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Experiences of Managing and Delivering Major Capital Projects in Great Britain and Ireland

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This briefing paper examines the delivery of major capital projects in Northern Ireland and compares these experiences with similar projects across Great Britain and Ireland.

1 Executive Summary

This briefing paper examines the delivery of major capital projects in Northern Ireland and compares these experiences with similar projects across Great Britain and Ireland. The paper also discusses international best practice in managing infrastructure delivery.

Major capital projects, defined as schemes costing over £25 million, are critical to economic growth and public service improvement, yet they frequently encounter significant challenges. Evidence from audit reports, parliamentary inquiries, and independent reviews reveals persistent issues including cost overruns, delays, and governance weaknesses:

- **Persistent Delivery Failures:** Northern Ireland's major projects, such as the A5 and A6 road schemes, Casement Park, and Belfast Transport Hub, have suffered significant cost overruns and delays. Of 77 projects assessed since 2011, only nine are expected to meet original time and cost estimates.
- **Governance Gaps:** There is no single independent oversight body for major projects, resulting in fragmented monitoring and weak accountability. The NI Audit Office and Public Accounts Committee has repeatedly called for structural reform.
- **Planning Complexity:** Northern Ireland's planning system is described as "daunting," with excessive documentation and frequent judicial reviews causing delays and uncertainty.
- **Social Licence Deficit:** Failure to secure community support has led to legal challenges and political opposition, adding years and millions in costs. Projects like the A5 upgrade and Casement Park illustrate this risk.
- **Skills Shortages:** Departments lack sufficient project management and technical expertise, contributing to poor planning and execution.
- **Budgeting Constraints:** Annual funding cycles undermine long-term planning and increase inefficiencies.

- **Global Patterns:** Issues such as optimism bias, scope creep, and governance complexity are evident in major projects across Great Britain (HS2, Crossrail, Edinburgh Tram) and Ireland (MetroLink).

2 Introduction

The purpose of this briefing paper is to examine the delivery of major capital projects in Northern Ireland and compare these experiences with similar projects across Great Britain and Ireland. Major capital projects, defined as schemes costing over £25 million, are critical to economic growth and public service improvement, yet they frequently encounter significant challenges. This paper aims to identify common issues, assess lessons learned from other jurisdictions, and highlight potential reforms to improve delivery in Northern Ireland. This paper includes:

- analysis of reports by the Northern Ireland Audit Office (NIAO), Public Accounts Committee (PAC) and Strategic Investment Board (SIB) which reveal persistent cost overruns, delays, and governance weaknesses in flagship projects such as the A5 and A6 road schemes, Belfast Rapid Transit, and Casement Park.
- an examination of major projects in Great Britain (HS2, Crossrail, Edinburgh Tram, A9 Dualling) and Ireland (MetroLink), which demonstrate similar patterns of optimistic early estimates, scope changes, and planning delays.
- a discussion of potential structural changes such as an independent oversight body for infrastructure investment, similar to the National Infrastructure and Service Transformation Authority (NISTA) in the UK, designed to integrate strategic planning and delivery oversight.

The evidence shows that challenges in delivering major capital projects are not unique to Northern Ireland; they are global in nature. However, the impact is particularly severe in Northern Ireland due to smaller budgets and shorter funding cycles. Lessons from other jurisdictions emphasise the need for realistic forecasting, streamlined planning processes, integrated governance, and early stakeholder engagement.

3 NI Audit Office Report

In December 2019, The Northern Ireland Audit Office (NIAO) published a report entitled 'Major Capital Projects' (projects costing over £25 million[1]). That report provided high level information on the 54 major capital projects commenced by Northern Ireland Government Departments and their Arms Length Bodies during the period 1 April 2011 to 31 March 2019, costing almost £10.6 billion.[2]

DfI had the largest major capital project portfolio, with 17 major projects (31 per cent of the total) costing (a combined) £2.4 billion (43 per cent of the total). The majority of the DfI projects relate to roads and transportation including, for example, four of the Executive's flagship projects: the A5 and A6 roads; the Belfast Rapid Transit scheme; and the Belfast Transport Hub.[3]

The Belfast Rapid Transit project was the only project examined that was delivered within the estimated costs outlined in the initial business case (although the final cost slightly exceeded the cost outlined in the full business case).[4] In relation to the other flagship projects the NIAO found that performance in delivering these projects varied with many suffering cost overruns and/or significant time delays against original estimates. The explanations provided by departments included funding constraints, legal challenges, planning issues, limited interest from the construction industry and issues with the quality of construction.[5]

3.1.1 PAC report

The Public Accounts Committee expressed its concerns around the governance and accountability of major capital projects in Northern Ireland, noting significant concerns over the level of overspend that, if properly managed, could have been invested elsewhere. The PAC called for greater accountability for the

[1] NI Audit Office, Major Capital Projects, December 2019

[2] As above, page 10

[3] As above, page 23

[4] As above, page 33

[5] NI Assembly Public Accounts Committee, Report on Major Capital Projects, 22 October 2020

Head of the Civil Service (HOCS), noting the HOCS lacks formal responsibility for financial propriety, unlike counterparts in Scotland and Wales.

The report noted the absence of a single oversight body for major projects, leading to fragmented monitoring. It recommends creating an oversight body to:

- Provide consistent scrutiny and assurance across all major projects.
- Ensure early intervention when risks or delays arise.
- Improve transparency and governance by having a central authority responsible for oversight rather than leaving it to individual departments.

This recommendation aims to address systemic issues like cost overruns, delays, and lack of coordination. Other findings in the report include:

- Procurement processes are overly complex, and failure to centralise procurement has missed opportunities for efficiency.
- Business case processes were flawed, contributing to scope changes and overruns.
- Poor planning and stakeholder engagement (e.g., Casement Park) caused judicial reviews and delays.
- Lack of multi-year budgets hampers long-term project planning.
- Skills gaps persist among Senior Responsible Officers (SROs) and project managers.

3.1.2 NIAO follow up report

The NIAO published 'Major Capital Projects – Follow-up' in February 2024. This report built upon the 2019 report and took account of the Public Accounts Committee's (PAC) 2020 recommendations.[6] The follow up report provides a detailed assessment of how Northern Ireland departments, including DfI, have managed major capital investments since the original 2019 report. Again, DfI features prominently due to its large share of the capital portfolio and its role in delivering several Executive flagship projects. All seven Executive flagship

[6] Public Accounts Committee, Report on Major Capital Projects, October 2020

projects, including those led by DfI, experienced cost overruns and/or significant delays.

The report assesses progress on 11 case study projects. It highlighted:

- Significant cost overruns and delays: The total estimated cost of the 77 major capital projects (each over £25 million) rose from £5.63 billion to £8.08 billion, a 44% increase. Only 9 projects are expected to meet both original time and cost estimates.
- Flagship projects underperforming: Of the seven Executive flagship projects announced in 2015, only one (Belfast Rapid Transit) has been fully completed. All others have experienced delays and/or cost overruns.
- Persistent delivery challenges: including funding constraints, legal and planning delays, limited market interest, and inflation and external shocks (e.g. COVID-19).
- Governance and oversight weaknesses: No single body oversees all major capital projects such as the proposed independent Infrastructure Commission for Northern Ireland.
- Capacity and capability gaps: Departments continue to face staffing and skills shortages, affecting project planning and execution.
- Business case accuracy concerns: While the process has been streamlined, outline business cases often lack reliability, contributing to unrealistic cost and time projections.

