Project Management Institute

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How to transform infrastructure decision making in the UK

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About this report

This report draws together the findings of a year-long Institute for Government research programme on improving infrastructure decision making in the UK. Throughout this project we conducted in-depth literature reviews, two roundtables, and almost 100 interviews with current and former senior civil servants, politicians, academics and other experts.

Our previous reports on infrastructure are:

- *What's Wrong with Infrastructure Decision Making? Conclusions from six UK case studies*
- *How to Value Infrastructure: Improving cost benefit analysis*
- *Public versus Private: How to pick the best infrastructure finance option*
- *How to Design an Infrastructure Strategy for the UK*
- *How to Get Better Private Finance Deals for Infrastructure*

Find out more: www.instituteforgovernment.org.uk/infrastructure

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Summary

The UK is in a period of major political and economic change. Concerns about regional inequalities, productivity, an acute housing crisis in the country's most economically successful areas, Brexit and climate change all loom large.

Delivering high-quality infrastructure in a timely and cost-effective way is crucial to responding to these major national challenges. But the UK consistently makes poor decisions about infrastructure compared with some other wealthy countries.

A key reason is the difficulty of striking an appropriate balance between public engagement, expert advice and political leadership. Deciding where to invest limited state resources and which objectives to pursue is inherently political. Yet, infrastructure policy is more likely to be effective if it is evidence-based, long-term and stable. At the same time, the needs of the whole country must be balanced against the negative impact that new infrastructure can have on individual communities.

Over the past year, the Institute for Government has explored how the UK can improve infrastructure policymaking in areas including transport, energy, flood defences, digital communication, waste and water.* Pulling together the findings of our work, this report identifies how competing needs and perspectives can be balanced to improve three vital aspects of infrastructure policy: time, quality and cost.

Time

The Government does not have a long-term approach to infrastructure and often fails to make timely decisions on individual projects. Resolving both requires a more structured approach to resolving conflict over infrastructure decisions.

- **The Government must strengthen the National Infrastructure Commission (NIC)**. The NIC should be given greater independence as an executive non-departmental public body, draw its commissioners from a more diverse range of professional and geographical backgrounds, engage the public more widely and have its remit extended to include housing.

- **The Government must create a Commission for Public Engagement**. Learning from the success of France's Commission Nationale du Débat Public (CNDP), the Government should create a Commission for Public Engagement. This would be an extremely cost-effective way of giving local communities a genuine opportunity to shape infrastructure decisions, helping to deliver major projects faster and more efficiently.

* Our previous five reports on infrastructure can be found at: www.instituteforgovernment.org.uk/our-work/policy-making/infrastructure

Quality

The quality of the UK's infrastructure is not as good as it could or should be. Government must pick better projects, both individually and collectively, as a portfolio.

- **The Government needs a cross-government infrastructure strategy**. This should articulate a vision for how the policies and projects of individual departments will interact to achieve infrastructure objectives and explain how the capacity of subnational authorities will be built. In doing so, it must identify the geographic impacts of its recommendations and be written in an accessible way to help facilitate public engagement. To help develop the strategy and monitor its implementation, the Government should reinstate the position of Commercial Secretary to the Treasury.

- **The Government must improve cost benefit analysis**. To improve project appraisal, we recommend that the Government:

  - updates cost benefit analysis so that it can better capture the 'dynamic effects' of projects

  - improves the accuracy of project cost and time estimates

  - takes a more consistent approach to assessing projects

  - communicates cost benefit analysis results within Whitehall and to the public better.

- **Parliament must scrutinise infrastructure decisions made by the Government better**. In the House of Commons, the Treasury Committee should lead this, working closely with other relevant committees. In the House of Lords, a new infrastructure committee should be established, initially for a year.

Cost

The UK needs to invest more in economic infrastructure*. But this investment cannot come at any cost. Picking the most cost-effective options at every stage – from project selection to finance option – is critical.

- **Individual departments must learn from past projects as this will help the Government to make better investments in the future**. Departments must consistently evaluate infrastructure projects, systematically collecting data on:

  - cost outturns against estimates

  - delivery times against estimates

  - the size of project teams

  - project length.

* Economic infrastructure includes transport, energy, digital communication and water.

To ensure that data are collected and used, the Infrastructure and Projects Authority should collate this information centrally and mandate that it is used by departments to enhance cost estimates.

- **The Government must improve its approach to accounting, appraisal and budgeting** to increase the odds of picking the best finance options. This is particularly important in light of the recent collapse of Carillion and the questions it has raised about private finance deals. Government must not let arbitrary accounting rules and narrow fiscal targets drive financing decisions, it must implement a more robust appraisal process and it must change the way that the Treasury handles capital investment.

- **The Government needs to up its game in terms of private finance** if it is to meet its objective of securing more private investment in infrastructure at a good price. The Government must ensure that civil servants have access to sufficient in-house commercial skills. Ministers need to understand investor perspectives better before making policy. And the Infrastructure and Projects Authority must outline a clear infrastructure project pipeline that provides investors with clarity on which projects will require private finance, how much investment is needed, and how the deals will be structured.

1. Time

UK governments have not taken a long-term approach to infrastructure and fail to make timely decisions on individual projects. New projects and institutions are dreamt up, re-scoped and scrapped with little consideration given to long-term consequences.

The principal problem is politics. New governments quite rightly have new priorities and often discard or amend their predecessors' policies. Equally, projects with diffuse national benefits may have significant negative impacts for specific local communities. Faced with local opposition, usually complicated by parliamentary arithmetic, decision making can grind to a halt. Difficult, important decisions can be put off indefinitely – for example the saga of expanding airport capacity in the South East has dragged on for more than half a century.[1]

It is inevitable and proper that politics plays a role in infrastructure policy. But the example of other countries – where there are forums for real public debate and where independent expert analysis forms the basis for infrastructure decisions – shows that a more structured approach to conflict resolution would reduce delays. We recommend strengthening an existing institution – the National Infrastructure Commission (NIC) – and the creation of a new one – a Commission for Public Engagement.

