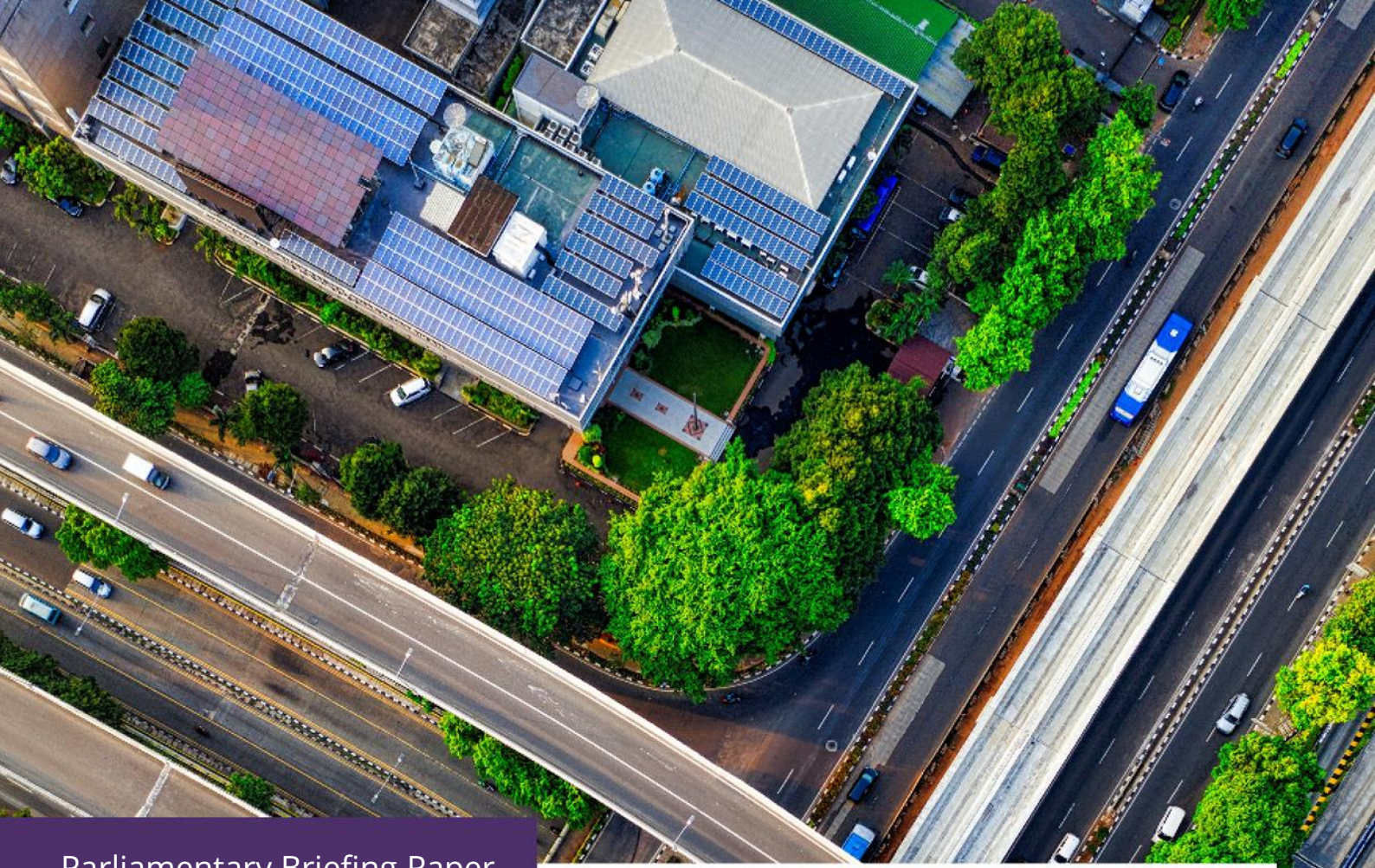

Parliamentary Briefing Paper

The Future of UK Major Infrastructure Projects

Created by the Royal Institution of Chartered Surveyors (RICS)

September 2024

RICS is a professional body with over 130,000 members and candidates operating in the development and management of land, real estate, construction, and infrastructure across more than 140 countries globally.

