INSIGHT

NAO National Audit Office

Good practice guide

Delivery Environment Complexity Analytic (DECA)

Understanding challenges in delivering project objectives

NOVEMBER 2022

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Contents

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About the Delivery Environment Complexity Analytic (DECA)

The National Audit Office (NAO) developed the Delivery Environment Complexity Analytic (DECA) as a tool to help organisations develop a high-level overview of the challenges, complexity and delivery risks for a project, programme, policy or area of work.

Based on NAO insights, it brings together 12 factors that we feel influence the complexity of the delivery environment. These need to be understood and effectively managed to increase the likelihood of successful project delivery. The DECA tool helps provide a framework for the discussion and consolidation of existing knowledge around these 12 factors. Users assess whether the potential impact from each factor is high, medium or low to build an overall picture of the delivery environment, its complexity and the risks that need to be managed.

Alongside helping provide a broad, high-level shared understanding of the delivery environment, it is a useful tool for wider strategic planning and checking whether risk registers appropriately capture and address these factors. It can be used anytime throughout a project lifecycle.

The DECA is available as a template on the NAO website. This document provides additional detail which will be useful to consider when applying the DECA.

How to use the DECA

The DECA helps users assess 12 factors which impact the complexity of the project delivery environment and therefore the risks that need to be managed to ensure the successful delivery of a project. Our evidence has shown these factors to be recurring predictors of success or failure. Of the 12 factors, the last – interconnectedness – needs to be considered alongside each of the factors. The factors are:

1 **Strategic importance** – How significant is the project to the strategic vision of the organisation and government more widely? What is the level of ministerial and wider public interest?

2 **Stakeholders** – Which groups or individuals have an interest or influence in a project or are impacted by it? What is their level of influence?

3 **Requirements and benefits** – Is the organisation clear about its requirements and what benefits or outcomes delivering the requirements will bring?

4 **Stability of overall context** – How likely is it that the external environment, such as climate change, may change and impact a project? Is the project robust to changing situations?

5 **Financial impact** – How significant is the financial impact of a project to the organisation or partners involved in delivery?

6 **Implementation complexity** – Is the project being delivered at speed? Are the methods or technologies untested?

7 **Relations with delivery partners** – What, and how many, different bodies are involved in delivering the project internally and externally? How well are these relationships understood? How mature are they?

8 **Range of disciplines and skills** – Are specialist skills necessary to achieve objectives, and are these easily accessible?

9 **Interdependencies** – Is the project critical for the success of others? Likewise, is it also dependent on others for its own success?

10 Extent of change – Does the project involve a significant change to achieve its outcomes?

11 Organisational capability – What experience does the organisation have in delivering similar objectives or work? Has it learnt lessons from the past?

12 Interconnectedness (to be considered alongside each factor) – What work has been done to understand the connections between factors affecting the client or project?

More detailed descriptions can be found later in this guidance, along with case studies on where we have seen these factors have an influence.[1] These descriptions are examples only – users should apply their own knowledge and understanding to form a view on the complexity of each factor.

We recommend that the DECA be used as early as possible within a project to give a good insight on future risks. It can also be used later to help identify any changes in the delivery environment, or retrospectively as part of a 'lessons learned' exercise.

One of the DECA's key strengths is increasing a team's understanding by working through the DECA together and gaining agreement over the most important risks. Potential approaches to completing the DECA include:

- team meetings to share existing knowledge and complete the DECA together;
- team members each completing a DECA separately and then comparing their thoughts; or
- a single team member completing the DECA, with other team members then adding their own thoughts and comments.

1 The DECA was originally published in 2013 with case studies updated, where relevant, in 2022.

Delivery Environment and Complexity Analytic (DECA)

Factor	Low complexity	Low	Med	High	High complexity	Comments	Actions
1 **Strategic importance**	Project outcomes are not strategically significant with minimal political/ministerial, media or public interest. Failure is unlikely to have a substantial external influence.				The project is critical to meeting departmental and government strategic objectives or legal obligations. High-level political/ministerial or public interest, with significant media coverage. Failure would have a substantial external influence.		
2 **Stakeholders**	Low number of stakeholders interested or impacted, or few with significant influence on the output or outcomes. Stakeholders are aligned with the business objectives, supporting the project and agree with expected output and outcomes. The composition and interest of stakeholders is unlikely to change.				Significant number of stakeholders interested or impacted, or stakeholders with high levels of influence on output and outcomes. Stakeholders have differing or competing objectives/expectations. The composition and interests of stakeholders can be expected to change substantially.		
3 **Requirements and benefits**	Delivery requirements and expected benefits are measurable and linked to outcomes.				Delivery requirements and expected benefits are ambiguous and not measurable. It is unclear how the expected benefits contribute to wider policy outcomes.		
4 **Stability of overall context**	External sources of impact have been recognised and appropriately costed into the business plan. Governance structures and delivery models are robust to changing circumstances.				External sources of impact have not been recognised and appropriately costed into the business plan. Governance structures and delivery models are uncertain or fragile.		
5 **Financial impact**	The financial impact of the proposed project on the key delivery partners is minimal. There is a high level of assurance over key estimates across the life cycle of the project. The project has sufficient contingency to address worst-case scenarios.				The financial impact of the proposed project on the key delivery partners is strong. There is insufficient assurance over key estimates across the lifecycle of the project. The project lacks sufficient contingency to address worst-case scenarios.		
6 **Implementation complexity**	Few or no untested business practices or technologies form part of the scope. Project is not expected to deliver at speed. Project scope and deadlines are flexible and can be adapted without major trade-offs. The implementation approach involves few risks to the organisation and wider environment.				Substantial use of new business practices or technologies is required. Project is expected to deliver at speed. Project scope and deadlines are inflexible with little room for adaptation. The implementation approach entails substantial risks to the organisation and wider environment.		
7 **Relations with delivery partners**	The project is specific and bounded with few internal or external delivery partners. Governance structure is not complex and provides for effective communication. Delivery is not dependent on partners outside the direct control of the organisation.				The project relies significantly on a range of internal and external partners. Governance structure is complex and does not provide for effective communication. Delivery is highly dependent upon partners outside the direct control of the organisation.		
8 **Range of disciplines and skills**	Delivery requires little specialist input and skills. Acquiring the skills is straightforward, with skills readily available in the market. The organisation is comfortable measuring and managing the work of specialists.				Delivery requires substantial specialist input and skills. Acquiring the skills is complex, with skills not readily available in the market. The organisation is not comfortable measuring and managing the work of specialists.		
9 **Interdependencies**	The project is not relevant to the delivery of other projects, nor does it rely on other projects to support it.				The project is critical to the delivery of other projects, or it is highly reliant on other projects to support it.		
10 **Extent of change**	The project does not require significant deviation from business-as-usual or normal practices.				Large amount of change required to deliver desired outputs, outcomes and benefits. Delivery represents a fundamental change.		
11 **Organisational capability and performance**	The organisation has demonstrated its capability to deliver similar projects at the required speed. It has demonstrated appropriate levels of transparency and effective learning from previous and wider experiences.				The organisation has not demonstrated its capability to deliver similar projects or is delivering at unusual levels of speed. The organisation has previously shown poor levels of transparency and learning from previous and wider experiences.		
12 **Interconnectedness**	The organisation actively considers how potential risks overlap across various factors and has strategies in place to manage them.				The organisation does not consider how potential risks overlap across various factors and lacks appropriate strategies to manage them.		