A strengthened National Infrastructure Commission will help the Government to take a long-term approach to infrastructure

To be effective, infrastructure policy must be long-term and provide certainty for industry, investors and the public. But decisions on economic infrastructure by successive governments have been inconsistent and subject to constant change. Too often, decision making has been beset by politically motivated short-termism. The NIC was established in 2015 to address these problems. The National Infrastructure Assessment (NIA) – the NIC's evidence-based assessment of the UK's infrastructure needs over the next 30 years, due to be published in June 2018 – should provide a foundation on which to build cross-party agreement on future infrastructure investment.

The creation of the NIC was a positive step, but the Government and the NIC itself must build on its early promise to ensure that it is a success. The NIC's longevity and impact depend on its credibility with opposition parties and the public.

To ensure that it is seen as credible by these groups, the NIC should be given greater independence as an executive non-departmental public body (NDPB), draw its commissioners from a more diverse range of geographical and professional backgrounds, and engage the public more widely. And, to ensure that the Government gets maximum value out of the NIC's analysis, we recommend that a direct consideration of housing be included in the second NIA, which will be published in the next Parliament.

The Treasury must make the NIC an executive non-departmental public body

It is vital for the NIC's cross-party credibility that it is seen as independent from government. In its current form as an executive agency of the Treasury, this is not guaranteed. Its independence is largely contingent on its leaders. To date, they have acted independently but, as the sacking of former NIC Commissioner Michael Heseltine and the recent resignation of Lord Adonis as the NIC's chair demonstrate, personnel can change.[2] Lord Adonis told the Treasury Select Committee that Lord Heseltine would not have been sacked as easily if the NIC had had statutory status.[3]

The NIC must become an executive NDPB. NDPB status and a solid statutory basis would bring it into line with other similar independent bodies such as the Office for Budget Responsibility and the Committee on Climate Change.

The Chancellor must appoint NIC commissioners who represent a range of geographical and professional backgrounds

Regardless of whether the Government makes the NIC an NDPB, the Chancellor has a vital role in appointing commissioners. The current commissioners are experts in their fields, but credibility is about more than expertise. If the NIC's commissioners are not perceived to represent a wide range of stakeholders, the NIC's legitimacy – and therefore the weight of its recommendations – may be called into question.

At present, the NIC appears London-centric. Its commissioners are almost entirely professionally based in London; and only three of its 11 members went to university outside London, Oxford or Cambridge. In the future, the Government must appoint commissioners with experience working across the country and from a wider range of professional backgrounds. For example, the NIC would benefit from commissioners with expertise in regional development and in the environment.

The NIC must improve the public's awareness of its work

Infrastructure – and by implication the recommendations of the NIC – have a tangible impact on people's lives. Public awareness and support will therefore be vital for the NIC's longevity. The NIC has taken public engagement seriously but this has yet to translate into significant public awareness of its role.

The NIC and the Government can do more. The NIC should develop its in-house expertise on public engagement, requesting additional resources from the Treasury if necessary. The NIC should also work closely with our proposed Commission for Public Engagement (described below) to share best practice on involving the public in infrastructure decision making.

However, the NIC must be cautious about the role it plays in the debate about the UK's infrastructure needs. Given fiscal constraints, the NIC will have to prioritise some projects over others, which will advantage or disadvantage particular areas. In the context of the highly charged debate about regional disparities, prioritisation must be fair and transparent. The NIC must be cautious about publicly endorsing projects without providing a robust evidence base and full analysis. Failure to do so will undermine its credibility.

The Chancellor must expand the NIC's remit to include housing

The Government has limited the NIC's work on the NIA to looking at the links between economic infrastructure and housing. This is understandable as housing is a contentious policy issue. It is also complex and it would have been difficult for the NIC to do the topic justice, given the tight timetable for the first NIA. However, as the NIC acknowledges,[4] housing and economic infrastructure must be planned together.[5]

The NIC's interim NIA has pushed the limits of its remit, devoting 14 pages to how infrastructure can help deliver housing. The NIC has also demonstrated through its well-received work on the Cambridge–Milton Keynes–Oxford corridor that it can get the balance right between ensuring that housing remains locally planned and making recommendations for how this is delivered at a strategic level.[6,7] Time and resource constraints make it unrealistic for the first NIA's scope to be expanded to explicitly include housing, but it should be a core component of subsequent NIAs.

Creating a Commission for Public Engagement will help the Government to make timely project decisions

Effective public engagement is vitally important to ensure timely decisions on infrastructure projects. If communities do not feel that they have had a genuine say on projects that will have an impact on them, they often oppose them entirely. This can result in costly delays, and slow the delivery of much-needed infrastructure. Despite this, the UK Government has a poor track record of public engagement in major infrastructure projects.

Learning from the success of France's Commission Nationale du Débat Public (CNDP), we recommend that the Government creates a Commission for Public Engagement (CPE). The CPE would give local communities a meaningful opportunity to shape infrastructure decisions, and help project sponsors to deliver major projects faster and more efficiently.

The current approach to public engagement in planning for major infrastructure can create local opposition

The processes through which major infrastructure projects in the UK gain planning permission can contribute to local feelings of antagonism and unfairness, which leads to opposition. This is often because local public input comes too late in the process to be part of a constructive dialogue about the available options.

Most critically, under the Nationally Significant Infrastructure Project planning regime,[*] the principle that particular types of developments should go ahead is established in National Policy Statements (NPSs) (see Figure 1).[**] Local communities can input into NPS drafts during their formal consultations, but they often find this difficult because

* The Nationally Significant Infrastructure Project planning regime is the main route for projects of national significance to gain development consent in England, although Hybrid Bills can also be and have been used.