The NIAO report noted that project delivery problems are not unique to Northern Ireland and highlighted the absence of multi-year budgets, which impact on departments' ability to plan, finance and invest in the delivery of major capital projects. However, it did conclude that the scale of delays and cost overruns, indicate departments are not achieving value for money in the delivery of these major capital projects and that action is needed to prevent further cost overruns and delays.[7]

[7] NI Audit Office, Major Capital Projects: Follow-up Report, February 2024

3.1.3 PAC response to follow up report

The PAC revisited its 2020 inquiry into major capital projects after continued delays and cost overruns. It noted that despite previous recommendations, progress has been minimal. The Committee expressed deep frustration at the lack of tangible improvement. The main issues identified were:

1. Persistent Overspends and Delays: Cost overruns remain 'unacceptable,' with billions diverted from other public services. The system for commissioning and delivering projects is still not fit for purpose.
2. Weak Leadership and Governance: The NICS Board, despite reconstitution with independent members, lacks authority to hold departments accountable. It receives progress reports but without cost/time details, limiting effective scrutiny.
3. No Independent Oversight Body: Northern Ireland still lacks a single independent body to monitor major projects. The ISNI Committee, as a subcommittee of the NICS Board, has insufficient authority.
4. Root Causes Unaddressed: Strategic Investment Board (SIB) identified three root causes, policy, process, and people, with skills gaps being the most critical. Failure to act could add £5 billion to future costs.

3.2 Strategic Investment Board 'Root Causes' Report

Following the PAC's 2020 report, the Procurement Board agreed that the Strategic Investment Board (SIB) would undertake an exercise to identify the root causes of delays and overruns in the projects included in the NIAO's 2019 report. The SIB published the report entitled 'The Root Causes of Delay and Cost Overruns in Major Capital Projects' on 10 October 2024. The report investigates the systemic causes of delays and cost overruns in major capital projects within Northern Ireland.

The report noted that The Draft Investment Strategy currently contains proposals for capital expenditure of £24 billion over the next 10 years, including around ninety major capital projects with total value of £12 billion. Given that £24 billion is projected for capital expenditure over the next decade, the

persistence of these inefficiencies could result in an additional £5 billion in costs if left unaddressed.

3.2.1 Macro drivers

The report acknowledges external issues that have increased costs. Inflation constitutes a significant proportion of cost escalation, accounting for approximately 21% of additional expenditure. This inflationary pressure has been exacerbated by global disruptions, including the COVID-19 pandemic and geopolitical shocks. Delays further compound costs through repeated approvals, the obsolescence of preparatory studies, and diminished market interest, which reduces competition and inflates prices. Beyond financial implications, deferred project benefits impose substantial social and economic costs.[8]

3.2.2 Root causes

The report identifies a number of issues throughout the life cycle of major capital projects from proposal to delivery, noting how it has become increasingly complex, rendering it slow, fragile, and unpredictable. The report suggests this complexity is not the product of deliberate design, but rather the cumulative effect of incremental changes to rules, regulations, and processes. It concludes that while short-term mitigations such as enhancing technical expertise are feasible, substantive improvement will require structural change.

The SIB report categorised the root causes with the greatest adverse impact on delivering major capital projects into three key areas: policy, processes, and people.[9]

[8] Strategic Investment Board, The Root Causes of Delay and Cost Overruns in Major Capital Projects, 10 October 2024

[9] Table taken from: NI Assembly Public Accounts Committee, Report on Major Capital Projects: Follow-up Report, 3 April 2025

Table 1: Root causes of failure in delivering major capital projects

Area	System	Root Cause of Failure
Policy	Planning	Planning policy and regulations are unsustainably complex.
Policy	Social License	The public sector fails to recognise and act upon the importance of social licence.
Process	Project initiation	A lack of relevant expertise means plans are inadequate. Such plans are subject to ineffective assessment and review.
Process	Procurement	A lack of relevant expertise means procurements are slow and expensive, and private sector competition is discouraged.
Process	Cost and Schedule Estimates	Weakness on other systems (primarily planning, procurement, social licence and decision making) make costs and schedules unpredictable.
People	Provision of Expertise	The public sector fails to recruit and deploy sufficient project delivery expertise.

3.2.3 Planning

In the report the planning system is described as fragmented and complex. It references a 2022, Court of Appeal case where planning permission for a Further Education College in Craigavon was quashed.[10] In its judgment, the

[10] Michael Fitspatrick, Craigavon park dispute: Planning approval for campus overturned, 23 October 2022

court made several observations on the state of planning policies, describing the 'frankly daunting' process that the planning officer had to follow, where instead of having one clear set of guidelines, the rules are scattered across different documents, policies, and interpretations. This makes them hard to understand and follow, leading to confusion, delays, and legal challenges:

> 'The planning policy context comprised a total of 13 separate planning policies and 6 measures of 'supplementary planning guidance', scattered both near and far. The planning officer first had to work out how they interrelated with each other. He then needed to construe the relevant provisions of these policy instruments and apply them to the planning application […] That this veritable mase has generated protracted and expensive litigation is unsurprising. [The case] demonstrated how difficult the exercise of interpreting planning policies can be.'

This complexity has seen applications grow excessively in scale, exemplified by an environmental impact assessment for a 'non-contentious' wind farm containing 13,275 pages. The report notes that In 2012, a typical planning application for a major infrastructure project contained 381 documents. By 2020, the document count had risen to 1,143.

The SIB report notes that this complexity perpetuates a self-reinforcing cycle: larger applications necessitate longer assessments, which invite further challenges, leading to even greater complexity. Judicial reviews and appeals amplify uncertainty and cost, while emerging climate-related regulations risk adding additional layers of complexity. This results in planning authorities consistently failing to meet performance targets, while the absence of expedited mechanisms for regionally significant projects further compounds inefficiency.[11]

The report identifies mitigations that could be applied to address current performance issues and suggests more resources could be allocated to planning authorities, the Planning Appeals Commission, and statutory

[11] Strategic Investment Board, The Root Causes of Delay and Cost Overruns in Major Capital Projects, 10 October 2024

consultees. However, it notes that unless the underlying issue is addressed, this can only be a temporary and expensive fix.[12]

The main consequences of these failures of the planning system include economic harm and investor avoidance:

> 'Given the importance of renewable energy to the achievement of Net Zero, it is particularly concerning the fact that 82% of renewable developers do not see Northern Ireland as an attractive place to invest because of delays and uncertainty in the permitting process.'[13]

3.2.4 Social Licence

Social licence means having broad public approval for a project, beyond just legal permission. Even if a project meets all legal requirements, it still needs community support to move forward smoothly. Without this support, projects often face protests, political opposition, and legal challenges.

The report says that many major projects in Northern Ireland fail because they ignore social licence. When people feel excluded or believe a project will harm their community, they fight back. This can lead to:

- Judicial reviews (legal challenges that stop projects for years)
- Protests and campaigns against development
- Political pressure that makes decision-makers hesitant

These delays cost millions and sometimes billions of pounds. For example, projects like the A5 road upgrade, Casement Park stadium, and Arc21 waste facility have been stalled for years, adding around £3 billion in extra costs.

Big infrastructure projects often bring benefits to society as a whole (like better roads or cleaner energy) but impose costs on local communities (like noise, traffic, or environmental impact). If people feel those costs are unfair or that they

[12] Strategic Investment Board, The Root Causes of Delay and Cost Overruns in Major Capital Projects, 10 October 2024, Page 15

[13] As above, page 13

weren't consulted, they resist. The report calls this problem 'vetocracy' where small groups can effectively veto progress through legal and political means.