The DECA factors

This section provides more detail for each DECA factor, including a:

- description;
- list of implications for the accounting officer, indicating possible impacts of the factor being assessed as high risk;
- list of mitigating actions that could be taken in response to the factor being assessed as high risk. This list is not exhaustive. Teams should use their own knowledge and understanding of their organisation to agree on the actions which would be appropriate to specific circumstances; and
- examples of our previous reports that illustrate the potential impact of the factor.

1 Strategic importance

How significant is the project to the strategic vision of the organisation and government more widely? What is the level of ministerial and wider public interest?

This factor is about understanding the strategic importance of the project, and the level of external interest particularly from ministers and the wider public. It covers the project's position in the pecking order of government priorities and the potential effect on a minister's or accounting officer's reputation of success or failure. Important aspects of this factor include understanding the impact of political aspirations on a project's strategic direction, approval, or what this means for ongoing engagement.

Defining areas of influence or interest at the start of the project will help to clarify the level of attention and scrutiny that the project is likely to attract. Awareness of this can assist in shaping key areas of focus such as communication plans for senior officials. Significant difficulties can arise where political influence is very strong and is not constructively addressed.

Indicators of high strategic importance

- Critical to delivery of government and sponsoring body policy, key strategic objectives or legal obligations.
- Very high expectation of outcomes and benefits.
- High level of political interest (especially from the Secretary of State, a specific minister, or as part of a political party manifesto commitment).
- High level of impact on, or likely to be of great interest to, the general public.
- Strong media attention.
- Level of success/failure will have major impacts and consequences outside the organisation.

What does this mean for the accounting officer?

- High political interest may heighten tension in relationships. Expectations of what is realistic and feasible will need to be carefully managed.
- Accounting officers should be prepared to challenge or compromise where necessary – strong and convincing challenge requires robust and well analysed information.
- The accounting officer may decide that a ministerial direction is required to proceed with the project because ministerial proposals do not meet one or more of the standards set out in *Managing Public Money*.
- If the project is in the public eye there will be incentives to announce progress or costs, which may not be realistic, leaving no escape from failure.

What actions can mitigate this?

- Carry out portfolio analysis to gain agreement on the relative priority of this and the other projects for which the accounting officer is responsible.
- Undertake resource, flexibility and contingency mapping to understand where trade-offs can be made between projects if they go off track.
- Prepare engagement and communication plans to inform politicians and the media of work.
- Ensure published estimates provide detail on the associated level of uncertainty.
- Invest in an ongoing dialogue with politicians to provide realistic expectations, keep them informed on progress and secure support for the project.
- Negotiate a better balance between political aspirations and what is feasible within realistic cost and time parameters.
- Request a ministerial direction, if necessary.

Examples

A good understanding of strategic importance helps achieve outcomes

In our 2019 report *Improving the A303 between Amesbury and Berwick Down,* we considered one in a series of eight projects within the Department for Transport's programme to upgrade the A303/A358 to dual carriageway over a period of 14 years. This project by itself could only partially deliver some local economic and transport-related benefits as wider benefits were dependent on implementing the full programme. However, appraisals of five other supporting projects were assessed as 'low to poor' value for money and at risk of not proceeding, which risked compromising the plan's targeted strategic outcomes.[2]

Political aspirations can impact the outcome of a project

In *Mobile technology in policing*, we highlighted that the business case was constrained by announced deadlines. Government announced in 2007 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. Adherence to such short timescales prevented the project from realising its full potential.[3]

Some projects have managed to strike a good compromise between political aspirations and realism when delivering. Examples include a government decision to extend the deadline for completing digital TV switchover from 2010 to 2012 in response to expert advice.[4] In 2004, after extensive discussions with the public service broadcasters and Ofcom, a paper was produced for ministers presenting the options for delivery. These ranged from 2010, which realised greatest financial benefit, to 2014, which presented fewer risks. Based on this information the date for completing switchover was changed to 2012.

2 Comptroller and Auditor General, *Improving the A303 between Amesbury and Berwick Down*, Session 2017–2019, HC 2104, National Audit Office, May 2019.

3 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.

4 Comptroller and Auditor General, *Preparations for Digital Switchover*, Session 2007-08, HC 306, National Audit Office, February 2008.

2 Stakeholders

Which groups or individuals have an interest or influence in a project or are impacted by it? What is their level of influence?

Stakeholders are those outside the control of an organisation who can impact the design and delivery of the project and its outcomes. This includes, for example, those actively involved, those with little interest but significant influence or those impacted by a project. Their support can provide greater insight, while their opposition could delay or derail the project. Each group may have a different perception of success. Identifying and understanding these groups or individuals, their level of influence and the range of ways to engage with them can be crucial to project success.

Common stakeholders that are likely to be relevant to government projects include politicians, departmental staff, the general public, businesses working in the sector and impacted communities.

Indicators of high stakeholder impact

- High number of stakeholders.
- Buy-in necessary for success.
- Significant stakeholder influence on aspects of the project.
- Differing or misaligned objectives or expectations between interested parties.
- Stakeholders could change if, for example, the scope changes.
- Stakeholders difficult to identify and communicate with.

What does this mean for the accounting officer?

- High volume of groups or individuals with very strong influence over the project or outcomes which can be difficult to manage.
- The most influential stakeholders may require personal contact or management by the accounting officer.
- Low levels of cohesion between parties will result in more varied opinions about the project's success and potentially make it more difficult to declare it a success.

What actions can an organisation take to mitigate this?

- Take time and invest resources to really understand who has an interest in the work.
- Map stakeholders to understand which parties will require highest levels of management.
- Examine whether the users of a policy/project are likely to behave in a way which brings about the change you need.
- Develop communication plans and events to engage with and understand influencing parties.
- Prepare action plans to mitigate difficulties or delays to the project because of stakeholder intervention.

Examples

Failure to engage with stakeholders can disrupt delivery

In the early 1980s, the Department for Transport's plans to build the M40 motorway through Otmoor in Oxfordshire were disrupted when the Department did not engage effectively with the local community. The local Friends of the Earth group purchased a field on part of the proposed route and subdivided it into 3,500 plots which it sold for £3 each. All the plot owners were anonymous, and each owner could, in theory, have forced a public inquiry and taken the case to the High Court if the government had subsequently tried to compulsorily purchase the land. The Friends of the Earth group was successful in getting the route changed.[5]

Engagement with those affected by the project can have positive consequences

In the digital switchover programme, the organisation leading the implementation and programme management, Digital UK, identified risks associated with failing to communicate effectively with people who might not understand the change. Digital UK worked with charities to set up a new consortium and used existing charity networks to spread switchover advice and information. The approach was successful and Digital UK told us that this outreach model is now being used in other areas of public policy, including the drive to increase broadband take-up.

5 Paul Evans, *Diversionary tactics – the imaginative campaigns protecting the countryside from developers*, The Guardian, 1 April 2009.

