 1173, National Audit Office, June 2006.

³ Comptroller and Auditor General, Department of Health: *The National Programme for IT in the NHS: an update on the delivery of detailed care records systems*, Session 2010–2012, HC 888, National Audit Office, May 2011.

⁴ Comment by Amyas Morse, Comptroller and Auditor General of the National Audit Office.

⁵ Comptroller and Auditor General, Department of Energy & Climate Change: *Preparations for the roll-out of Smart Meters*, Session 2010–2012, HC 1091, National Audit Office, June 2011.

⁶ Comptroller and Auditor General, *The London 2012 Olympic Games and Paralympic Games: post-Games review*, Session 2012-13, HC 794, National Audit Office, December 2012.

Evidence base

7 Good decisions are based on having sufficient objective, accurate and timely information on costs, timescales, benefits and risks. Weaknesses in the quality and appropriateness of data and modelling techniques distort the information on which projects are approved and mask the risks. Over-optimism persists where these weaknesses are ignored and little effort is made to either develop robust estimates or be honest and transparent about the assumptions made on limited data.

8 There are numerous examples in our back catalogue of projects being planned and evaluated on poorly thought through data and modelling. Half of our recent reports on major government projects refer specifically to issues with estimating.

In May 2013, we identified a number of issues with the estimates in the business case for **High Speed 2**. At that time, the expected benefits for business travellers were based on data which was over ten years old, and the Department for Transport's model to forecast passenger demand was based on fares charged at a standard rate, rather than a premium rate. Price competition from low-cost airlines and ferry companies was one of the reasons cited for lower-than-expected passenger numbers on High Speed 1.⁷

An arithmetical error in the Department for Communities and Local Government's modelling for the **New Homes Bonus** led to a material overestimation of the impact of the project. When corrected, the model's prediction that around 140,000 new homes would be created was reduced to around 108,000.⁸

The Department for Work & Pensions implemented the **Work Programme** within 12 months, despite similar schemes taking four years. The tight timescales prevented any piloting of the approach, so the Department had no data against which to test its assumptions; for example about likely performance levels with contractors. The Department did not therefore have a good understanding of the realism and deliverability of contractors' bids.⁹

The Department for Communities and Local Government did not adequately test the assumptions underpinning the **Mortgage Rescue Scheme** business case; it failed to make enough use of available information at the outset, and the impact assessment contained very little sensitivity or scenario analysis. As a result, to the end of March 2011, the average cost of each completed rescue was much higher than anticipated: £93,000 compared to £34,000.¹⁰

⁷ Comptroller and Auditor General, Department for Transport: *High Speed 2: A review of early programme preparation*, Session 2013-14, HC 124, National Audit Office, May 2013.

⁸ Comptroller and Auditor General, Department for Communities and Local Government: *The New Homes Bonus*, Session 2012-13, HC 1047, National Audit Office, March 2013.

⁹ Comptroller and Auditor General, Department for Work and Pensions: *The introduction of the Work Programme*, Session 2010-2012, HC 1701, National Audit Office, January 2012.

¹⁰ Comptroller and Auditor General, Department for Communities and Local Government: *The Mortgage Rescue Scheme*, Session 2010-2012, HC 1030, National Audit Office, May 2011.

Stakeholders

9 Successful projects are driven by the effective interaction of organisations and people who often have widely varying aspirations and requirements. The public sector's most common delivery partners are contractors, consultants and devolved delivery bodies such as local authorities and the third sector. But other groups such as citizens, special interest groups and end users can have a significant impact on delivery and delay or derail projects.

10 Understanding the motivations and level of influence of these groups can be crucial to the successful delivery of a project. But, government tends to be over-optimistic about its ability to align the different views and the amount of time it will take to have sufficient engagement, particularly where the project is complex or involves new ways of working. There is a tendency to make assumptions about the behaviours of groups over whom government has no direct control.