The report says government and project teams must:

- Engage early and honestly with communities, not just after decisions are made.
- Explain benefits clearly and show how local concerns will be addressed.
- Build trust by being transparent and consistent.

Ignoring social licence is one of the biggest reasons projects fail. Without this, even legally approved projects can be blocked for years, wasting money and delaying benefits like better transport, housing, or renewable energy. The report argues that securing social licence should be treated as a core part of planning, not an afterthought.

The PAC report emphasised the Committee's concern of the lack of understanding of social licence within the Northern Ireland Civil Service (NICS). The Committee has called on the Department of Finance (DoF) to do much more to improve its understanding of social licence, and ensure it is widely understood across the NICS in order to effectively build engagement with communities and key stakeholders and harness the benefits of social licence in successfully delivering major capital projects.

The SIB report recommends that, in the longer term, new legislation should enable early public engagement in decision-making processes for major infrastructure projects. It notes that objectors in Northern Ireland lack any effective formal mechanism except the Judicial Review (JR) process to seek changes to proposals for major projects which introduces substantial additional cost and delay.

A project may be referred to the Planning Appeals Commission in advance of the grant of planning permission, at which objections can be heard. However, this process is not mandatory.

The report suggests that when the JR mechanism is used, it does not lead to an independent and objective assessment of the issues that gave rise to the

objection. Table two shows that in no case was the determinant issue of a JR the same as the objectors' complaint. According to the SIB report, this demonstrates the ineffectiveness of using the judicial system as a means of resolving social licence issues.

Table 2: Comparison of major capital project judicial reviews, complaint and determinant issue

Project	Complaint	Determinant Issue of JR
A5	• Loss of farming land to new road	• Rigour of environmental impact assessment
Casement Park	• Impact of stadium mass on blocking light to nearby houses • Noise from events	• Failures in the environmental impact assessment
SRC Craigavon	• Loss of amenity (walking space)	• Rigour of the environmental impact assessment • Compliance with zoning policy
Arc21 EfW Plant	• Perceived pollution and health hazards • Impact on property prices	• Vires of the decision maker
N/S Electricity Interconnector	• Loss of farming land along route of overhead cables • Perceived health risks	• Vires of the decision maker

The SIB report suggests that one legislative change that could reduce the likelihood of JRs, and reduce their impact if successful, would be to enable the courts to allow the rectification of minor errors made in planning determinations. In the SRC case, the Court of Appeal ruled that there was a legal basis for granting planning permission, but that the planning officer had not correctly identified it. If the option had been available to the Court to allow this mistake to be corrected within a short period, then the project could have continued. At present, such minor corrections are not possible and as a result the SRC project was halted.

The SIB proposes a model for such engagement currently used in France. The French Commission Nationale du Débat Public (CNDP) was set up to provide an independent and objective forum for the public to make its case. It invites ideas to make projects better; provides (and funds) support to interested parties and ensures project sponsors consider and respond to public representations. In doing so, it limits the scope for 'Lawfare' further along and improves the quality of projects. As a measure of its impact, of the projects that have gone through the process, new options were appraised in 35% of cases, 42% were modified substantially and 8% were abandoned completely.

3.3 Infrastructure Commission

The NIAO highlights problems with the current governance framework of infrastructure investment and the Public Accounts Committee has recommended the appointment of an independent advisory body with responsibility for central monitoring of major capital projects with expert advice sought at the outset of projects.[14]

This type of body exists elsewhere, for example the National Infrastructure and Service Transformation Authority (NISTA) was established on 1 April 2025 to improve the delivery of major infrastructure and service transformation projects in England. It was created by merging the National Infrastructure Commission, the Government's former advisory body, with the Infrastructure and Projects

[14] NI Assembly Public Accounts Committee, Report on Major Capital Projects, October 2020

Authority (IPA), which supported the delivery of major government projects. Key Responsibilities include:

- Strategic Planning: Develop and maintain the UK's long-term infrastructure strategy and provide impartial, evidence-based advice to government.
- Delivery Oversight: Monitor and support the execution of major projects across their lifecycle, ensuring timely and cost-effective delivery.
- Financing and Investment: Advise on funding models and facilitate engagement with private sector investors to secure infrastructure financing.
- Governance and Assurance: Operate with expert advisory panels to provide assurance and improve governance frameworks for infrastructure delivery.
- Sector Engagement and Innovation: Promote best practice, address systemic challenges (e.g., planning delays, skills shortages), and encourage innovation.
- Pipeline Management: Publish and manage the national infrastructure pipeline, currently valued at over £500 billion, covering economic and social infrastructure.

The Welsh and Scottish governments have also established non-statutory Infrastructure Commissions, very much along the lines of the UK model.

In August 2020 the Northern Ireland Infrastructure Minister appointed an independent Ministerial Advisory Panel on Infrastructure (The Panel/MAPI) to consider how an Infrastructure Commission for Northern Ireland might support the long-term planning and development of infrastructure in NI.

The Ministerial Advisory Panel recommended the establishment of an independent Infrastructure Commission for Northern Ireland and the Executive made a commitment to this in its Covid Recovery Plan. At the time the Executive collapsed, work was still ongoing to determine the precise remit of an

Infrastructure Commission and its relationship with the Executive, departments and Strategic Investment Board (SIB).[15]

A question to the First Minister and deputy First Minister in February 2025 confirmed no decision had been taken with regards to an Infrastructure Commission, and that decisions on the way forward will be a matter for the Executive in due course.[16]

4 Challenges in other Jurisdictions

The UK government manages some of the world's most complex infrastructure projects encompassing road and rail networks, nuclear power stations, defence programmes, and digital transformations. These projects are vital for economic growth and public services, yet they frequently suffer from delays, cost overruns, and governance challenges.

As of 31 March 2024, the UK Government's Major Projects Portfolio (GMPP) consisted of 227 projects with a total whole life cost (WLC) of £834 billion.[17] According to the House of Commons Committee of Public Accounts (CPA), major projects present unique challenges for government:

> 'The success of a project and whether it represents value for money will ultimately be determined by whether the intended value – such as economic growth or improved, more efficient public services – has been delivered, and whether the value of the project justifies its cost.' [18]

4.1 Why major projects go wrong

There have been a number of reports analysing how the UK Government delivers major capital projects. For this briefing I have examined four recent publications and highlighted case studies within each. Common themes across

[15] NI Audit Office, Major Capital Projects: Follow-up Report, February 2024
[16] NI Assembly Oral Question, AQO 1545/22-27, 17 February 2025
[17] Infrastructure and Projects Authority, Annual Report on Major Projects 2023-24, 17 January 2025
[18] House of Commons Committee of Public Accounts, Delivering value from government investment in major projects, Thirty-Second Report of Session 2023–24, 15 May 2024

projects reflect experiences of delivering major capital projects in Northern Ireland, including cost overruns, delays, governance complexity, skills shortages, and poor risk management. The reports considered are:

- HM Treasury Value for Money Study on Mega Projects
- National Audit Office (NAO) Lessons Learned
- Cost drivers of major infrastructure projects in the UK
- ICE Green Paper on Major Infrastructure Costs

4.1.1 HM Treasury: Value for money study: governance and budgeting arrangements for mega projects

The Value for Money (VfM) study on governance and budgeting arrangements for mega projects highlights three major projects currently under construction and examines systemic delivery issues. Projects highlighted include:

- HS2 (High-Speed Rail) One of the largest infrastructure projects in Europe, intended to transform rail connectivity.
- Sizewell C (Nuclear Power Plant) A critical energy project aimed at boosting low-carbon electricity generation.
- Dreadnought Programme (Nuclear Submarines) A defence mega project central to maintaining the UK's nuclear deterrent.