Examples *continued*

Engagement with stakeholders ensures that deliverables match user needs

In 2012, we reported on *Improving the criminal justice system – lessons from local change projects*.[6] The Warwickshire Justice Centre is a new multi-agency justice centre, bringing together all the agencies under one roof. A key risk was that the judiciary might feel that they should resist involvement in the Justice Centre, due to concerns about public perceptions of their role and whether they would maintain their independence when co-located with the other agencies.

The risk was mitigated by encouraging discussion between the senior presiding judge and the Lord Chancellor, who worked to reassure the judiciary that their position would not be compromised. The resident judge and three magistrates were involved in the design of the courts, which was permitted to diverge from the standard design guide. The courts are more open while vulnerable individuals can leave without being seen.

More recently, our 2019 report *Transforming courts and tribunals: a progress update*, found that HM Courts & Tribunals Service had responded to our previous recommendations, and those from the Committee of Public Accounts, and had strengthened its approach to stakeholder engagement.[7] A stakeholder survey found that 40% of respondents thought that the information they received from HMCTS enhanced their understanding of reform, with 70% of those who attended a reform event having found it useful.

6 National Audit Office, HM Inspectorate of Constabulary, HM Inspectorate of Probation and HM Crown Prosecution Service Inspectorate, *Improving the criminal justice system – lessons from local change projects*, May 2012.

7 Comptroller and Auditor General, *Transforming courts and tribunals: a progress update*, Session 2017–2019, HC 2638, National Audit Office, September 2019.

3 Requirements and benefits

Is the organisation clear about the requirements and what benefits and outcomes these will deliver?

Organisations should be able to articulate how a project fits within their strategic aims, the outcomes (and benefits) a project is expected to deliver and what success will look like. This should incorporate environmental, societal and economic perspectives. They should then be able to specify what work they need to do to deliver success. A failure to articulate requirements to support the benefits and outcomes, or internal disagreement over them, can threaten delivery. Only when decision-makers are satisfied that there is a clear and well-thought-out description of what success looks like, and how it will be achieved, should a project be approved.

A well-articulated vision of requirements, benefits and outcomes which follow on from each other improves team performance and reduces the risk of a project running out of control. The definition of success should be realistic, easy to understand and measurable where possible. It should consider the requirements or output (what will be delivered, when and at what cost), outcomes (how the output will be used and what will be achieved) and the delivery of policy aims (how the project will add value to society).

Indicators of high impact associated with requirements and benefits

- Ambiguity around requirements beyond the broad objectives.
- Uncertainty about how work contributes to the realisation of the vision, wider goals and values.
- High uncertainty on project impact (such as the number of people affected or the level of impact upon them).
- Unclear or unquantifiable measures of success.
- Stakeholders, including those within the same organisation, have differing perspectives on what success looks like and who is responsible for achieving this.

What does this mean for the accounting officer?

- An articulation of the benefits and a clear vision of success provides a convincing rationale for a project. If it is not possible to articulate a rationale in this way, accounting officers should question why the project is proceeding.
- Outcomes, benefits and requirements are the benchmark against which accounting officers will be held accountable.
- Ill-defined or immeasurable outcomes and benefits mean that the accounting officer will not be able to show that a project has been successful. Projects may also fail to deliver the expected results.

What actions can an organisation take to mitigate this?

- Clear documentation and understanding of how benefits link to outcomes, how outcomes link to requirements and how requirements fulfil policy aims.
- Benefit and outcome realisation plans that show what the benefits and outcomes are, who is responsible for delivering them and how they will be monitored and measured.
- Testing of scenarios, detailed analysis and validation of the assumptions which are vital to delivering benefits.
- Roles and responsibilities for identifying, monitoring and realising outcomes and benefits clearly set out.

Examples

Clarity over benefits and outcomes is a recurring feature in our reports

For many projects leaving the Government Major Projects Portfolio (GMPP), which includes the biggest and riskiest government projects, it is not possible to determine if they have achieved their intended outcomes. Our 2018 report found that monitoring of the projects on the GMPP had improved, but the Infrastructure and Projects Authority and government departments needed to do more to increase transparency about what benefits are delivered to ensure taxpayers secure maximum value.[8] We reviewed 48 projects that had left the portfolio and found that 12 had achieved their intended outcomes. However, for 22 projects it was not possible to determine if this was the case. For some projects this was because they were still being rolled out, but in other cases projects did not have a business case with intended outcomes to measure against. For example, while the Household Energy Efficiency programme improved energy efficiency in one million homes, it did not have measurable targets for wider objectives such as saving energy.

Failure to define benefits and requirements presents problems when assessing value for money

The Committee of Public Accounts raised concerns in its hearings on private finance initiatives (PFI) in housing and hospitals that it could not assess whether value for money had been achieved, due to a lack of robust evaluation.[9] At its hearing on Ofcom, the Committee noted that Ofcom did not specify its intended outcomes, explain how its activities would achieve these outcomes, or set out how it would measure success.[10]

In our examination of three BBC major estate projects, we found that none of the three projects laid out intended benefits at the outset with sufficient clarity to provide a basis for a meaningful measurement of subsequent achievements.[11] In a subsequent report on one of these projects – the move to Salford – we found that the BBC had made good progress in setting out the future benefits it expects to achieve and how it will measure them.[12]

8 Comptroller and Auditor General, *Projects leaving the Government Major Projects Portfolio*, Session 2017–2019, HC 1620, National Audit Office, October 2018.
9 HC Committee of Public Accounts, *PFI in Housing and Hospitals*, Fourteenth Report of Session 2010-11, HC 631, January 2011.
10 HC Committee of Public Accounts, *Ofcom: the effectiveness of converged regulation*, Twentieth Report of Session 2010-11, HC 688, February 2011.
11 Comptroller and Auditor General and BBC Trust, *The BBC's management of three major estate projects*, January 2010.
12 Comptroller and Auditor General and BBC Trust, *The BBC's move to Salford*, May 2013.

4 Stability of overall context

How likely is it that the external environment, such as climate change, may change and impact a project? Is the project robust to changing external conditions?

Projects can be affected by a range of factors outside the delivery team's control. This factor is about appreciating the level of uncertainty and introducing flexibility to manage changes in the political, economic and social landscape.

Long-term projects are likely to experience more instability than short-term ones, especially where projects span more than one electoral cycle or Spending Review period. In the public sector, the elapsed time between project design and contract tendering may span more than one public spending period, thereby creating uncertainties around approval to proceed and funding. The degree of uncertainty at the design stage of a project can have financial consequences if this is not properly understood. Over-optimism in terms of how quickly a project can be designed and implemented can be costly.

Indicators of high impact associated with stability

- Potential for significant economic (such as inflation or foreign exchange rate movements), political or technological change.
- High risk of change in scope, structure or external requirements (either due to mission creep or reduction in objectives).
- Objectives to be delivered over several years, spanning more than one electoral cycle or Spending Review period.
- Lack of certainty in key estimates around time, cost and work required.
- Lack of certainty over requirements, governance and delivery models.
- Instability within the supply chain, or a reliance on vulnerable suppliers.
- Necessary authorisations, including funding approvals, not received when the project is given the go-ahead, or a risk they might not be given as milestones approach.

What does this mean for the accounting officer?