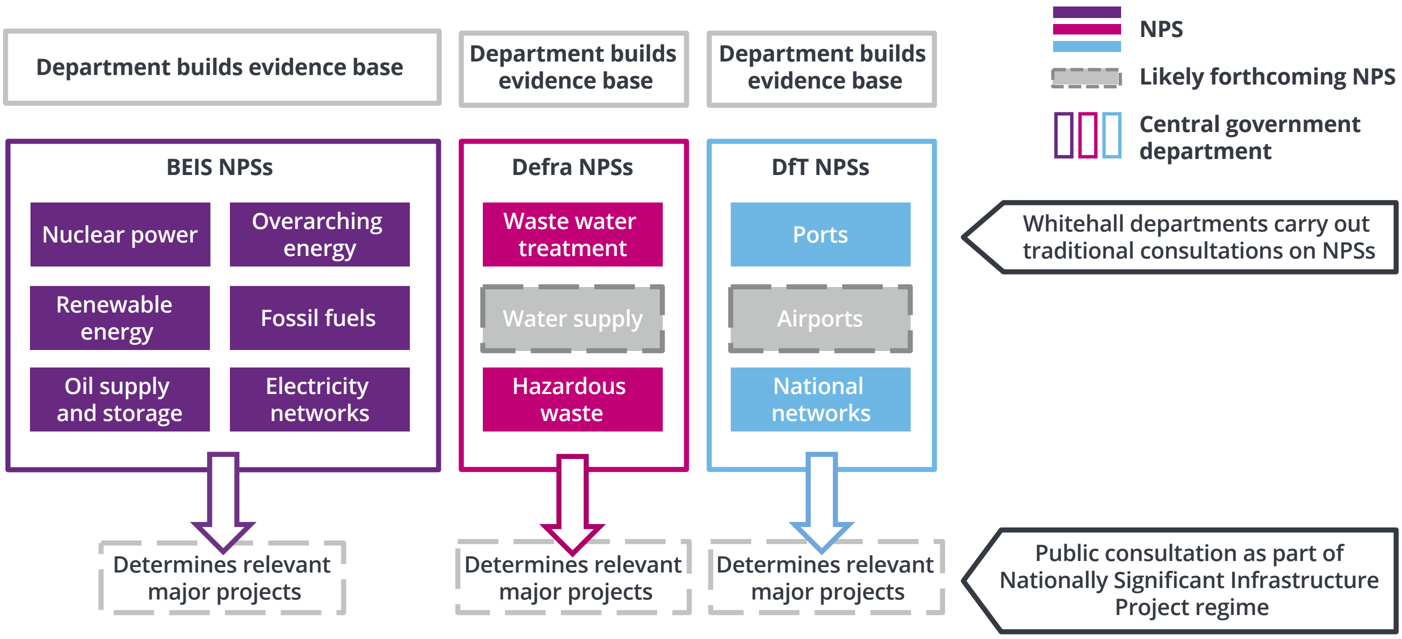
** NPSs enshrine government policy for Nationally Significant Infrastructure Projects. In doing so, they are part of the decision-making framework that the Planning Inspectorate uses to decide whether to recommend that projects receive development consent.

NPSs are generally vague, and do not explain which parts of the country will be affected.

Furthermore, the quality of consultations on individual infrastructure projects can be highly variable, with not all project sponsors aware of the benefits of deep public engagement.[8,9]

Hybrid Bills – which the Government sometimes uses for its biggest and most complex infrastructure projects, such as the Channel Tunnel and High Speed 2 (HS2) – can also create local frustrations as the petitioning process by which the public have their say is complex, arcane and impractical.

Figure 1: National Policy Statements and public engagement



Note: BEIS = Department for Business, Energy and Industrial Strategy; Defra = Department for Environment, Food and Rural Affairs; DfT = Department for Transport; NPS = National Policy Statement.

Source: Institute for Government analysis

Effective public engagement reduces public opposition

The UK could learn from other countries. International case studies – ranging from the Netherlands' 'Alders Table',[10] to Infrastructure Victoria's citizens' juries, to Calgary's Commission on Municipal Infrastructure[11] – demonstrate three important lessons:

- **Giving the public a real say in policy and planning can be extremely effective**. It can build consensus and productive dialogue around controversial subjects – giving a voice to supporters as well as opponents, and linking local discussions about impacts to national discussions about need.

- **Given the right resources and political commitment, the public are both interested and able to contribute to policymaking**.

- **To be effective, public engagement must happen early, consistently, and provide communities with a genuine opportunity to influence decisions**.

In short, the answer is not about removing politics from the process, but about providing genuinely open forums for debate and instilling a sense of fairness. Public engagement requires strong, independent and trusted institutions to ensure that this happens constructively.

The French Commission Nationale du Débat Public (CNDP) provides a particularly good model for how this can work in practice. The CNDP was founded in the late 1980s in a similar context to that facing the UK now: declining central state power and well-organised local opposition to strategically important rail projects.[12] In response, the French Government set up the CNDP to ensure 'public participation in the decision-making processes of major infrastructure projects of national interest that present important socio-economic stakes'.[13]

To do this, the CNDP hosts local public debates on contentious major projects as early as possible in their development. All participants – for or against a project – are given equal resources to make their cases. The CNDP then summarises these views in a report, to which project sponsors must respond.

The CNDP has no ability to enforce recommendations; but most project sponsors act on them. Of the 61 projects on which the CNDP facilitated debates between 2002 and 2012, 38 made modifications, including 25 that changed their plans based on options that emerged from the public debate (see Figure 2).[14]

French project sponsors have come to view the CNDP process as a valuable exercise in public engagement and data collection, rather than as a burden or threat.[15]

Figure 2: Impact Commission Nationale du Débat Public debates on projects, 2002 to 2012

Source: Marshall T (2016) 'Learning from France: using public deliberation to tackle infrastructure planning issues', *International Planning Studies*, vol. 21, no. 4, pp. 329–47

The Government must establish a Commission for Public Engagement

Learning from the success of the CNDP, the Government should establish a Commission for Public Engagement (CPE) to ensure that communities have a real and productive say on major infrastructure projects and policy (see Figure 3). This commission should:

- **facilitate public debates with local communities that are likely to be affected when National Policy Statements are developed or updated** – this will ensure that communities can have a real impact on the types of projects that emerge in their area

- **provide advice to project sponsors consulting during the 'pre-application consultation' stage of the Nationally Significant Infrastructure Project planning regime** – this will help project sponsors to consult as effectively as possible, encourage culture change and spread best practice for public engagement

- **facilitate in-depth deliberations with representative, randomly selected panels of citizens**, which would discuss policy options for the Government's National Infrastructure Strategy (discussed in the next chapter) – by ensuring public input early in the decision-making process, the Government will build the legitimacy to make tough decisions.