The report identifies recurring problems that undermine value for money and delay delivery:

1. Unrealistic Early Cost Estimates: Initial budgets are often overly optimistic, failing to reflect uncertainty and risk. This leads to projects being approved before they are ready, locking in costs and timelines prematurely.
2. Perverse Incentives and Premature Delivery: Political and institutional pressures push projects into delivery stages without robust feasibility studies or clear scope, increasing the likelihood of overruns.
3. Convoluted Governance and Accountability: Decision-making and assurance structures are complex and fragmented, blurring

accountability. Governance often fails to evolve as projects grow in scale and complexity.

4. Budgeting Constraints and Stop-Start Funding: Annual budgeting is prioritised over long-term delivery, creating inefficiencies and higher whole-life costs. Projects lack flexibility to reallocate funds across years to manage risks effectively.
5. Scope Changes Without Impact Assessment: Political support fluctuates, and scope or objectives are altered without fully understanding cost and schedule implications.
6. Skills Shortages: Specialist expertise required for mega projects is often missing within the civil service, slowing progress and increasing reliance on external contractors.

Although there are clear differences in scale, the Treasury report identifies similar issues to those experienced in Northern Ireland.

- Both HS2 and Sizewell C suffered from optimistic early budgets. The Northern Ireland PAC reports show projects like Casement Park and A6 road schemes also underestimated costs and timelines, leading to overruns.
- The Treasury report also highlights multiple layers of assurance and fragmented accountability across departments. The PAC highlighted weak cross-departmental oversight and absence of a single independent body, leaving accountability unclear in Northern Ireland.
- The treasury report highlights a lack of specialist project managers and engineers for mega projects. The PAC reports repeatedly flagged gaps in Senior Responsible Officers (SROs) and project management capability, compounded by difficulty retaining skilled staff.
- The projects explored in the treasury report have been hampered by Policy shifts and scope creep without proper impact assessment. Projects in Northern Ireland have been delayed by judicial reviews (A5) and political uncertainty (Windsor Park), and have been criticised for community engagement failures.
- UK mega projects suffer from annual budgeting misaligned with multi-decade delivery. NI projects, while smaller, still face short-term funding

cycles, but the impact is proportionally greater because NI lacks flexibility to reallocate funds across years.

- UK failures harm global investor confidence. NI failures mainly affect local trust and regional economic development, though they still deter private investment in regeneration schemes.
- The root causes, such as optimistic planning, weak governance, skills gaps are common across both contexts, but the consequences differ. In Northern Ireland, smaller budgets mean overruns have a sharper impact on public services, and delays often stem from planning and community engagement rather than engineering complexity.

4.1.2 National Audit Office Report: Lessons learned from Major Programmes

The National Audit Office (NAO) published a review of major government programmes across the transport, defence, energy, and digital sectors in November 2020. From a transport perspective, it looked at Crossrail (Elizabeth Line). This project had a £4 billion cost overrun and three-year delay. The NAO report highlighted the need for realistic planning, strong governance, and early risk assessment.[19]

The NAO report, Completing Crossrail, explains why the project ran into serious delays and cost overruns. The main problems were an unrealistic deadline that drove risky decisions, a lack of a detailed delivery plan until very late in the programme, and weak governance that left sponsors unable to intervene effectively. A culture of optimism meant issues were downplayed, while cost control weakened over time, leading to significant funding increases.[20]

The report highlights important lessons for future projects. Timelines must be achievable, with contingency built in for complex tasks. Detailed plans and risk assessments should be developed early, and governance structures need clear accountability and effective levers for intervention. Continuous cost discipline is essential, and project teams should foster realism rather than a ‘can do’ attitude

[19] National Audit Office, Completing Cross Rail, May 2019

[20] As above

that masks problems. Crossrail shows that without these measures, even well-funded projects can suffer major delays and overspends.

The lessons learned report highlights recurring problems across all types of major projects that lead to delays, cost overruns, and failure to deliver intended benefits. They include:

- Unclear Scope and Objectives: Projects often begin without a shared understanding of what success looks like. This leads to scope creep and unrealistic expectations.
- Weak Planning and Cost Estimation: Early estimates are overly optimistic, failing to account for complexity and risk. This locks projects into unrealistic budgets and timelines.
- Poor Management of Interdependencies: Large programmes involve multiple stakeholders and systems. Failure to coordinate these interdependencies causes delays and integration problems.
- Insufficient Oversight and Accountability: Governance structures are fragmented, making it hard to hold decision-makers accountable or intervene early when problems arise.[21]

Crossrail is a multi-billion-pound, multi-system integration project spanning London and beyond, whereas Northern Ireland projects are significantly smaller in scope. but still complex in terms of planning and community engagement. There are some similarities however: Crossrail's fragmented oversight mirrors NI's issues with weak cross-departmental accountability and lack of a single independent oversight body as highlighted by the NIAO and PAC. Additionally both contexts struggle with retaining experienced project managers and technical specialists, which affects delivery confidence.

[21] National Audit Office, Lessons learned from major programmes, November 2020

4.1.3 Cost drivers of major infrastructure projects in the UK

The National Infrastructure Commission (NIC) reviewed why major UK infrastructure projects often cost too much and take too long. Projects like High Speed Two (HS2), Hinkley Point C, and the Elizabeth Line have faced big overruns, damaging public confidence. While the UK isn't always more expensive than other countries, it has a 'long tail' of poorly performing projects. The NIC suggest improving planning, design, and delivery could cut costs by 10–25%, saving billions.[22]

According to the NIC, infrastructure costs have risen 30% faster than GDP per capita since 2007, making projects feel unaffordable just as the UK needs more investment for net zero, climate resilience, and economic growth. For example:

- HS2 costs about £145m per single track km, higher than any other high-speed rail globally.
- Rail electrification in Germany costs 30–60% less than in the UK because Germany maintains a steady pipeline.

Studies show that better design and construction methods could reduce costs by 20–40% on some projects. Across portfolios, savings of £1-2 billion per year are possible.

The NIC found that successive governments have failed to provide a long-term infrastructure strategy with stable funding. Investment is therefore volatile, with five spending reviews in eight years creating uncertainty. This only emphasises the problems experienced by NI Departments. In this document the NIC laments the short term, five year, budget envelopes when compared to countries like Germany who have long-term budgets. Northern Ireland continues to operate with one year budgets and this has repeatedly been highlighted as a barrier to efficient investment.

The report found public sector clients often lack skills and authority, while sponsors (government departments) interfere in delivery. For example: the

[22] National Infrastructure Commission, Cost drivers of major infrastructure projects in the UK, October 2024

Trans-Pennine Route Upgrade (railway improvement scheme) ballooned from £289 million to £6.5 billion due to repeated scope changes. The main issues identified were poor early design and unclear budgets that lead to costly redesigns later.

The report found planning approvals for major projects now take four years on average, up from two. For example, Sizewell C (nuclear power) spent 7.5 years in pre-application consultation. The report found that legal challenges have spiked to 58% of projects, causing delays and extra costs. The report recommended streamlining the planning system to cut consent times to two years. And called for regular updates to National Policy Statements regularly to clarify and stabilise standards to avoid unnecessary redesigns.