- Projects with likely changes or areas of uncertainty are more complex to manage. They are likely to require more management time, a greater awareness and readiness to react positively or even question the feasibility of the project. Accounting officer assessments should be conducted where there are significant changes to a project.
- Projects may need prior HM Treasury approval to proceed, such that existing departmental management and reporting procedures may not be sufficient to oversee them.
- Estimates made at the concept stage will necessarily be based on high-level information which can be hard to recognise when setting costs and completion dates.

What actions can an organisation take to mitigate this?

- Ongoing risk assessment which identifies the risks and links them to appropriate ownership and action plans.
- Contracts that offer appropriate flexibility for more uncertain or changeable environments.
- Management plans and structures which allow appropriate time and experienced staff to manage the project.
- Plans and means to 'horizon scan' fast-paced markets.
- Understanding of decision points where alternative options can be taken if changes necessitate.
- Ensure an understanding of the underlying bases of estimates, and where risks and uncertainty lie. Any early estimates should be seen as provisional, with recognised limitations and uncertainties set out.[13]

13 National Audit Office, *Survival guide to challenging costs in major projects*, June 2018.

Examples

Identifying the wide-ranging consequences of major emergencies and developing playbooks can improve the robustness of risk planning

Our 2021 report on *Initial learning from the government's response to the COVID-19 pandemic* noted that government lacked a consistent playbook for many aspects of its response to COVID-19.[14] No playbook can cover all the specific circumstances of every potential crisis. Nevertheless, more detailed planning for the key impacts of a pandemic and other high-impact, low-likelihood events can improve government's ability to respond to future emergencies. For example, pre-existing pandemic planning did not include detailed planning for managing mass disruption to schooling on the scale caused by COVID-19. The Department for Education's emergency response function was designed to manage disruptions due to localised events such as flooding.

Using ranges for cost and schedule estimates can reflect risks

High-Speed Two (HS2) is a new high-speed, high-capacity railway that will connect London, Leeds and Manchester via the West Midlands. In our 2020 report, we found that the Phase One programme of HS2 was over budget and behind schedule because the Department for Transport, HS2 Ltd and wider government did not account fully for the level of uncertainty and risk in the programme when estimating the costs of Phase One in April 2017.[15] We highlighted the method used originally for calculating contingency as inappropriate for a programme at such an early stage of development, and that the £7 billion of contingency was not enough to address the significant cost increases that subsequently emerged during the project's execution. Instead, Phase One was projected to cost between £31 billion and £40 billion, a sum that was £3.9 billion to £12.9 billion (14% to 47%) more than the available funding.

The revision of cost estimates gave HS2 Ltd greater confidence in its understanding of Phase One's costs, but it would also need to manage risks that could cause costs to increase further as the programme progressed. Given the size, complexity and status of the project at its outset, we reported that the DfT and HS2 Ltd would need to re-examine whether its methods of ensuring that levels of contingency were adequate to cover future risks and when it would be reasonable to restrict the range of expected costs.

14 Comptroller and Auditor General, *Initial learning from the government's response to the COVID-19 pandemic*, Session 2021-22, HC 66, National Audit Office, May 2021.
15 Comptroller and Auditor General, *High Speed Two: A progress update*, Session 2019-20, HC 40, National Audit Office, January 2020.

Examples *continued*

Project and commercial arrangements should reflect context

Our January 2020 report *Managing infrastructure projects on nuclear-regulated sites* examined three Ministry of Defence construction projects for facilities at nuclear-regulated sites.[16] We found that by progressing projects too quickly early on, the MoD had increased its risk exposure. A reliance on monopoly site operators (AWE, BAE Systems and Rolls Royce) had weakened the MoD's commercial negotiating position so it was more likely to hold more of the contractual risks. While the inherent uncertainties of early designs also increased the risk to the MoD as it did not always build into projects the flexibility to allow for changes. Risks increased further when building started before the requirements and design were sufficiently mature. For the three projects in our review, this contributed 48% of the total £1.35 billion cost increase.

16 Comptroller and Auditor General, *Managing infrastructure projects on nuclear-regulated sites*, Session 2019-20, HC 19, National Audit Office, January 2020.

5 Financial impact

How significant is the financial impact of a project to the organisation or partners involved in delivery?

This factor is focused on determining the financial impact of a project within an organisation and more widely. The financial impact can be significant, even more so as projects are seldom cancelled once they are in progress. Instead, they are delayed, de-scoped or savings are found elsewhere, which can adversely affect other priorities.

A small increase in the costs of a large project can adversely impact other work across an organisation, particularly given constrained resources and affordability concerns. A high level of assurance over estimates is therefore important. HM Treasury's Green Book states that estimates should seek to address the lifecycle costs of a project within the context of available funds and sourcing constraints.[17] The organisation needs to consider whether it can afford a worst-case scenario situation and how likely such a situation is to occur.

Just as it is important for an organisation to be aware of its own financial constraints, so too is it important to understand potential financial impacts on sponsors, suppliers and all those involved in delivery of a project. The Green Book outlines how even projects with relatively low public sector costs "may have significant effects on specific groups, places or businesses."

17 HM Treasury, *The Green Book*, March 2022.

A complex delivery environment may also be created by a source of investment which requires stronger management, such as a PFI contract, and where there are risks arising from projects creating a large liability or obligation.

Indicators of high impact relating to financial impact

- Investment is significant relative to the budget of the organisation and key delivery partners or imposes specific costs on particular stakeholders.
- Low level of assurance over the basis of key estimates and a low-level consideration of lifecycle costs.
- Reliant on complicated or highly involved sources of funding.
- Lifetime funding cannot be secured given the length of the project.

What does this mean for the accounting officer?

- Understanding the costs, benefits and liabilities across the project lifecycle will help to generate the best decisions about wider portfolio and resource prioritisation.
- Project cost estimates should address the potential for differing impact on specific sponsors, suppliers and stakeholders.
- Complexity in the delivery environment should be quantified and costed where possible to mitigate the potential for unforeseen runaway costs.

What actions can an organisation take to mitigate this?

- Robust cost–benefit analysis where data have been independently validated and sensitivity analysis has been conducted.
- Check the realism of estimates by benchmarking against similar projects/areas of work and make use of historical data.
- Ensure that cost estimates provide broad coverage across key delivery partners, stakeholders and suppliers.
- Review how well optimism bias has been considered and validated as appropriate.[18]
- Identify and validate contingencies with clear allocation and criteria for their use.
- Use ranges where appropriate to reflect the uncertainties and risks, with plans in place on how to reduce the ranges over time.
- Develop clear methods and ways to calculate both cashable and non-cashable savings.[19]

18 National Audit Office, *Over-optimism in government projects*, December 2013.
19 Cashable savings are direct financial savings which release cash to be used elsewhere. Non-cashable savings are efficiency savings that do not directly release cash, but cause lower future costs.

Examples

Delays in a project can have a financial impact

In our 2011 *Major Projects Report*, we reported that the Ministry of Defence took the decision to extend the build programme of the Astute submarines by 96 months.[20] This was due to the need to save costs in the short term and address delays in the programme for the replacement of the nuclear deterrent submarine – thereby avoiding a production gap in the submarine construction industry. This decision to extend the Astute build added a further £200 million to forecast costs, contributing to a total programme cost increase of £1.9 billion on Astute submarines since 1997.