The CPE's form will be critical to its success. It should be established as an executive NDPB to ensure its independence. Based on the costs of the CNDP and similar-sized UK NDPBs, the CPE would likely cost taxpayers between £2 million and £5 million annually. The benefits of the CPE would far exceed its likely costs.

With a low cost, and without disruptive planning reform, the CPE would have significant benefits:

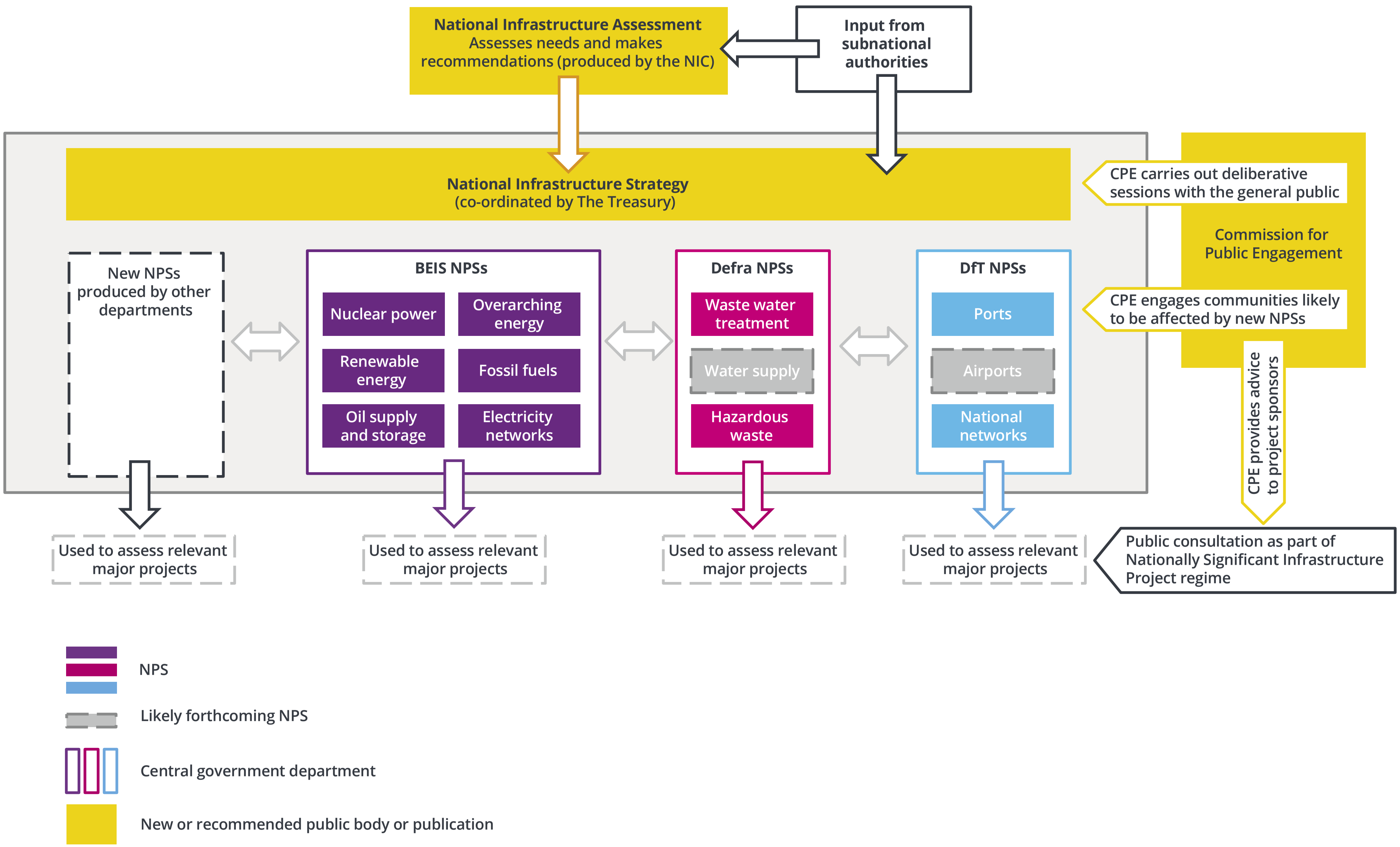
- Local communities would have a real say on projects that affect them.

- Developers would have greater certainty and deliver their consultations faster.

- The Government would be able to bring important projects forward more quickly and with the legitimacy to make tough decisions.

- Delays and overruns, which can run to hundreds of millions, if not billions of pounds, would be reduced.

Figure 3: Proposed relationship between National Policy Statements and public engagement



Note: BEIS = Department for Business, Energy and Industrial Strategy; CPE = Commission for Public Engagement; Defra = Department for Environment, Food and Rural Affairs; DfT = Department for Transport; NIC = National Infrastructure Commission; NPS = National Policy Statement.

Source: Institute for Government analysis

2. Quality

The quality of the UK's infrastructure is not as good as it could or should be. The World Economic Forum ranks the UK 27th out of 144 nations, judging it to be lagging behind most advanced economies.[16] Improving infrastructure quality is critical if it is to stay competitive.

This is not to say that the Government is routinely proceeding with weak projects (though legitimate questions have been raised about Hinkley Point C[17]) or accepting sub-par performance from contractors. Certain projects, such as Crossrail, can be hugely impressive and may meet the highest international standards for design and construction.

Instead, our research suggests that, both individually and collectively, government could pick better projects. While selected projects may meet their objectives, this does not mean that the objectives were right or that an alternative would not have performed even better.

Equally, it makes little sense to think about the impact of schemes in isolation. Individual projects are part of a wider system. HS2, for example, adds to the railway network, connects with other types of transport, and will have implications for housing. New projects must complement each other and existing infrastructure, and should be selected on the basis of their contribution to the whole investment portfolio.