One of the causes of the failure of the **FiReControl** project was that it did not have the support from the outset of those essential to its success – the local Fire and Rescue Services. The Department for Communities and Local Government tried to centrally impose a national control system, without having sufficient mandatory powers and without consulting properly with the Fire and Rescue Services. In 2006, the Communities and Local Government Select Committee concluded that the Fire and Rescue Service's opposition posed the greatest risk to the project's success. The project was cancelled in December 2010, seven years after it had begun.¹¹ At least £482 million will have been wasted, with no IT system delivered and as at March 2013, five of the nine regional control centres were empty and incurring maintenance costs.¹² The Department has learnt from this experience, and undertook a consultation with the sector on the role of central government in the future of fire and rescue control centres across England. The Department is now working collaboratively with the Local Government Association and Chief Fire Officers' Association, and has recognised the importance of securing buy-in from the sector.¹³

The success of the **New Homes Bonus** scheme relies heavily on the behaviour of local authorities. While the Department for Communities and Local Government did consult with local authorities, it did not test specific assumptions within the model designed to understand local authority behaviour with local authorities themselves. A more sophisticated assessment of how local authorities in different situations might react would have allowed a more reliable estimate of the potential impact on housing supply.¹⁴

11 Comptroller and Auditor General, Department for Communities and Local Government: *The failure of the FiReControl project*, Session 2010–2012, HC 1272, National Audit Office, July 2011.

12 Public Accounts, Written evidence from the National Audit Office, paragraphs 3.11 and 2.6 (www.publications.parliament.uk/pa/cm201314/cmselect/cmpublicacc/110/110we05.htm)

13 Public Accounts, Written evidence from the National Audit Office, paragraph 4.1 (www.publications.parliament.uk/pa/cm201314/cmselect/cmpublicacc/110/110we05.htm)

14 Comptroller and Auditor General, Department for Communities and Local Government: *The New Homes Bonus*, Session 2012-13, HC 1047, National Audit Office, March 2013.

Behaviour and incentives

11 Over-optimism is not just about poor process; there are significant behavioural factors. Over-optimism can be unconscious or deliberate. Reasons for the latter, known as strategic misrepresentation, may include a desire of individuals to protect and boost their own prospects or the desire to secure investment for a project. It is widely accepted that a bias towards optimism can lead officials to underestimate or understate risks. The pressures of short-term political and budgetary cycles increase the risk of over-optimism.

“Executives make decisions based on delusional optimism rather than on a rational weighting of gains, losses, and probabilities. They overestimate benefits and underestimate costs... as a result, they pursue initiatives that are unlikely to come in on budget or on time or to deliver the expected returns — or even to be completed.”¹⁵ Daniel Kahneman and Amos Tversky

In **Mobile Technology in Policing**, we highlighted that the primary driver for the project timescale was a deadline set by the government. In 2007, an announcement was made by the government that 10,000 mobile devices would be provided to police officers within 12 months, even though earlier trials showed that it had taken around 30 months to introduce mobile devices effectively in one police force. Adherence to such short timescales contributed to the project not achieving its full potential.¹⁶

¹⁵ Kahneman, Daniel and Tversky, Amos (1977) *Intuitive prediction: Biases and corrective procedures*, Cybernetics Technology Office.

¹⁶ Comptroller and Auditor General, Home Office and National Policing Improvement Agency: *Mobile Technology in Policing*, Session 2010-2012, HC 1765, National Audit Office, January 2012.

Behaviour and incentives (*continued*)

12 Officials have a key role in advising ministers on policy and on the schemes for implementing it. It is important therefore that the culture of an organisation encourages and supports challenge and does not lead staff to hide bad news and be reluctant to challenge senior views. We regularly see major projects continue despite frequent and serious warnings that things are not going to plan and remedial action needs to be taken.