The report highlighted issues with the UK construction sector. UK construction is highly fragmented with 90% of civil engineering firms employing fewer than eight people. Productivity has flatlined for 15 years, while costs rise due to subcontracting costs (can make up 50% of project costs), workforce shortages: (construction lost 340,000 workers (14%) in four years), and the lack of a pipeline that discourages investment in innovation like modular construction.

4.1.4 ICE Green Paper: Why do major infrastructure projects cost so much and take so long?

The Institution of Civil Engineers (ICE) has examined 'Why do major infrastructure projects cost so much and take so long?'.[23] Their report brings together UK and global experience, to demonstrate commonly observed issues. Studies cited in the paper show that, worldwide, only a minority of projects deliver on or under budget; even fewer meet their original schedule, and hardly any deliver all planned benefits as promised at the outset.

The report references research from Saïd Business School covering 3,022 projects found just 27 per cent to be on or under budget, while only 0.2 per cent managed to be on budget, on time, and to realise expected benefits fully.[24]

[23] ICE, Green Paper: Why do major infrastructure projects cost so much and take so long?, May 2025

[24] Aaltonen K., & Kujala J. (2010). A project lifecycle perspective on stakeholder influence strategies in global projects. Scandinavian Journal of Management, 26, 381–397.

Another (McKinsey's) review of 500 global projects found similar results, with only 5 per cent completed within original budget and schedule.[25]

The Green Paper references flagship UK projects to illustrate the issues leading to overruns. High Speed 2 (HS2) and Crossrail (the Elizabeth Line) both experienced multiyear delays and multi billion pound cost increases beyond initial budgets. While the paper is not a forensic audit of these schemes, it uses them to demonstrate common mechanisms of failure: optimistic early estimates, late changes to scope, complex multi system integration, and governance arrangements that diffuse accountability and slow decisive intervention.

ICE emphasises that project delivery sits within a political and social context. Major schemes often attract intense public interest and controversy, which makes transparent engagement and clear articulation of trade-offs critical. Without social licence, local and stakeholder acceptance of the scheme's purpose, impacts and benefits planning risks litigation and delay, further stretching timelines and budgets.

The Green Paper's overarching lesson is that improvement depends less on inventing new tools than on consistently applying what already works. ICE are positive on the establishment of NISTA believing it positions the system to integrate strategy and delivery and can improve infrastructure delivery in the UK. It warns that its success will depend on consistent practice across departments and programmes, and on political leadership.

Northern Ireland can learn from the ICE Green Paper by adopting realistic forecasting methods to avoid optimism bias, focusing on whole-life value rather than just upfront costs, and streamlining governance to ensure clear accountability.

4.1.5 OECD view of UK Planning

The OECD's assessment of planning in the UK is that it is 'an overly stringent and complex planning system [which] creates barriers to investment.' It states, 'The current planning system, where each planning application faces review

[25] McKinsey and Co.,The Art of Project Leadership: Delivering the World's Largest Projects, 2017

and potential opposition from residents, leads to unpredictable outcomes, raising uncertainty and costs for businesses. Moving from the current discretionary system towards a rule-based system could speed up planning procedures and reduce uncertainty for businesses.'[26]

The current discretionary system refers to the fact that major decisions on major projects (housing, energy, transport) rely heavily on case-by-case judgments by planning authorities and ministers. This creates uncertainty for businesses and investors, as outcomes can vary depending on political priorities or local objections. It often leads to delays, litigation, and higher costs, because there are no clear, predictable standards for approval.

A rules-based approach would mean clear, codified criteria and timelines for decisions, thereby reducing discretion. Key benefits could be faster delivery of infrastructure and lower risk of judicial reviews, as decisions follow published rules rather than subjective judgments.

4.1.6 Planning and Infrastructure Act

The Planning and Infrastructure Act 2025 received royal assent on December 18, 2025. The Act aims to deliver a faster and more certain consenting process for critical infrastructure and strengthen the related policy contained in National Policy Statements. The Act responds to long-standing problems with delays, uncertainty, and high costs in the planning system. It aims to create a more predictable and efficient process for the assessment and approval of nationally significant infrastructure projects (NSIPs).[27]

NSIPs are large-scale infrastructure projects deemed to be of national importance and can include new highways, major road and rail improvement schemes, airports and significant aviation related developments, new power stations, offshore and onshore wind farms, significant reservoir projects, and waste and waste-water processing plants. [28]

[26] OECD, Economic Surveys: United Kingdom 2024, 11 September 2024

[27] UK Government, Planning and Infrastructure Bill: Explanatory Notes, June 2025

[28] As above, page 11

The Act gives government new tools to accelerate delivery of NSIPs:

- Disapply Development Consent Requirements: In certain urgent or strategic cases, the Secretary of State can remove the need for a full development consent order, reducing delays.
- National Policy Statements (NPS): These statements set out government priorities for infrastructure sectors. The Act requires regular reviews and parliamentary scrutiny of NPS to keep them up to date and aligned with national objectives.
- Legal Challenges: The Act introduces stricter rules for judicial reviews of planning decisions to prevent lengthy court cases that stall projects.
    - The paper permission stage will be scrapped, so that all permission decisions in NSIP cases will be determined at a High Court oral hearing.
    - Removal of the right to appeal where the High Court deems such a case to be "totally without merit" at the oral hearing.
    - New legislative provisions to automatically extend the life of planning permissions (including outline permissions and reserved matter approvals) and listed building consents in England in the event of legal challenge.[29]
- Development Corporations: The Act strengthens powers for locally-led and mayoral development corporations, enabling them to manage large regeneration and infrastructure schemes more effectively.[30]

These legislative changes aim to cut average consenting times for NSIPs from four years to two, "a major improvement for project delivery".[31]

The Act includes several measures to improve delivery of nationally significant transport projects. Projects like HS2 and major road schemes have suffered from delays and cost overruns due to complex planning rules, fragmented responsibilities, and legal challenges. By reforming these processes, the Act

[29] Broadfield, The Judicial Review Reforms in the Planning & Infrastructure Bill: Reconciling Conflicting Private and Public Interests on Large-Scale Infrastructure Projects, 11 November 2025

[30] UK Government, Planning and Infrastructure Bill: Explanatory Notes, June 2025

[31] As above, Page 11

seeks to create a system that is faster, more predictable, and better able to handle the scale of investment needed for net zero and economic growth.[32]:

- Highways Act Amendments: Sets deadlines for consultations and decisions on trunk road schemes to reduce delays.
- Compulsory Acquisition: Expands powers so authorities can take temporary possession of land for major works, not just permanent acquisition.
- Transport and Works Act Changes: Streamlines procedures for rail and road projects, aligning them more closely with NSIP processes.
- Electric Vehicle (EV) Charging: Simplifies installation of public charging points and introduces accessibility standards to ensure they are usable by all.

4.2 Scotland

The Scottish Government has a key role in shaping, directing and delivering public spending on major infrastructure projects. It can provide funding to national bodies, such as Network Rail, internal departments and agencies such as the National Transport Agency within the Scottish Government, and to local Government.