The decision to slow the production of the Aircraft Carriers in 2010 to ease short-term cashflow meant cost reduction opportunities with industry to save £337 million were not possible. As of 2012, total costs on the Aircraft Carrier project had increased by £1.8 billion.

Overly optimistic forecasts can hide the real project costs

In March 2012, we reported that the High Speed 1 project "demonstrates the impact that over-optimistic key assumptions at project initiation, in this case demand forecasts for international passengers, can have if the business case and financing are dependent upon them. The cost to the taxpayer is higher than originally expected because the Department is now responsible for servicing and repaying the project debt. We estimate that net taxpayer support may reach £10,200 million (present value to 2070, in 2010 prices)".

Likewise, the Department for Children, Schools and Families, and Partnerships for Schools, were overly optimistic in 2004 in their assumptions of how quickly the first schools in the Building Schools for the Future Programme could be delivered, leading to unrealistic expectations.[21] Delays in various areas meant the programme fell behind. By 2009, estimated total costs had risen by 16% to 23%. The programme was cancelled in 2010.

20 Comptroller and Auditor General, *The Major Projects Report 2011*, Session 2010–2012, HC 1520-I, National Audit Office, November 2011.

21 Comptroller and Auditor General, *The Building Schools for the Future Programme: renewing the secondary school estate*, Session 2008-09, HC 135, National Audit Office, February 2009.

Examples *continued*

Understanding funding

The Ministry of Defence publishes its Equipment Plan each year, setting out its intended investment in equipment and support projects over the following 10 years and whether this is affordable within its future budget. Its original intention was to assure Parliament that its spending plans were affordable. By 2021 the MoD faced the fundamental problem that its ambition had far exceeded its available resources. In 2021 we found that, once again, the Equipment Plan was unaffordable, with the MoD estimating that costs would be £7.3 billion higher than budget between 2020 and 2030.[22] As a result, its short-term approach to financial management had led to increasing cost pressures, which had restricted the development of military capabilities.

The growing financial pressures had also created perverse incentives to include unrealistic savings, and to stop investment in new equipment to address capability risks. A government announcement in 2021 of additional defence funding, in the context of its Integrated Review, provided opportunities for the MoD to set out its priorities and develop a more balanced investment portfolio.[23]

22 Comptroller and Auditor General, *The Equipment Plan 2021 to 2023*, Session 2021-22, HC 1105, National Audit Office, February 2022.
23 Comptroller and Auditor General, *Equipment Plan 2020 to 2030*, Session 2019–2021, HC 1037, National Audit Office, January 2021.

6 Implementation complexity

Is the project being delivered at speed? Are the methods or technologies untested?

This factor is concerned with having a realistic assessment of the levels of difficulty in completing a project. These levels increase when new or untested technology is used, when there are strict deadlines to complete, or when a 'big bang' deployment is required. In some cases, business practices themselves may introduce additional complexities, such as when the project team is deploying new methods of working.

The NAO back catalogue includes many projects which went ahead without a clear understanding of the complexities of the tasks being undertaken, leading to unrealistic expectations of what could be delivered. Understanding the risks of implementation complexity is especially important when evaluating different options for the delivery of objectives.

Crucial to implementation complexity is also the speed at which a project or programme may need to be delivered. Our *Lessons learned: delivering at speed report*[24] shares insights from our previous reports to help those deciding whether to deliver at speed. It includes considering why a project or programme needs to be delivered at speed, and the risks that may result when implementation is accelerated. It also outlines the risks resulting from delivering at speed and the strategies which can be employed to mitigate and manage risks.

Indicators of high impact associated with implementation complexity

- Requirement for new or untested approach or technology, including tested approaches which are new to staff.
- Quickly evolving technological landscape, which may create further complexities in the future.
- Wide scope and challenging objectives.
- Tight timescale for delivery due to immovable deadlines, limiting the use of risk mitigating actions such as phased implementation or piloting.
- Demanding benefit/quality targets.
- Long delivery chains comprising several bodies.

What does this mean for the accounting officer?

- Project teams with limited technical experience of the project may fail to appreciate its complexity.
- Too often, these projects do not have a 'Plan B' in reserve, making it more likely that the organisation will be reluctant to cancel the project.
- Estimates may suffer from optimism bias and ignore key risks due to lack of understanding of the planned approach.
- Novel or complex projects may require additional contingency, be this cost, time or staffing.
- There should be greater emphasis on getting things right first time if there is limited scope for changing options or delaying the project.
- Restricted or prescribed ways of delivering the project may require the accounting officer to challenge the project's feasibility.

24 Comptroller and Auditor General, *Lessons learned: Delivering programmes at speed*, Session 2019–2021, HC 667, National Audit Office, September 2021.

What actions can an organisation take to mitigate this?

- Pilots, trials or testing of the complex or new elements of the project to identify risks, modifications and likely results.
- Bring in subject matter experts to advise on potential sources of complexity.
- Talk to others who have delivered similar types of work.
- Critical path analysis to understand where there is flexibility in delivery, where overruns can be absorbed and where savings can be made.
- Investing in expertise or additional staff training in the new approaches or technology.
- Identifying a 'Plan B' and developing an exit strategy at the outset, such that cancelling the project is an option.

Examples

Failure to foresee scale and complexity can lead to substantial delays

In 2010, we reported on delivering multi-role tanker capability, where it took the Ministry of Defence 10 years to sign the contract.[25] After a five-year competition, the MoD was unable to close a deal and it took another four years of non-competitive negotiation to reach an acceptable agreement. The over-arching cause of delay was the unforeseen scale and complexity of the deal, which in turn contributed to many of the problems encountered on the project. Specific difficulties stemmed from the limited competition; specifications continuing to evolve until late in the procurement; poor access to full cost data; poor project resourcing and governance; insufficient staff with PFI experience and frequent changes of team leader.

New approaches can lead to additional time and cost

In our *Major Projects Report 2011*, we highlighted a programme cost increase of £1.9 billion on the Astute submarine programme. The Ministry of Defence experienced technical difficulties in the first six years of the programme. This was the first UK submarine programme to use computer-aided design techniques, and the MoD underestimated the complexities, which contributed to a cost increase of £886 million and a time delay of 43 months.

25 Comptroller and Auditor General, *Ministry of Defence: Delivering multi-role tanker aircraft capability*, Session 2009-10, HC 433, National Audit Office, March 2010.