To ensure that better decisions are made in the future, the Government needs to develop a cross-government infrastructure strategy so that it can better prioritise projects and consider their interdependencies. It must further improve the tools and systems it uses to appraise infrastructure projects so that it picks the best options more often. Finally, Parliament must provide robust scrutiny of government plans.

A cross-government infrastructure strategy will enable the Government to better prioritise projects and consider the relationships between them

Co-ordination of infrastructure policy and projects across Whitehall and different levels of government is currently poor. This is not entirely surprising given the number of organisations and individuals that are nominally accountable for infrastructure.

Within central government alone, there are eight departments and 26 ministers with official responsibility for infrastructure policy (see Figure 4). Below the national level, combined authorities, local authorities, local enterprise partnerships and, from April 2018, subnational transport bodies, all have infrastructure roles.

This messy and irregular institutional set-up – particularly at the subnational level, where different areas can have very different arrangements – requires strong co-ordination if there is to be policy coherence. This is currently lacking. Existing infrastructure 'strategies' such as the Industrial Strategy,[18] the National Infrastructure Delivery Plan 2016–21[19] and the Transport Investment Strategy[20,21] provide long lists of policies but little sense of how they fit together.

The Government needs a clear national framework for choosing between and sequencing projects. It must be able to consider proposed projects collectively and effectively co-ordinate the work of a wide range of government bodies. This is particularly important for large national projects such as HS2, where realising all potential benefits depends on local authorities and others. Such a framework would also provide greater certainty for the construction industry and investors, who play a crucial role in successfully delivering high-quality projects.

We recommend that the Government develops a cross-government National Infrastructure Strategy[*] in response to the NIC's National Infrastructure Assessment (NIA). To be successful, this strategy must:

- **Articulate a vision for how the policies and projects of individual departments will interact to achieve infrastructure objectives**. The Government must explain how recommendations it accepts from the NIA interact with existing plans, such as the Industrial Strategy[22,23] and National Policy Statements (NPSs). New NPSs should flow from, and support the implementation of, the National Infrastructure Strategy and existing ones should be updated accordingly (see Figure 3).

- **Identify how to build the capacity of subnational authorities, including combined authorities, local authorities and subnational transport bodies**. The goal should be to devolve powers and posts so that subnational authorities are able to effectively plan and negotiate major infrastructure priorities for their areas. The strategy should set out the formal arrangements by which central government and subnational authorities will negotiate infrastructure policies and projects. These arrangements should be similar to those recently published for Transport for the North.[24]

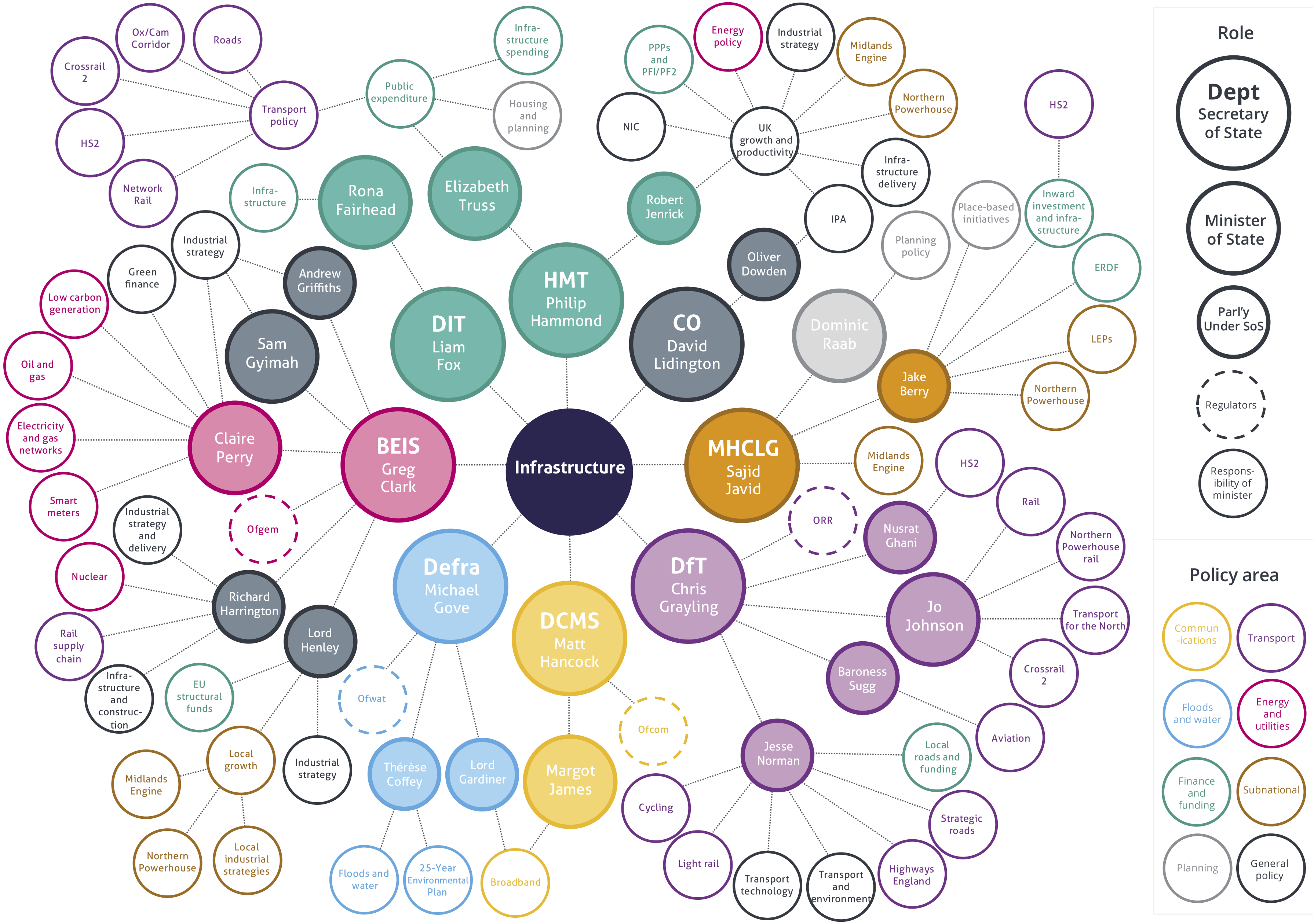
- **Identify areas in which the NIC could helpfully undertake further work**, developing the commission's evidence base and making recommendations. This work could be on policy themes (such as Smart Power) or specific geographical areas (such as the Cambridge–Milton Keynes–Oxford corridor).