The Scottish Government's Infrastructure Investment Plan sets out £26 billion of spending to address three priorities: enabling the transition to net zero emissions and environmental sustainability, driving inclusive economic growth, and building resilient and sustainable places.[33]

4.2.1 Edinburgh Tram

The Edinburgh Tram project is an example of a high profile capital project that experienced many of the issues already discussed in the paper. The Edinburgh Tram Project involved building a new light rail system for the city, initially planned to link Edinburgh Airport to Newhaven. The estimated cost of the

[32] UK Government, Planning and Infrastructure Bill: Explanatory Notes, June 2025

[33] Scottish Government, Infrastructure Investment, accessed 27 November 2025

scheme was £545 million and it was scheduled to open in 2011. The scheme faced a number of issues, eventually causing it to be split into two phases. The first phase, a truncated line from the Airport to York Place, opened in 2014, costing £852.6 million, and the full line to Newhaven was only completed in 2023 at a total cost of £1.043 billion.[34]

Such were the delays and overspend, The Scottish Government commissioned a public inquiry in 2014 to understand why the project failed to meet its original scope, cost, and timeline. Lord Hardie's report, published in September 2023, identified systemic failures in governance, risk management, procurement, and reporting.

Lord Hardie concluded that the project suffered from a 'litany of avoidable failures' across governance, management, and planning. The inquiry lasted nine years and cost £13 million, producing a 957-page report with 24 recommendations. The main problems identified were:

- Poor Governance and Management: Transport Initiatives Edinburgh (TIE), the arms-length company managing the project, was heavily criticised for abandoning the original procurement strategy designed to manage risk.
- Contractual and Design Failures: Design work was delayed due to poor performance of contractors and contract management. Contracts were signed before designs and utility diversions were finalised, creating major risks and cost escalations.
- Risk Management and Oversight: Risk assessments were inadequate, and political pressures influenced decisions. Edinburgh Council and Scottish Ministers failed to protect financial interests and exercise proper oversight.

The project ended £400 million over budget and five years late. The scheme caused severe disruption to residents and businesses during construction. It

[34] Edinburgh Tram Inquiry, Edinburgh Tram Inquiry Report, November 2023

caused significant damage to the reputation of Edinburgh Council and erosion of public trust in major infrastructure projects.

The Edinburgh Tram Inquiry had a significant influence on how later infrastructure projects in Scotland were planned and delivered. Its findings and 24 recommendations reshaped governance, risk management, and accountability practices for major public works.[35] Edinburgh Council confirmed that lessons from the inquiry were applied to the successful extension of the tram line to Newhaven (completed in 2023 without major delays or overruns).[36]

4.2.2 A9 Dualling Project – Overview and Analysis

Scotland's infrastructure delivery in 2024–2025 shows strong progress on climate, connectivity, and public service projects, but faces persistent challenges from inflation, funding constraints, and supply chain issues.[37] While notable achievements include school estate improvements, broadband rollout, and zero-emission transport initiatives, major projects such as HMP Glasgow, A9 dualling, and several NHS facilities remain delayed. The government is prioritising affordability and resilience, focusing on maintaining existing assets and delivering net-zero commitments.

The A9 Dualling Project is one of Scotland's biggest road upgrades. Its goal is to turn 83 miles of single carriageway between Perth and Inverness into a dual carriageway. This is meant to make the road safer and improve travel times. When the project was announced in 2011, the government promised it would be finished by 2025. That target has now been pushed back by a decade, with full completion expected by 2035.

The original cost estimate was around £3 billion. Today, the projected cost is closer to £3.7 billion. Rising prices for materials and labour, along with supply

[35] The City of Edinburgh Council, Governance, Risk and Better Value Committee, accessed 26 November 2025

[36] The City of Edinburgh Council Transport and Environment Committee, Response to the Edinburgh Tram Inquiry, 16 November 2023

[37] Scottish Government, Infrastructure Investment Plan 2021-22 to 2025-26: progress report 2024 to 2025, June 2025

chain problems, have driven costs up. The government plans to use a mix of public funding and private investment to pay for the work.

So far, only two sections have been completed: Kincraig to Dalraddy (2017) and Luncarty to Pass of Birnam (2021). The next major section, Tomatin to Moy, is now under construction. This six-mile stretch includes new junctions, bridges, and paths for walking and cycling. Its cost has jumped from £115 million to nearly £300 million. Work started in 2025, and it should be finished by 2028.

Delays have been caused by several factors. The first tender for Tomatin to Moy failed, forcing a re-tender and adding more than a year to the schedule. Inflation and limited contractor availability have also slowed progress. A parliamentary inquiry found that unclear funding plans and poor communication contributed to missed deadlines.[38]

Safety is a major reason for the upgrade. The A9 is one of Scotland's most dangerous roads, with far more fatal accidents on single carriageway sections than on dualled parts. Improving safety and boosting the Highland economy remain key goals.

The government says the new timeline is realistic and has rejected calls to speed things up, arguing that rushing could lead to even higher costs and more delays. By 2030, about half the route should be dualled, with full completion by 2035.[39]

4.3 Wales

The A465 dualling scheme is described as the biggest road infrastructure project ever commissioned by the Welsh Government.[40] The project involved converting 40 km of the existing A465 'Heads of the Valleys' road between Abergavenny and Hirwaun into a dual carriageway. The scheme was completed

[38] Citizen Participation and Public Petitions Committee, Inquiry into A9 Dualling Project, 1 November 2024

[39] BBC News, A9 dualling project delayed by 10 years until 2035, accessed 17 November 2025

[40] Belinda Smart, How the A465 dualling scheme tested the limits of Wales' new funding model, 15 December 2025

in 2025, but it experienced a number of issues in delivery that led to cost increases.

The construction began in December 2014, initially forecast at £223.2 million with an intended completion date of September 2018. The project is unusually complex due to its location in the Clydach Gorge, a steep-sided valley requiring major engineering works including seven bridges, 12.5 km of retaining walls, and extensive earthworks. It also passes through environmentally sensitive areas in the Brecon Beacons National Park.[41]

Environmental assessments (including for several Special Areas of Conservation) required alterations to the scheme, including additional junctions and mitigation works. The planning inspector also required significant changes after the statutory inquiry, increasing scope and cost.

A prolonged and complex contractual dispute developed between the Welsh Government and private sector partner Costain, centred on responsibility for increased costs. Multiple adjudications and arbitration processes were required and this caused substantial programme delays and added legal costs.

The Wales Audit Office assessed the substantial increase in costs in a 2020 report. It found that construction inflation, implementing changes mandated by the public inquiry, environmental mitigation requirements, and design development all contributed to costs rising.[42]

The challenging environment proved a major source of rising costs. Unexpected ground conditions, particularly around retaining walls, meant that designs prepared became unbuildable or unsafe, requiring redesign and major construction adjustments. These redesigns significantly increased costs, and responsibility for them became a core contractual dispute.[43]

The A465 project highlights many of the complexities involved in road-building projects. Challenging terrain, environmental constraints, scope changes, and

[41] Wales Audit Office, A465 Section 2 – Interim Findings, February 2020

[42] Wales Audit Office, A465 Section 2 – Interim Findings, February 2020

[43] Wales Audit Office, A465 Section 2 – Interim Findings, February 2020

contractual disputes have dramatically increased costs and created extensive delays with this project.