Examples *continued*

Scale of challenge is underestimated

When the then-Department of Health introduced the National Programme for IT in the NHS, its scope, vision and complexity was wider and more extensive than any ongoing or planned healthcare IT programme in the world. At the time, it represented the largest single IT investment in the UK to date. One key factor affecting the local deployment of systems was the heterogeneous nature of the NHS. For example, each NHS organisation may occupy single or multiple sites, within modern or older premises, with each having different mixes of functions and specialisations. Also, each NHS organisation may employ different systems, different numbers of systems, and in some instances a number of systems to do the same thing. This meant that local solutions needed to be tailored to each organisation's requirements.[26]

Delivery at speed can increase project risks

To support small businesses facing cash flow problems due to the COVID-19 pandemic, government moved quickly to set up the Bounce Back Loan Scheme. It introduced the programme without the controls we would normally expect to see, such as those over duplicate applications, and with less strict eligibility criteria than other comparable government loan schemes. This increased credit and fraud-related risks which meant, at the time of our report in October 2020, the Department for Business, Energy & Industrial Strategy and the British Business Bank initially estimated that between 35% and 60% of loans may not be repaid. These figures have since been reviewed.[27]

Fixed deadlines can make a project more challenging to deliver

In our report, *Completing Crossrail*, we found that the decision-making processes of Crossrail Ltd in the latter stages of the project were dominated by its pursuit of a fixed completion date. This included an attempt to meet the schedule by carrying out construction and systems testing in parallel when few meaningful test results could be acquired, taking time and space from construction workers on site. Crossrail Ltd reduced the number of people in its risk management team in anticipation of completing the programme, and then had to re-hire personnel when it became clear that significant work remained. It also persistently re-planned the programme schedule based on what contractors needed to achieve to meet the deadline, rather than on historical performance.[28]

26 Comptroller and Auditor General, *The National Programme for IT in the NHS*, Session 2005-06, HC 1173, National Audit Office, June 2006.
27 Comptroller and Auditor General, *Lessons learned: Delivering programmes at speed*, Session 2019–2021, HC 667, National Audit Office, September 2021.
28 Comptroller and Auditor General, *Completing Crossrail*, Session 2017–2019, HC 2106, National Audit Office, May 2019.

7 Relations with delivery partners

What and how many different bodies are involved in delivery from both within and outside the organisation? Are these relationships understood? How mature are they?

Where a project is dependent on internal or external partners to deliver and implement it, project sponsors need to work effectively with these parties whether they be internal or external to the organisation. To do so, they need to have a clear understanding of what motivates the delivery partner. Decision-makers also need to assess whether the delivery body has the capability and capacity to deliver on the objectives of the project or programme. Contractors, consultants, devolved bodies (such as local authorities) and the third sector are the most prevalent public sector delivery partners.

Large projects are likely to involve several bodies working together towards delivery. As well as the sponsoring body and in-house project team, there may be one or more delivery partners responsible for aspects of the project, or other government bodies with an interest. Relationships are also likely to exist where deliverables are planned centrally but delivered by regional teams. Relationships need to be understood to set up the right governance structures.

Indicators of high impact associated with delivery partner relations

- Delivery spanning many boundaries (organisational, political, regional) with both external and internal partners.
- Success dependent on factors under the control of delivery partners, rather than the organisation.
- No track record of building and maintaining constructive working relationships.
- Complex system of governance which may hinder decision-making and reporting.
- Poor communication channels.

What does this mean for the accounting officer?

- Projects with complex or high numbers of delivery chains will require more management time by senior officials.
- Very long delivery chains, or projects involving multiple delivery chains, are more likely to experience problems that are more difficult to resolve.
- Failure to address conflicts could lead to suboptimal or non-delivery.

What actions can an organisation take to mitigate this?

- Tailor its plans or approaches to engage with parties, encourage buy-in and avoid problems between members of the delivery chain.
- Put in place clear frameworks for parties to operate within.
- Map and communicate responsibilities, remits and interdependencies clearly for delivering aspects of the project and its outcomes.
- Develop plans and means to integrate parties and, where appropriate, create an entity which works to deliver the project and outcomes as one unit.
- Create action plans to mitigate relations that could cause difficulties or impede the project.
- Clearly stipulate incentives and sanctions which promote desired behaviours.

Examples

Poor working relationships hinder delivery

In 2004, the then-Department for Communities and Local Government introduced FiReControl to replace 46 Fire and Rescue Services' local control rooms across England with nine purpose-built regional control centres. During the first two years of the FiReControl contract, the Department for Communities and Local Government had a poor working relationship with its contractors; there was a lack of openness on both sides and an adversarial stance towards problem-solving.[29] There was a tendency by both parties to revert to the contract conditions, rather than using a more mature partnering approach. The lack of effective sharing or joint ownership of progress information, and the Department's ineffective governance and performance management of the contract compounded the poor relationship. An independent technical review in early 2009 noted suspicion and distrust on both sides.

29 Comptroller and Auditor General, *The failure of the FiReControl project*, Session 2010–2012, HC 1272, National Audit Office, July 2011.

Examples *continued*

New initiatives must be supported by those intended to deliver them

The FiReControl project 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 implement 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 and warned the Department to engage with them and justify its aims for the project.

Unclear stakeholder obligations can create challenges with delivery partners

We often see cases where it is unclear who is accountable for integrating the various elements of a programme. For example, in our 2017 report on *The new generation electronic monitoring programme*, we found that the Ministry of Justice had added responsibility for integrating the different elements of the programme into its contract with the supplier Capita.[30] However, Capita was contractually not responsible for the work and performance of the other suppliers, and considered it lacked leverage to perform the integrator role.

This difference in opinion grew into a dispute and, as delays worsened, concerns increased about the alignment of Capita's incentives when it came to implementing the project. To address this, the Ministry of Justice and Capita mutually agreed to resolve their contractual differences in June 2016. As part of this agreement, it was decided by the Ministry of Justice to bring the integrator role in-house; although, it acknowledged that it needed to build new capability to manage this.

30 Comptroller and Auditor General, *The new generation electronic monitoring programme*, Session 2017–2019, HC 242, National Audit Office, July 2017.

8 Range of disciplines and skills

Are specialist skills necessary to achieve objectives, and are these easily accessible?

This factor is about understanding what resources an organisation will need to deliver its objectives and whether it can deploy the right mix of experience and skills within the team and its leadership. It includes both the adequacy of resources and managing the impact of staff turnover.

Our work repeatedly finds that project teams are not well set up to deliver projects. The common failings are a lack of experience, poor project management capability, weak commercial skills and insufficiently resourced project teams. Without experienced project managers, departments have limited control over project progress.

Continuity of project leaders and critical staff is an enabler of project success. It can encourage a long-term perspective in decision-making and supports a better understanding of the specific challenges of the project.

Indicators of high impact associated with disciplines and skills

- Requirement for a large number of different disciplines or skills.
- Requirement for specific, specialist skills.
- Potential to strain supply chain capability or capacity.
- High level of staff turnover, frequent change in senior responsible owner (SRO).
- Plan places reliance on external consultants.

What does this mean for the accounting officer?

- A project should not start where there are insufficient staff numbers, skills cannot be brought together, or where sufficient compensation cannot be achieved by increasing budget, time or additional recruitment.
- Accounting officer should use knowledge of organisational skill requirements to develop or change training, recruitment or behaviours.

What actions can an organisation take to mitigate this?

- Carry out staff assessment and include plans to address skills gaps and means to assess performance.
- Identify and communicate responsibilities and co-dependencies between those accountable for elements of project success.
- Establish systems to ensure continuity when a staff member leaves.
- Monitor use of consultants and consider whether their skills can be developed in-house.

Examples

High levels of turnover can increase reliance on consultants

The FiReControl project lacked consistent leadership and direction and was characterised by a high turnover of staff and over-reliance on poorly managed consultants. During the life of the project there were five different SROs, four different project directors and five officers supervising the delivery of the technology. Only two senior managers worked on the project for its duration, one of whom, the project manager, was a consultant. There was no framework to assess consultants' performance until late 2008, despite the fact that consultants and temporary contract staff made up almost half the then-Department for Communities and Local Government's project team during this period.