- **Be 'spatial' and identify the geographically variable impacts of its recommendations**. Identifying these impacts would form the foundation for early engagement with affected communities. This requires being explicit about the extent to which areas will benefit from investment decisions.

- **Be written in an accessible way to help facilitate public engagement**.

* The National Infrastructure Strategy should incorporate devolved administration plans for devolved policy areas, such as water, and most aspects of the town and country planning system.

Figure 4: Departments and ministers with infrastructure responsibilities



Note: BEIS = Department for Business, Energy and Industrial Strategy; CO = Cabinet Office; DCLG = Department for Communities and Local Government; DCMS = Department for Digital, Culture, Media and Sport; Defra = Department for Environment, Food and Rural Affairs; DfT = Department for Transport; DIT = Department for International Trade; ERDF = European Regional Development Fund; EU = European Union; HMT = the Treasury; HS2 = High Speed 2; IPA = Infrastructure and Projects Authority; LEP = local enterprise partnership; NIC = National Infrastructure Commission; ORR = Office of Rail and Road; Ox/Cam = Oxford/Cambridge; Parl'y Under SoS = Parliamentary Under-Secretary of State; PFI = private finance initiative; PPP = public–private partnership.

Source: Institute for Government analysis

To help develop the strategy and monitor its implementation, the Government should reinstate the position of Commercial Secretary to the Treasury to take on this role. Currently, there is insufficient capacity among the Treasury ministerial team to do this. The Chancellor would retain overall responsibility, but would be supported by a minister with an entirely infrastructure-focused portfolio.

Undertaking thorough appraisal, using improved cost benefit analysis, will ensure that the Government picks the best option more often

A clear National Infrastructure Strategy is necessary but not sufficient to improve infrastructure quality. The Government must also improve how it assesses the merits of projects, particularly its use of cost benefit analysis (CBA).

Cost benefit analysis is the workhorse of government appraisal. A way of summing up the positive and negative impacts of a project, it is one of the key tools the Government uses to decide between competing options.

While ministers often base decisions on political objectives, they are more likely to select high-quality projects if they have access to high-quality evidence. Conversely, failures such as the rail electrification programme[25] show how badly things can go wrong in the absence of thorough analysis.

Unfortunately, our research found that cost benefit analysis is not always used appropriately. It can be applied inconsistently, based on questionable assumptions and communicated poorly. To improve appraisal, the Government must:

- **Update cost benefit analysis so that it can better capture the 'dynamic effects' of projects**. Ministers and the public often care most about 'dynamic effects' – those that change the structure of the economy – such as increased productivity and rebalancing the economy. But current models to assess dynamic effects are undeveloped and can lack credibility. The Treasury and other departments with specific expertise (including the Department for Transport) should undertake or commission more research into dynamic effects to produce improved guidance for analysts. Ministers and senior civil servants must also ensure that, particularly where project approval is based on claims about dynamic effects, these are subject to far greater scrutiny than is currently the case.

- **Improve the accuracy of project cost and time estimates**. These estimates are consistently over-optimistic. The principal problem is that not nearly enough is done to learn from the successes and failures of past projects. Government should systematically collect data on basic issues such as delivery times and cost outturns against estimates, with thorough evaluations for the largest projects. This information should be collated by the Infrastructure and Projects Authority and used to inform future appraisals.

- **Take a more consistent approach to assessing projects**. Some costs and benefits – such as impacts on health and the environment – are hard to monetise. Existing guidance such as *The Green Book*[26] should be updated and departments should publish standardised guidance on how to value these effects, and how to present their appraisals. Departments should adopt a five-step approach:

1. Calculate a benefit–cost ratio that only includes monetary impacts, such as train fares.

2. Calculate a benefit–cost ratio that also includes those impacts that can be straightforwardly and robustly monetised, such as journey time savings.

3. Show the effect of including impacts where monetisation is possible, but contested – such as environmental impacts – as a sensitivity test.

4. If relevant, show the impact of including uncertain but important dynamic effects as a sensitivity test.

5. Present these sensitivity tests to decision makers alongside the two benefit–cost ratios. Both should include a narrative as well as numerical figures, explaining whether uncertain effects justify moving the project into a different value-for-money category.

- **Communicate cost benefit analysis results better within Whitehall and to the public**. Information should be presented so that the data and assumptions underpinning them are clear, including the range of possible outcomes and their likelihood. Greater challenge of the data – whether by separate teams within departments or the Infrastructure and Projects Authority – would help to improve ministerial and public confidence.

High-quality infrastructure requires robust scrutiny

The quality of individual projects and infrastructure as a whole will be higher if government is kept on its toes. Effective parliamentary scrutiny is therefore critical. Parliament can help to ensure that the NIC is sufficiently independent and that its recommendations are given due consideration, facilitate cross-party dialogue on the country's infrastructure needs, and hold government to account on appraisals.

Rather than replicating departmental silos, individual select committees must co-ordinate their work. In the House of Commons, the Treasury Committee should lead this, working closely with other relevant committees. In the House of Lords, a new infrastructure committee should be established, initially for a year.

3. Cost

There is widespread domestic and international consensus that the UK needs to invest more in economic infrastructure. But this investment cannot come at any cost. Limited public resources impose constraints. Picking the most cost-effective options at every stage – from project selection to finance option – matters.

It is therefore a problem that the cost of UK infrastructure appears high compared with similar European countries.[27] Our research identified three (avoidable) causes of high costs:[*]

- over-optimistic cost estimates
- a bias towards private finance
- ineffective negotiation and management of private finance contracts.