Highways magazine analysis shows the A465 dualling contract is more than double that of other comparable current schemes in the UK. It compared the scheme to the A30 Chiverton-Carland Cross in Cornwall, the A6 Dungiven-Drumahoe in Northern Ireland, and the A9 Luncarty-Pass of Birnam in Scotland. The articles notes that costs of those schemes ranged from £8.6 million to £21.6 million per km, an average of £12.8 million per km. The A465 Dowlais-Hirwaun contract, awarded last autumn, has an estimated construction cost of £33.3 million per km, 160% higher than the average for the schemes in England, Northern Ireland and Scotland.[44]

The Welsh Government says it is learning lessons from the project by changing its construction contracts and reviewing its indicators of contractor performance. The Welsh Government chose Early Contractor Involvement (ECI) as the procurement method for the design and construction of this project.[45]

The Welsh Government still believes ECI was the best approach to have taken for A465 Section 2. At the Public Accounts Committee in September 2020, the Welsh Government acknowledged that problems in its template construction contracts had contributed to complications in the project. Officials said the disputes with Costain would not have been so prolonged had the construction contract been more explicit about which party has ownership of the design of the project and who is therefore liable for costs associated with departure from the design.[46]

The Welsh Government has since amended its template construction contracts. The Welsh Government has looked to make certain clauses more explicit, with a view to clarifying responsibilities around design and ground conditions. The

[44] Rhodri Clarke, The estimated construction cost per km of the Welsh Government's recent A465 dualling contract is more than double that of other comparable current schemes in the UK, 22 February 2021

[45] Audit Wales, A465 Section 2: Update report, June 2024

[46] As above

Welsh Government told the Welsh Audit Office, these improvements are now 'baked in' to their templates and are already bringing benefits.[47]

4.4 Ireland

The Irish Academy of Engineering published a report 'Delivering Major Capital Projects' in June 2021. The report examines why major capital projects in Ireland often run over budget and schedule, and what can be done to improve delivery. It reviews 16 projects across public and private sectors, categorising them as:

- Successful: Delivered on time and within budget.
- Problematic: Completed but with overruns or major changes.
- Stalled/Cancelled: Unable to proceed due to cost or risk issues.[48]

The study aims to identify lessons for future projects under Ireland's National Development Plan (NDP), which involves billions in infrastructure investment.

The report highlighted the importance of risk management. It noted that major projects are complex, involve many stakeholders, and span years. It pointed out that design changes, planning delays, and cost inflation must be identified early and managed throughout.[49]

It highlighted the issue of 'scope creep' as a major cause of overruns. This happens when extra features or stakeholder demands are added after initial approval. It noted that successful projects defined scope clearly at the start, consulted stakeholders early, and enforced strict controls on changes.[50]

As has been discussed elsewhere in this paper, early cost estimates are often unrealistic because they're made before scope and risks are fully understood. The report recommends:

- Avoiding 'best-case' assumptions.

[47] Audit Wales, A465 Section 2: Update report, June 2024

[48] The Irish Academy of Engineering, Delivering Major Capital Projects', June 2021

[49] As above, page 3

[50] As above, page 7

- Include contingency for inflation, planning delays, and claims.
- Differentiate between ‘must-have’ and ‘nice-to-have’ features.

Projects like Dublin Airport Terminal 1 upgrade faced criticism for optimistic timelines and budgets, which later required major revisions.

As is the case in the UK, planning and environmental approvals are frequent bottlenecks. Judicial reviews and objections can add years to timelines. The report calls for:

- Early engagement with planning authorities.
- Realistic time allowances for statutory processes.
- Legislative reform to balance public interest with individual objections.

The report outlines four key stages of a project, noting that most problems arise in stages 1 and 2, where unrealistic assumptions set projects up for failure.

The report highlights systemic issues familiar in many countries: underestimating complexity, weak governance, and political pressure for early announcements. Successful projects share common traits: experienced teams, clear scope, and rigorous risk management, while failures often stem from optimism bias and fragmented decision-making.

4.4.1 Metrolink

Dublin’s MetroLink is Ireland’s largest public transport project. It is a planned 18.8 km fully automated metro line connecting Swords in the north to Charlemont in the city centre, with 16 stations and direct access to Dublin Airport. It promises to cut journey times to 25 minutes and carry up to 20,000 passengers per hour per direction. However, the project has faced major challenges in planning, cost control, and stakeholder engagement.[51]

The scheme was originally estimated to cost €7–€9.6 billion.[52] By 2025, costs had risen to €11.5 billion, with some forecasts suggesting up to €13 billion or

[51] MetroLink, About, accessed 27 November 2025

[52] National Transport Authority, MetroLink – Preliminary Business Case, February 2021

more depending on inflation and market conditions.[53] Drivers of cost increases include:

- Construction inflation and global supply chain pressures.
- Labour shortages and limited contractor capacity.
- Complexity of tunnelling under Dublin's city centre.[54]

The scheme was originally targeted to be operational for 2031. However, it will not be delivered before 2035, possibly later. Planning permission was only granted in October 2025 after years of consultations and revisions and construction is unlikely to start before 2028, with procurement and tendering still pending.

A judicial review lodged by residents in Ranelagh (near Charlemont terminus) is expected to delay progress by 12–18 months. Objections focus on:

- Location of the southern terminus at Charlemont.
- Impact on property values and congestion in narrow streets.
- Calls to move the terminus to St Stephen's Green instead.[55]

The project has undergone three rounds of public consultation and an extensive Railway Order process. Independent engineering reviews (RINA reports) highlighted gaps in early planning and risk management, recommending stronger governance and clearer communication with affected communities.[56] The Preliminary Business Case (2022) acknowledged optimism bias and required updates for inflation and revised timelines before government approval.[57]

[53] Samantha Libreri, Legal challenge to MetroLink to cause 'inevitable delay', says transport body, November 2025

[54] National Transport Authority, MetroLink – Preliminary Business Case, February 2021

[55] Samantha Libreri, Legal challenge to MetroLink to cause 'inevitable delay', says transport body, November 2025

[56] MetroLink, RINA Independent Engineering Expert - Final Report, September 2024

[57] National Transport Authority, MetroLink – Preliminary Business Case, February 2021

5 International best practice

The OECD has produced a large body of research examining infrastructure governance over the past couple of decades. Based on analysis of this substantive evidence base, the OECD has published practical policy recommendations on infrastructure governance.

Getting Infrastructure Right: A Framework for Better Governance *(OECD, 2017)*, examines how countries can strengthen the governance of public infrastructure. The report is based on a survey of 27 OECD and partner countries and provides a comprehensive overview of governance challenges, recommended principles, and practical tools for policymakers.

The report supports evidence already presented in this paper showing that while good infrastructure is essential many countries fail to deliver projects on time, on budget, or aligned with national priorities. The report suggests that while finance shortages are a big issue, weaknesses in governance arrangements that undermine planning, integrity, and delivery processes are evident across the board. [58]

The report notes that while many countries have strengthened certain governance areas, practices remain uneven. Common problems include fragmented responsibilities across levels of government, inadequate coordination mechanisms, limited long-term planning, and insufficient collection and disclosure of data. The report notes that better data on costs, performance, risks and benefits is essential for accountability, continuous improvement, and informed public debate.

The report concludes that getting infrastructure governance right is essential for achieving sustainable development goals and long-term national prosperity. Good governance enables countries to maximise the value of every infrastructure investment, avoid costly failures, and deliver assets that serve citizens effectively for decades.

[58] OECD, Getting Infrastructure Right: A framework for better governance, March 2017

Building on this report, the OECD published recommendations on the Governance of Infrastructure in July 2020.[59] These recommendations provide a framework to help governments plan, deliver, and manage public infrastructure in a way that is efficient, affordable, transparent, and trusted by citizens.

The Recommendations aim to help governments invest in infrastructure that is cost-effective, affordable, legitimate, and aligned with broader policy goals. It emphasises that achieving these outcomes requires more than technical expertise, it requires strong institutions, transparent processes, and accountable decision-making.