We are uniquely placed to have a positive impact in the built and natural environments because of our public interest remit, experienced qualified members, and talented young professionals working across the built environment life cycle.

A key part of our remit is to seek solutions to some of the built environment's most pressing problems and present solutions that enact real change at a government and industry level.

Introduction

The UK Government's ambitious infrastructure strategy is focused on accelerating the construction and enhancement of critical infrastructure across the country. This sector is vital for economic growth, job creation, investment and community regeneration.

Key focus areas of the government's future projects include:

- Decarbonising the electricity grid and investing in net-zero generating capacity, including renewables like wind, solar, and nuclear, as well as upgrades to the energy distribution infrastructure.
- Implementing New Town Developments, to address the UK's housing shortage which will be designed with sustainability and modern infrastructure in mind. These developments will also include essential infrastructure, such as healthcare facilities, and public transport links.
- Delivering major rail and road infrastructure projects to improve connectivity across the UK.

The latest RICS UK Construction Monitor[1] shows that there is optimism about future growth, with infrastructure reported as the strongest performing sector, and the energy sub-sector experiencing robust growth. The National Infrastructure Commission (NIC) also forecasted

[1] RICS Construction Monitor Q2 2024

real-term infrastructure investment peaking at between £70 billion and £80 billion annually during the 2030s, which is a significant increase on the average £55 billion per year over the past decade.

Whilst these figures point to an optimistic future, we must recognise the range of complexities involved in delivering infrastructure projects. Acknowledging these difficulties and challenges, RICS consulted its members to assemble several recommendations emphasizing the importance of efficient planning and execution to overcome potential obstacles and assist the UK government in achieving its ambitious goals.

Recommendations

1. Early project design phase

1a. Clarifying client requirements

Clarifying client requirements is a crucial foundational step that involves thoroughly understanding and documenting what the client requires and expects from the project.

There is a strong synergy between the early design phase and client requirements, clarifying client requirements is crucial in the early design phase. They should be fully defined and tightly controlled to prevent delays and avoid unexpected cost adjustments from the outset.

It is essential that any changes to the client requirements undergo rigorous scrutiny and a risk assessment. A robust framework should be in place to challenge and refine these requirements, ensuring they are integrated into the project's scope and controlled throughout its lifecycle maintaining project focus.

1b. Sufficient completion of early project design phase

This is a critical milestone for an infrastructure project which encompasses several key steps including defining the overall vision of the project, its scope and transitioning preliminary design activities into more detailed design and planning.

The early project design phase must be sufficiently completed before site works are initiated to allow for meaningful time and cost assessment. The design sponsor should ensure that they can justify why the design development status is sufficient and adequate prior to project commencement.

This can avoid any unnecessary extension to the design phase after project commencement which can cause significant delays and additional cost, there have been examples of cost escalations in previous projects due to additional requirements being added throughout the program which were not included in the initial scoping process e.g. the NAO noted that a key lesson from the rail project to modernise the West Coast Main Line was to tightly control the scope[2].

Another area which should be considered in the early design phase is the detailed consideration of UK ground conditions, as the UK is densely populated with varied topography, major projects can present unique challenges. Scope and design changes triggered by ground conditions inevitably cause delays due to increased costs, complexity and changes in timescales. The available mitigation is extensive early ground survey work.

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[2] The Modernisation of the West Coast Main Line - NAO report

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1d. Adopting modular build practices

Integrating modular opportunities into the project planning phase can streamline processes and reduce costs. Major infrastructure projects can greatly benefit from adopting and integrating modular build practices, as seen in sectors like healthcare and retail, where standard designs and modular components have enhanced efficiency and timeliness.