Improving cost estimates will help the Government to make better investments

Infrastructure cost estimates are almost always over-optimistic, in both the public and private sectors, across the world (see Figure 5). This is a problem. If ministers commit to projects based on over-optimistic early cost estimates, they may not select the most cost-effective options, and can find themselves locked into undeliverable targets.

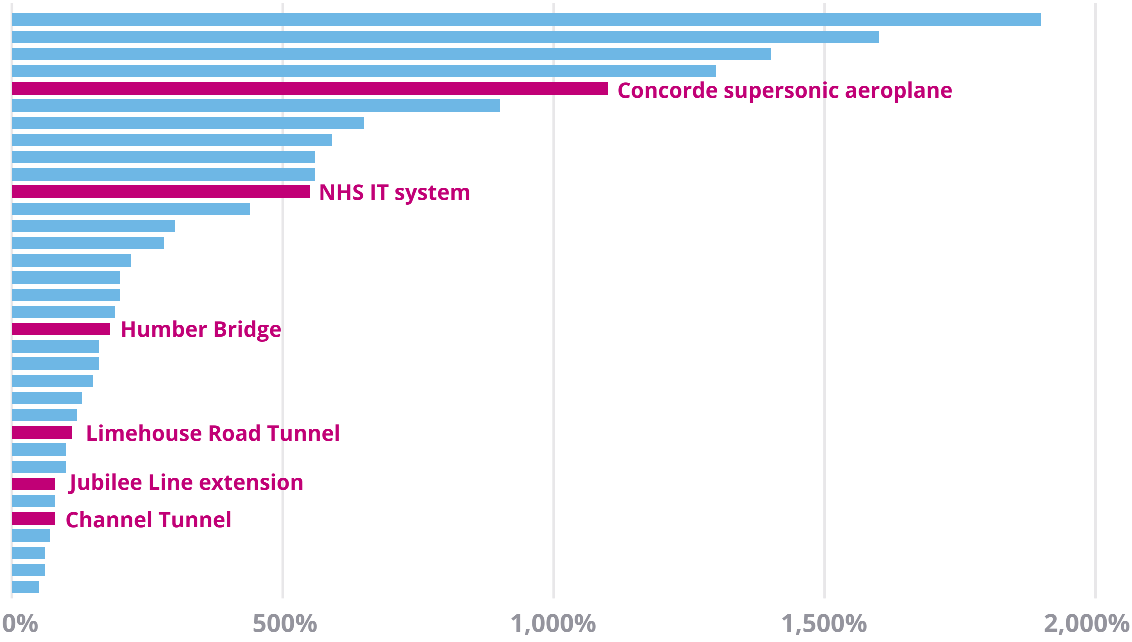
Over-optimistic cost estimates also make it harder for the Treasury to allocate funding appropriately. Cost underestimations make infrastructure projects look better value than they are, relative to other spending priorities.

Cost estimation can be improved. Currently, not enough is done to learn from the successes and failures of past projects, and there is no single organisation responsible for collating data on past projects and evaluating the data. To overcome this, the Government must build on the good work already being done in departments and public bodies such as Highways England.

First and foremost, departments must consistently evaluate infrastructure projects. They should systematically collect data on cost outturns against estimates, delivery times against estimates, the size of project teams and project length. Thorough post-project evaluations should be undertaken for all major projects.

* There may be other factors that increase the costs of infrastructure unavoidably, such as urban density. In this report we focus solely on factors that the Government can change.

Figure 5: International megaproject cost overruns, with UK projects shown in pink



Source: Institute for Government analysis of Flyvbjerg B (2014) 'What you should know about megaprojects and why: an overview', *Project Management Journal*, vol. 45, no. 2, pp. 6–19, Table 2

Second, these data should then be used to inform appraisals and cost estimates. To ensure that data are collected and used, the Infrastructure and Projects Authority should collate this information centrally and mandate that it is used by departments to enhance cost estimates.

But even together, these reforms will not be sufficient. Unforeseeable events may undermine even the most informed estimates, particularly when analysts must turn around estimates quickly for ambitious projects with large scopes. It is right that the Government should revisit decisions in the light of new developments. Sometimes it will be better to amend or abandon a project, rather than persevere regardless of the consequences.

It will be easier for ministers to change their minds if they create the political space to do so by being more honest about the uncertainty of cost estimates. They should be upfront about risks and potential overruns when making public announcements, particularly for major projects and megaprojects*.

Better accounting, appraisal and budgeting will improve the odds of the Government picking the best finance option

Moving beyond project selection, the Government must choose the most cost-effective finance option. Well-financed projects:

- create the right incentives to design and deliver high-quality infrastructure
- transfer risks to those best able to manage them
- reduce costs for taxpayers and consumers.

* Megaprojects are defined as infrastructure projects costing over £1 billion. See www.instituteforgovernment.org.uk/explainers/big-vs-small-infrastructure-projects-does-size-matter

There are examples of success, such as Crossrail, which used innovative funding mechanisms to raise finance,[28] and Thames Tideway, which used government guarantees effectively to stimulate private investment at a low financing cost.[29] But there are still too many examples of inappropriate finance choices leaving taxpayers and consumers locked into expensive, inflexible contracts. And the closure of Carillion, partly as a result of losses on private finance deals, has highlighted the fragility of some contractors.

The crux of the issue is that government comparisons between public spending and private finance are biased in favour of the latter. The blame lies with the UK's approach to accounting, appraisal and budgeting. We recommend changes to each:

- **The Government must not let arbitrary accounting rules and narrow fiscal targets drive financing decisions**. The UK's accounting standards mean that 90% of private finance projects do not count towards public sector debt. Being effectively 'off balance sheet',[*] there is always a risk that ministers select private finance to ensure that projects do not contribute to public sector debt, rather than because it is better value.

  To avoid this, the Treasury and public authorities must publish their comparisons of finance options, using wider measures of public sector debt and liabilities. The Chancellor should also expand the fiscal remit of the NIC to include private finance so that the commission can make recommendations based on their overall value for money, rather than because it is constrained by an arbitrary target.