Reliance on a limited pool of skills can amplify risks

Our January 2020 report *Managing infrastructure projects on nuclear-regulated sites* examined three Ministry of Defence construction projects for facilities at nuclear-regulated sites.[31] We found that the MoD and its contractors struggled to secure the knowledge needed to design and build cost-efficient infrastructure. Regulators required site operators to provide detailed documentary evidence to show that proposed site changes met regulatory standards. This included evidence of design specifications, testing and the source of all parts used in the build. Preparing such documents required specialist knowledge and skills but, as we had previously reported, there remained nuclear-related skills gaps across the Defence Nuclear Enterprise.

31 Comptroller and Auditor General, *Managing infrastructure projects on nuclear-regulated sites*, Session 2019–2020, HC 19, National Audit Office, Jan 2020.

Examples *continued*

Given the specialist nature of the projects we reviewed, and the small pool of contractors able to design and construct them, the three site operators were using many of the same contractor firms. We recommended that the MoD continue its efforts to develop nuclear capacity and skills within the MoD and its contractors. As well as investing in graduate programmes and apprenticeship schemes, and working with civil nuclear colleagues, we recommended that the MoD think more broadly about how to sequence its major projects to develop a smoother work profile and more stable job market. We suggested that it think innovatively about how to increase staff capacity, such as requiring contractual partners to maintain a minimum number of experienced specialist staff.

High staff turnover impedes the management of long-term projects and procurements

Our report on the cancellation of the West Coast franchise highlighted organisational changes as a contributory factor to problems in the Intercity West Coast competition.[32] In 2010, the Department [for Transport] established its current structure. One of the objectives of the change was to provide greater segregation of duties and provide more transparency internally on the Department's work on rail. This was the first major franchise in which these complex arrangements were used. The result in this instance was that no one oversaw the whole refranchising process.

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

Examples *continued*

The problems were exacerbated by considerable staff changes, not all of which were in the Department's control:

- Within the Department's leadership team, there had been four permanent secretaries since 2010, and two of its four current directors general had been in post for a year or less.
- A number of senior staff with a role in rail refranchising had left in 2010-11, including the director general previously responsible for rail and the Department's head of procurement.
- As a result of the spending review the number of staff directly working in rail reduced by 20% to 30% (between 50 and 70 staff members) between May 2010 and May 2011. Since January 2011, the Department had increased the number of staff working directly on franchising by 70% (18 staff).

Wider skills pressures will impact the ability to find the right people

Our report on *Capability in the civil service* examined the government's approach to identifying and closing specialist capability gaps in the civil service.[33] Capability means the civil service's ability to implement policy effectively, requiring the right number of people, with the right skills, in the right place, supported by effective accountability, governance and information. Our report included a particular focus on plans to address specialist capability gaps, including in the management of major projects. Although the civil service had skilled people, many major projects have drawn on the same pool of skills. For example, in rail projects such as Crossrail and Thameslink, skilled civil servants had performed a number of project roles or have been moved to fill skills gaps for new priorities or projects. Our report noted that government had recently accepted that project leaders and accounting officers need to assess whether projects were feasible at the outset, including whether departments had the right skills to deliver them.

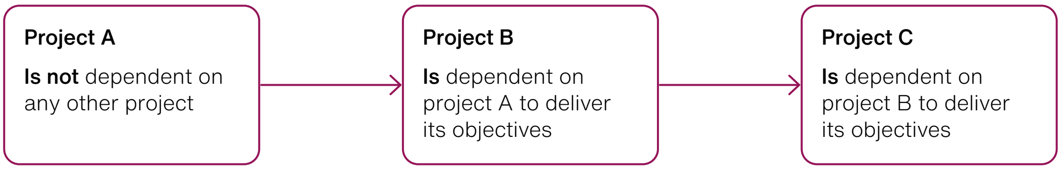
33 Comptroller and Auditor General, *Capability in the civil service*, Session 2016-17, HC 919, National Audit Office, December 2017.

9 Interdependencies

Is the project critical for the success of others? Likewise, is it also dependent on others for its own success?

This factor takes account of work that is critical to the delivery of other projects and business as usual (whether in the same programme of work, portfolio, or elsewhere in the business).

Your project



There are two types of risk to the delivery of your project B, in this situation:

- The risk that project A does not deliver, which affects the outcome of your project.
- The additional pressure that is put on your project to deliver on time so that project C realises its objectives.

The severity of the impact depends on how essential your project is to the other projects, and in turn how essential those other projects are to the government's objectives. If a project is completely standalone and does not affect any other work, it should be rated as low impact.

Projects do not run in silos or in a vacuum. They run in organised, yet chaotic environments where everyone is working towards the end result. There is nothing wrong with that — it is how organisations achieve multiple results in a short period of time. The key is to manage all these changes and interdependencies. Failure in one project may have wider implications, hence more attention is needed to monitor and manage progress.

Indicators of high impact associated with interdependencies

- Business plans elsewhere rely on outputs from this project.
- Project is reliant on or relied on by another project with tight timescales.
- Delivery of the project's objectives are a key part of a department's business plan.
- The project involves a significant change to business as usual.
- Plan includes use of staff currently assigned to other work.

What does this mean for the accounting officer?

- Delays in one project may require changes in those dependent on it, potentially including scheduling conflicts for available resources. Resolution will require strict prioritisation and rules of resource allocation.
- Careful management will be needed where there are conflicts involving dependent projects and the priority is unclear.

What actions can an organisation take to mitigate this?

- Ensure staff have effective portfolio and programme management skills.
- Designate a project management officer or similar with responsibility for project delivery.
- Align key project milestones with relevant stages in other projects.
- Use critical path analysis to identify and manage key interdependencies.

Example

Interdependencies need to be identified and managed

In our 2020 report on *Carrier Strike – Preparing for deployment*, we found that the Ministry of Defence had made considerable progress in having built two new carriers, receiving jets to schedule, and completing berthing infrastructure and most of the facilities for the jets. In doing so, the programme team had tracked progress, monitored risks and identified interdependencies, engaging continually with the various commands. However, the new Crowsnest radar system will be 18 months late, which will affect Carrier Strike's capabilities in its first two years. This was because the MoD did not oversee its contract with Lockheed Martin effectively and, despite earlier problems on the project, neither was aware of the sub-contractor's lack of progress until it was too late to meet the target delivery date.[34]

34 Comptroller and Auditor General, *Carrier Strike – preparing for deployment*, Session 2019–2021, HC 374, National Audit Office, June 2020.

10 Extent of change

Does the project involve a significant change to achieve its outcomes?

Although an initiative may be relatively simple from a technical perspective, its impact needs to be considered in the context of its effect on existing approaches and patterns. From an organisational perspective, plans which require divergence from the work that staff have experience with is high risk. Changes will require the understanding and acceptance of staff at an operational level. Conversely, an initiative which is technically highly complex may be lower risk if it requires little change in established working patterns. More widely, a project delivering into an environment experiencing continuous change may be high risk given other changes.

The focus on implementing a project needs to be balanced with sufficient attention to the needs of the organisation or environment, ensuring that it can cope with the proposed level of change. The impact of change needs to be understood and managed so that people and structures can effectively cope.