Beyond prefabrication, embracing concepts like design for manufacturing and assembly (DfMA) and modern methods of construction (MMC) early in the design phase can optimize productivity and efficiency. In addition to significant gains in on-site productivity, there are other benefits such as reduced construction time, safety, cost savings, and improved quality control enabling more streamlined and predictable project outcomes.

1e. Lessons learned from previous projects

The next generation of major infrastructure projects can benefit significantly from analysing past projects in the early design phase to identify both pitfalls and successful strategies.

It is essential for project teams to actively learn from previous experiences, demonstrate how they apply these lessons, and avoid repeating past mistakes. Systems integration for example is now recognised as a core challenge for modern infrastructure delivery. Several UK infrastructure projects have documented their lessons learned and made them easily accessible e.g. Crossrail [3] published a series of report and case studies that detail lessons

[3] Homepage - Crossrail Learning Legacy

learned from its construction and the London 2012 Olympic Park project[4] has various lessons learned reports on the London Legacy Development Corporation (LLDC) website.

By fostering a culture of continuous learning, transparency, and rigorous evaluation, future projects can improve their chances of success and more effectively address complex challenges. Engaging with professional bodies and academic institutions, as well as leveraging international best practices, can further enhance project outcomes and ensure that lessons are effectively shared and applied.

2. Accurate cost range projections

Accurate costings are essential to ensure cost certainty and avoid the pitfalls of an arbitrary budget. Cost projections should reflect the actual anticipated costs and should be based on a realistic range rather than a single, fixed figure, to account for long-term risks and uncertainties.

Independent auditing and contingency scenario planning should be conducted throughout the project, not just after completion, to maintain transparency and adaptability. While these practices are standard, there is often tension between cost and budget, with inadequate budgets forcing specification adjustments that can compromise project quality and which can result in delays.

3. Risk allocation

Risk identification and management take place throughout the project lifecycle requiring effective management, ongoing assessment and adjustment to ensure that they are appropriately managed, and responsibilities are clearly defined.

[4] https://webarchive.nationalarchives.gov.uk/ukgwa/20130403014247/https://learninglegacy.independent.gov.uk/publications/a-learning-legacy-from-the-london-2012-construction-prog.php

While the Construction Playbook provides a good framework for this, its implementation varies across departments. The Hammersmith Bridge refurbishment project is an example of positive practical application of the Construction Playbook's principles, adopting rigorous risk management and contingency planning practices.

It's essential to recognise that on most major projects, the client ultimately retains ownership of significant risks, including factors like inflation and unforeseen events. The goal should be to allocate lower levels of risk in a way that maximizes value, rather than attempting to offload all risks onto another party, which often proves ineffective. Contracts should focus on incentivizing the supply chain to deliver efficiently with reward mechanisms that encourage minimizing the impact of risks when and if they arise.

4. Project leadership and management

Major infrastructure projects evolve over extended timeframes, making it crucial to implement leadership succession planning that ensures smooth transitions and consistent leadership throughout all project phases. This planning should include leaders with expertise in project delivery, operational readiness and stakeholder engagement, particularly with government and political entities, to foster strong, collaborative relationships.

As the project progresses, the operating model must be adaptable, with a particular emphasis on maintaining consistent sponsorship and leadership from the funding side, which is vital for project success.

Leadership in such complex programs is a scarce, specialized skill. Therefore, it's essential to focus on cultivating both leadership and behavioural capabilities, promoting a more diverse and inclusive industry culture.

5. Project capabilities due to skill shortages

The UK faces a critical shortage of skilled workers essential for major infrastructure projects, according to the latest Construction Skills Network (CSN) report[5], around 250,000 new construction workers are needed by 2028 to fill the demand.

This shortfall is exacerbated by the global demand for skills in areas such as decarbonisation and emerging technologies. To address this challenge, it is vital to comprehensively map future skills requirements and develop strategies to recruit and retain a diverse range of skills and capabilities such as introducing an English Built Environment GCSE to inspire the next generation of construction specialists.