- **The Government must implement a more robust appraisals process**. Currently, the evidence base is poor, there are skewed incentives for those undertaking appraisals, and there has been no quantitative guidance since 2012[30] – despite its promised replacement in spring 2013.

  The Government urgently needs more data on the cost and performance of publicly and privately financed projects. As the National Audit Office recently concluded: 'There is still a lack of data available on the benefits of private finance procurement.'[31] The Infrastructure and Projects Authority should mandate departments to collect and collate evidence on the cost and quality of past private finance projects. Beyond data, the Treasury should issue updated quantitative guidance as soon as possible.

  Those undertaking appraisals must also have the right incentives to provide objective advice. Rather than project teams conducting appraisals, we suggest creating separate teams within Whitehall departments or a separate team within the Infrastructure and Projects Authority to take on this responsibility.

- **The Treasury must change the way it handles capital investment**. Currently, budgets and Spending Reviews – the way the Treasury allocates money – create

* Most private finance projects are on the Government's 'Whole of Government' accounts balance sheet, but are not included in National Accounts' measures of public sector debt. For a full discussion, see Atkins G, Davies N and Kidney Bishop T (2017) *Public versus Private: How to pick the best infrastructure finance option*, Institute for Government, pp. 13–15, www.instituteforgovernment.org.uk/publications/public-private-infrastructure-finance

undue incentives for departments to prefer private finance. Even where private finance risks being poor value compared with public spending, a faster sign-off for private finance, short Spending Reviews and the allocation of capital and resource budgets may make private finance look like the best bet.

The Treasury must continue to plan capital budgets on a five-year cycle, but with the additional assumption that the Government will spend 1–1.2% of Gross Domestic Product (GDP) on infrastructure annually. Within that committed 1–1.2% of GDP, some of the money must remain unallocated to specific projects in order to maintain fiscal headroom for projects that emerge outside of Spending Reviews.

Improving budgeting is not solely a Treasury responsibility. Operational departments should improve long-term planning to bring projects, and their potential funding and financing requirements, to Treasury planners earlier.

The Government could get a better deal on private finance if it ups its game

As outlined above, it is vital that the Government reforms its accounting, appraisal and budgeting processes so that public and private finance options are compared fairly. However, even if private finance looks as if it will provide better value, realising the benefits can be challenging.

The current Government has a clear objective of securing more private investment in UK infrastructure, at a good price,[32] but it is failing to take the steps necessary to achieve this. Our research identified three key barriers that will need to be addressed if ministers are serious about meeting this goal:

- **Government must ensure that civil servants have access to sufficient in-house commercial skills**. Historically, the public sector has often failed to negotiate good deals, finding itself locked into expensive contracts, providing seemingly excessive returns to investors and unable to exit without paying exorbitant fees. Private finance initiative deals made in the 1990s have come in for particular criticism. The civil service has made improvements in recent years, but more must be done if the Government is to successfully secure more investment at a good price.

  If the Government is to agree to and manage private finance deals effectively, then the civil service needs more in-house expertise. External consultants have a place, but civil servants must be able to properly challenge the advice they are given. Specialists should either be based full time in individual departments with high infrastructure spends, or be provided as a central resource to be deployed where needed. The Government commercial specialism should monitor overall in-house capacity. Given the Government's objective of substantially increasing private investment in infrastructure, the project finance specialism in the Infrastructure and Projects Authority should recruit more specialists.

- **Ministers need to understand investor perspectives better before making policy**. Recent attempts to increase private investment in UK infrastructure, particularly pension fund pooling, were unlikely to meet expectations as they misunderstood the key drivers of investment. While officials with commercial expertise, particularly those in the Infrastructure and Projects Authority, understand investor needs, ministerial engagement with investors has been superficial and infrequent. Ministers must learn from past mistakes and engage with investors earlier and more frequently. Such consultation should be focused and conducted with a suitably balanced and representative group.

- **The Government must outline a clear infrastructure project pipeline**. Ministers need to recognise that the absence of a clear pipeline is one of the most important barriers to increasing private investment in infrastructure. Currently, it is difficult for investors to know which projects will require private finance, how much investment is needed, and how the deals will be structured. This uncertainty has two effects: it limits the number of potential investors, reducing competition for contracts; and it erodes investor confidence in government. Both problems ultimately result in higher costs.

  In the 2016 Autumn Statement,[33] the Government announced that it would publish a new pipeline of upcoming private finance projects. This has yet to be published. The Government must publish it as soon as practically possible. The information from this pipeline should be integrated into the existing National Infrastructure Construction Pipeline,[34] to bring together information for contractors and investors in a single place.

4. Conclusion

The UK needs a clear vision for infrastructure and improved leadership to achieve this. The Government needs consistent methods for choosing the right projects and finance options, and, as shown by the failure of Carillion, stronger commercial skills to negotiate and manage sustainable finance contracts. Local communities also need a greater input into infrastructure decision making.

The recommendations from our year-long infrastructure project involve spreading best practice or using existing resources as effectively as possible. Even our boldest recommendation – the creation of a Commission for Public Engagement – could be added onto the existing planning regime for major projects with little disruption.

Our recommendations also come at a critical time, considering that the Government expects public and private investors to invest £534 billion in economic infrastructure over the coming years.[35] And there is remarkable consensus on the need for change. The extent to which our interviewees agreed about where improvements must be made was striking. The next steps are up to the Government.

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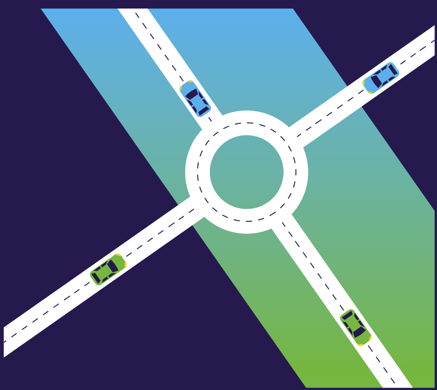

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