Indicators of high impact associated with extent of change

- Delivery represents a fundamental change to ways of working or approach.
- An organisation or group taking on a completely new way of working of which it has no prior experience.
- The project requires significant structural change, for example to governance arrangements.
- The project requires significant changes to the way staff work.
- Large-scale changes are planned, affecting many people or organisations.

What does this mean for the accounting officer?

- Management will only be successful in implementing a new strategic direction if they have buy-in from those involved in the change and can deal with the associated cultural impacts/resistance.
- A failure to prepare for change will cause problems during roll-out.
- Planning may need more time, due to the need to consider the implications of undertaking something completely new.
- Change can be unsettling, so senior management need to act as a stabilising influence.

What actions can an organisation take to mitigate this?

- Where organisational, establish strong communication processes that enable all employees to learn about upcoming changes and develop a culture of dialogue between management and the workforce.
- Learn from the experiences of others undergoing change in similar circumstances.
- Deploy experienced change management staff.
- Place greater priority on piloting the changes to fully understand their impact.
- Build in extra contingency (both time and cost) to allow learning in response to changes.

Example

Restructuring

The National Offender Management Service (NOMS) undertook to reduce the cost of its headquarters' functions by 37% in cash terms over the 2010 spending review period.[35] To deliver this saving, NOMS abolished its regional structure and introduced directorates for each function. In parallel, NOMS is seeking to transform offender management through new models for commissioning and delivering services, increasing the involvement of the private and voluntary sectors in both prisons and probation trusts.

We found that the planning and implementation of the restructure followed a number of good practice principles, particularly in respect of governance and risk management. In our 2012 report, we found that the restructure of NOMS' headquarters had been well received by prisons and probation trusts, with the restructured board having clear lines of accountability.[36] We concluded that savings targets had been delivered while undergoing restructuring and that performance was broadly maintained in the face of significant challenges.

35 The National Offender Management Service was replaced by HM Prison & Probation Service in 2017.
36 Comptroller and Auditor General, *The National Offender Management Information System*, Session 2008-09, HC 292, National Audit Office, March 2009.

11 Organisational capability and performance

What experience does the organisation have in delivering similar objectives or work? Has it learnt lessons from the past?

The NAO's back catalogue has consistently shown that past performance is a good indicator of current capabilities. As a result, organisations should learn from their past successes and failures.

Organisations need to consider whether they have the capability and capacity to deliver their planned objectives and a good understanding of the projects they are taking on. This requires honesty and realism. Factors which will impact the organisational culture include whether an organisation is open to sharing and learning, if it accepts mistakes, and how it responds to poor performance.

Despite its importance, we have found issues with both the technical quality of programme information, as well as organisational cultures preventing the right information from emerging. Without these, the quality of decision-making may suffer from over-optimistic assessments of programme progress and problems that could have been identified earlier may suddenly emerge.

Indicators of high impact associated with organisational capability and performance to date

- The organisation has struggled with projects of a similar scale and purpose in the past.
- It has failed to demonstrate an appropriate culture – one which supports effective working with clients and honest reporting of progress.
- The organisation has several resource-intensive projects running concurrently.
- It does not have formalised lessons learned procedures.

What does this mean for the accounting officer?

- The organisation's performance may decline in other areas of its business if senior management resources have to be diverted to manage new work.
- The capacity and capability of the organisation should be considered before authorising any new initiatives.
- A culture should be fostered that encourages effective working patterns and builds on lessons learned, rather than one which ignores addressing failure.

What actions can an organisation take to mitigate this risk?

- Consider seconding in additional resources from elsewhere in government to address critical shortcomings.
- Assess the organisational capacity to deliver the portfolio.
- Lessons can be learned from past performance (whether positive or negative).
- Take positive steps to build skills within the organisation.
- Engender a culture of collaboration and openness.
- Ensure that governance structures are clearly mapped.
- Seek out best practice from other similar projects, internally and from other organisations.
- Consider past projects as part of a formal lessons learned exercise.

Examples

Learning lessons can increase the chances of project success

Our 2020 report, *Carrier Strike – Preparing for deployment*, found that the MoD had made considerable progress on Carrier Strike since we reported in 2017. It had built two new carriers in line with its overall timetable and at a forecast cost of £6.4 billion, which was £193 million (3%) above the revised budget agreed in 2013. The MoD successfully applied lessons from building *HMS Queen Elizabeth* to the building of *HMS Prince of Wales*. For example, it amended its design for *HMS Prince of Wales* to address problems that it encountered on the other ship, such as flooding. It also applied lessons from its first build programme, such as the decision to remain in dry dock longer to better sequence the fitting of equipment, reducing the time taken by 60%. Overall, the MoD achieved a 39% reduction in the time taken to complete the testing and commissioning programme. We recommended that the MoD conduct further in-depth lessons-learned exercises to ensure that it assessed the factors that led projects to succeed or fail, including the root causes, and disseminate the lessons so that they were reflected in its management of other programmes. It should also look to disseminate lessons more widely across government.[37]

Organisational culture and transparency

For the right information to flow through the programme, organisations must work to embed a culture of transparency and honesty throughout an organisation and into the supply chain. The pressures that organisations are under can make them defensive about the programme or allow a 'good news' culture to develop, which can undermine processes intended to transmit accurate information. This means that opportunities to identify and mitigate serious issues may be missed, and instead emerge suddenly and unexpectedly. This can also damage the trust in an organisation's delivery of a programme at a time when it most needs the support of its external stakeholders.[38]

37 See footnote 34.
38 Comptroller and Auditor General, *Lessons learned from major programmes*, Session 2019–2021, HC 960, National Audit Office, November 2020.

12 Interconnectedness

What work has been done to understand the connections between factors affecting the client or project?

The factors in the DECA cannot be viewed in isolation. Each factor will impact on the others in some way as project environments operate as complex and adaptive systems with interdependent risks and impacts. The Magenta Book describes a complex adaptive system as comprising:[39]

- many diverse, interacting components;
- non-linear and non-proportional interactions between those components; and
- adaptation or learning by components in response to change.

Planning for complexity requires care and attention to design projects that are robust to the wide range of risk factors. Although included as factor 12, the DECA visualises interconnectivity as an overarching factor to consider alongside the rest of the framework. This should help broaden understanding of the potential areas of interaction which increase complexity. Typical examples may include addressing the potential impact of differing levels of inflation on the financial stability of delivery partners, or by considering how investment into one major project within a given portfolio may impact upon your organisation's capability to deliver on the others.

Indicators of high impact associated with interconnectedness

- The organisation considers project risk in isolation and does not seek to understand the potential areas of interaction for risk factors.
- The project is wide in scope or significant in duration, which creates more opportunities for risk interaction.
- The organisation is slow to respond to a changing external environment, or the project follows a rigid implementation structure.

39 HM Treasury, *Magenta Book: Handling Complexity in Policy Evaluation*, March 2020.

What does this mean for the accounting officer?

- There is potential for unidentified risk interactions to adversely impact successful delivery.
- The full impact of identified risks may not be understood or underestimated.
- The project may lack appropriate processes to identify, escalate and adapt to a changing risk profile.

What actions can mitigate this?

- Ensure the risk register explores and addresses links between different parts of the project.
- Map the potentially interconnected and interdependent aspects of the operational system.

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