The government needs to recognise the magnitude of this issue, and this involves not only addressing the immediate shortage but also preparing for future demands. Government and industry stakeholders such as RICS must collaborate to address this issue comprehensively, ensuring that the workforce is equipped to meet the demands of current and future infrastructure projects.

6. Project standardisation and a shift in success measures

Consistent project standards are crucial for the efficient, safe, and budget-conscious delivery of major infrastructure projects while also supporting innovation and long-term success. These standards prevent inefficiencies by avoiding the need to reinvent processes for each project.

Projects should focus on clearly defined success measures that emphasize long-term benefits, outcomes, and value engineering over mere cost and timelines. This shift in focus, exemplified by the Project 13 delivery model, highlights the importance of broader outcomes such as job creation or increased decarbonization. The Anglian Water's Strategic Pipeline Alliance (SPA) showcases the effectiveness of Project 13 principles, emphasizing collaboration, shared risks, and long-term value.

[5] CSN Industry Outlook - 2024-2028 - CITB

To align with these goals, commercial models and contract forms must evolve to reward broader outcomes and ensure projects deliver substantial value beyond immediate financial metrics.

7. Procurement model reform

There is a concern that current commercial models may not be adequately reformed to fully support an enterprise delivery model, which is essential for fostering long-term collaboration and project success.

To ensure the viability and effectiveness of major infrastructure projects, it's crucial to reform both commercial and procurement models. This involves structuring contracts to drive collaborative behaviours and align incentives with the desired outcomes of the project. By promoting cooperation over competition and ensuring that all stakeholders are motivated by shared success, these reforms can address barriers and enhance project delivery throughout the entire lifecycle.

8. Reform of the planning system

One of the biggest barriers to major infrastructure projects in the UK is the planning system, which creates significant delays, costs, and uncertainties, disincentivising investment.

In March 2024, Lord Banner KC was commissioned by the then Department for Levelling Up, Housing and Communities (DLUHC) to lead an independent review of the planning and delivery of major infrastructure projects, with a report expected in three months however, as of September 2024 no update has been provided. Whilst the new government has pledged to improve planning approvals, the findings of this review are crucial and RICS looks forward to its publication.

The UK government has also initiated the National Planning Policy Framework (NPPF) consultation to gather feedback from various stakeholders on proposed changes to the NPPF. the outcome of this consultation is expected to lead to significant changes in planning policy.

9. Professional ethics and escalation process

Professional ethics and a clear escalation process are essential components of a healthy project culture. Professionals working within client organizations, bound by strict rules of conduct, must have the ability to raise challenges or concerns with project stakeholders, including the government, without fear of retribution. It is vital to foster a working environment where individuals can address issues transparently and effectively.

Establishing recognised and accessible escalation mechanisms, as seen in projects like Thames Tideway Tunnel, should be considered best practice with robust programme controls and data-driven decision-making processes, which allow for informed and objective resolutions. By embedding these principles, projects can ensure ethical standards are upheld, and concerns are managed proactively, contributing to overall project success.

10. Recognition that government cycles impact projects

Major infrastructure projects need to be separated from electoral cycles and political agendas to prevent short-term, politically motivated decision-making that can undermine their success. When infrastructure projects are tightly aligned with election cycles, there is a risk that decisions will be driven by immediate political gains rather than long-term value and sustainability.

To mitigate this, it is crucial to establish broad, cross-party consensus on the need and strategic approach for the project. This consensus can provide stability and reduce political interference, ensuring that decisions are based on project merit and long-term benefits rather than electoral considerations.

Although achieving complete separation between politics and infrastructure is challenging since all major infrastructure decisions inherently involve political consideration, a clear, long-term vision and narrative for the project should be established to help maintain focus on the project's objectives and reduce the impact of shifting political priorities.

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