Early governance arrangements on the **FiReControl project** were complex and ineffective. In 2008, the Office of Government Commerce concluded that the project board was not operating as an effective decision-making forum. It was similarly concerned in 2009 that there could be a cultural failing to share bad news early “across the breadth of the project” and that too many false starts and promises on resource requirements undermined confidence.¹⁷ To provide assurance that future funding on improving efficiency of fire and rescue control centres is well spent, the Department for Communities and Local Government has put in place a joint strategic board chaired by the Chief Fire Officer’s Association with attendees from the Department and the Local Government Association.¹⁸

In the period leading up to the conclusion of the **West Coast InterCity Franchise Competition**, there were a number of warning signs that the procurement process was at risk. Eversheds, the Department for Transport’s legal advisers, subsequently raised concerns that the Department may not have been entitled to apply discretion to the value of the subordinated loan facility when they found out that this had occurred. This advice was not escalated to members of the board investment and commercial subcommittee, the Permanent Secretary or ministers. Nor were they informed that discretion had been applied.¹⁹

17 Report on FiReControl project, Office of Government Commerce, October 2009.

18 Public Accounts, Written evidence from the National Audit Office, paragraph 4.16 (www.publications.parliament.uk/pa/cm201314/cmselect/cmpubacc/110/110we05.htm)

19 Comptroller and Auditor General, Department for Transport: *Lessons from cancelling the InterCity West Coast franchise competition*, Session 2012-13, HC 796, National Audit Office, December 2012.

Independent challenge and accountability

13 The natural tendency for organisations and individuals to be over-optimistic when considering investment in major projects underlines the need for effective independent challenge of decision-makers and the importance of clear personal accountability for the decisions made. Optimism bias, and the desire to show success, may lead decision-makers to push on and deliver something even if the outcome is likely to be materially different from, and inferior to, that originally intended.

14 Incentives to be over-optimistic are very strong, and disincentives relatively weak. Decision-makers seek short-term recognition and rewards, and are often not in the same role when the project is under way and issues emerge. Similarly, accountability of contractors for their behaviour is weak, and contractual penalties for producing over-optimistic tenders are low compared to potential profits involved.

15 We see many projects where no one person has overall responsibility for its delivery and, most importantly, the ability to take action. The Committee of Public Accounts has observed that “Senior Responsible Officers only have oversight, and not the authority and information they need, to manage the delivery of the project for which they are accountable”.²⁰ Turnover can exacerbate this issue; for example, Senior Responsible Owners for major defence projects have typically moved post every two to three years, eroding the extent to which they can be held to account and encouraging short-term gain.

16 Organisations that actively invite external scrutiny and learn and apply lessons from other projects demonstrate higher levels of success. The introduction of non-executive directors on departmental boards is potentially key. They are independent and well placed to provide an objective view; to reinforce the importance of objectivity in analysis and to provide a means of challenging plans at a time when it can make a difference and genuinely influence decisions.

In our work on **Online Tax returns** by HM Revenue & Customs, we found that governance of the expansion programme followed good practice. This included having a Senior Responsible Owner accountable for its success, clear roles and responsibilities for those involved, and board meetings at programme development and operational levels. Board meetings, attended by key personnel, were held as scheduled and reported on achievements, risks and issues. As a result, HMRC was able to increase take-up rates, within expected timescales and within budget.²¹

In the case of the re-franchising of the **West Coast mainline**, the Laidlaw Report commented on its ‘limited ownership and ineffective oversight’. We found that roles and responsibilities were unclear and assurance processes were inadequate.²²

20 Committee of Public Accounts, *The Major Projects Report 2010*, Twenty-third Report of Session 2010–11, 15 February 2011, Committee of Public Accounts, *Management of the Typhoon Project*, Thirtieth Report of Session 2010–2012, 4 April 2011.

21 Comptroller and Auditor General, HM Revenue & Customs: *The expansion of online filing of tax returns*, Session 2010–2012, HC 1457, National Audit Office, November 2011.

22 Comptroller and Auditor General, Department for Transport: *Lessons from cancelling the InterCity West Coast franchise competition*, Session 2012–13, HC 796, National Audit Office, December 2012.



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