The Recommendation outlines ten core governance dimensions that together form a whole-of-government approach covering the full infrastructure lifecycle from strategic planning to operation and evaluation. These dimensions, reflected in the OECD Infrastructure Toolkit, include: establishing a long-term strategic vision; guarding affordability and value for money; ensuring efficient procurement; promoting transparent and systematic stakeholder participation; coordinating across levels of government; ensuring regulatory coherence; managing threats to integrity; promoting evidence-informed decision-making; strengthening infrastructure resilience; and ensuring performance throughout the asset life cycle. The OECD Recommendation offers a holistic governance blueprint grounded in international experience.[60]

5.1 The Netherlands

The Netherlands is widely recognised as a country that delivers and governs infrastructure to a very high standard. Its approach closely follows the principles and expectations set out by both the OECD and the European Union, and in many areas it is considered an international example of best practice.

The OECD highlights that good infrastructure governance requires strong planning, clear rules, transparent decision-making, and close cooperation between different levels of government. The Netherlands aligns with these

[59] OECD, Recommendation of the Council on the Governance of Infrastructure, 17 July 2020
[60] OECD, OECD Infrastructure Governance Indicators, 6 June 2023

principles through its long-standing system of multi-level coordination, transparent project pipelines, and clear national frameworks for infrastructure investment.

OECD assessments show that the Netherlands performs strongly across governance pillars, with consistently high scores for planning quality, regulatory frameworks, and procurement systems. The GI Hub's InfraCompass assessment also places the Netherlands among the world's top performers for infrastructure governance, ranking it as a global leader in procurement, permitting, planning, and regulatory quality.[61]

Independent OECD reviews of sectors such as water governance describe the Dutch system as highly robust, adaptive, and capable of coordinating complex, multi-actor responsibilities, an essential part of modern infrastructure governance. These assessments praise the Netherlands for its sophisticated, long-term, risk-based planning culture and strong accountability mechanisms.[62]

5.1.1 Multi-year programme for Infrastructure, Space and Transport (MIRT)

The Meerjarenprogramma Infrastructuur, Ruimte en Transport (MIRT) is the Netherlands' central, long-term investment and planning framework for national infrastructure, spatial development, and transport policy. Essentially MIRT functions as the national mechanism for planning, selecting, financing, monitoring, and delivering infrastructure projects across roads, rail, waterways, spatial development, and climate-resilience programmes.

MIRT sets out how the national government collaborates with regional authorities to shape the physical environment of the country. Its purpose is to ensure that national and regional priorities in mobility, safety, climate adaptation, and spatial development are coherently aligned and financially supported.[63]

[61] OECD, Infrastructure Toolkit: Netherlands, accessed 24 January 2026

[62] OECD, Water Governance in the Netherlands, May 2014

[63] Government of the Netherlands, Multi-year programme for Infrastructure, Space and Transport (MIRT), accessed 20 January 2026

According to the Dutch government, MIRT includes all major national projects and programmes. It encompasses both projects financed directly by the national government and projects subsidised for municipalities, provinces, transport regions, and water boards. The MIRT acts as a pipeline of upcoming investments, while providing a framework for governance, cooperation, and financial decision-making across all levels of the Dutch administrative system.[64]

MIRT projects are financed primarily through two national funds:

- The Mobiliteitsfonds (Mobility Fund) – For accessibility issues, mobility infrastructure, and transport projects.
- The Deltafonds (Delta Fund) – For water safety, freshwater supply, water-quality measures, and climate adaptation.

Funding approvals require compliance with MIRT "spelregels" (rules), structured feasibility studies, and evidence based justification of costs and benefits.[65] There is an annual MIRT Overzicht (Review) published, this provides a full annual picture of:

- All current and planned projects,
- Progress status and schedules,
- Financial allocations, and
- Strategic context and justification.

This high level of transparency supports rigorous portfolio oversight and aligns strongly with OECD guidelines on open data and accountability.

5.1.2 Public consultation and participation

Participatory Value Evaluation (PWE) is a method used to determine the *social welfare value* of a project. It allows members of the public to express how they value different project options. PWE invites people to think like decision-makers: they are shown realistic project choices, the constraints involved, and the

[64] Government of the Netherlands, About the MIRT, accessed 25 January 2026

[65] Government of the Netherlands, Multi-year programme for Infrastructure, Space and Transport (MIRT), accessed 20 January 2026

consequences of selecting one option over another. This helps reveal which outcomes society prefers and why.

The technique is designed to capture a broad range of public views across economic, social and environmental considerations. Because participants must balance multiple policy goals, PWE provides richer insight into what the public sees as worthwhile investments.[66]

The Government of the Netherlands commissioned an independent evaluation of the PWE method in the context of the MIRT infrastructure planning process, the report explains that PWE can add value by:

- Giving policymakers a clearer picture of how different groups weigh the impacts of proposed infrastructure projects.
- Bringing in perspectives that may otherwise be underrepresented in formal consultation processes.
- Helping assess projects' contribution to overall societal well-being ("welvaartswaarde").
- Supporting more transparent and legitimate decision-making, because choices are informed by explicit societal preferences.

The evaluation concludes that PWE has meaningful potential as part of early-stage MIRT assessments, especially where complex trade-offs exist or where public support is important for the success of the project.[67] The MIRT process recognises that infrastructure projects depend on effective public participation, especially because these projects have significant spatial, environmental and social impacts. The Government is actively engaging with new digital technologies, exploring opportunities to involve stakeholders through online tools and platforms.[68] [69]

[66] Government of the Netherlands, PVE and the MIRT process, November 2024

[67] ECORYS, Evaluation of PWE and MIRT Process (in Dutch), 15 October 2024

[68] DefactoUrbanism, Amsterdam A1 and A27 Mobility Study, accessed 24 January 2026

[69] Trung Nguyen, Application of eParticipation in MIRT-projects, April 2020

5.2 Germany

Germany's infrastructure governance system is shaped by its federal structure:

- The federal government (responsible for national highways, railways, waterways, energy transmission corridors).
- The Länder (states) (regional transport networks, planning approvals, spatial planning).
- Municipalities (local roads, utilities, public transport, social infrastructure).

The OECD's analysis of Germany, through its Infrastructure Governance Toolkit, indicates that Germany has high-quality infrastructure overall but faces significant governance and delivery challenges that weaken its ability to implement new projects efficiently.

5.2.1 Infrastructure Pipeline

Unlike the Netherlands' MIRT or the UK's IPA pipeline, Germany does not publish a single, unified national cross-sector pipeline covering all infrastructure (energy, digital, water, transport, social infrastructure). Instead:

- The transport sector has a highly structured and detailed pipeline (BVWP project lists).
- The energy and digital sectors publish their own master plans or networks, but not a unified pipeline.
- Municipal infrastructure (which suffers the largest investment gaps[70]) is not included in a national pipeline.

OECD guidance emphasises that strong infrastructure delivery requires clear long-term strategic planning aligned across sectors. When planning is weak or insufficient, infrastructure delivery becomes slow, fragmented and inefficient.[71] While this is a general OECD principle, Germany appears in the OECD

[70] Sebastian Dullien, et al., Challenges for the Debt Brake: Investment Needs in Infrastructure and for the Transformation, May 2024
[71] OECD, Infrastructure Governance, accessed 25 January 2026

database as having inconsistent performance in planning, suggesting that its long-term infrastructure strategy is not consistently integrated or applied.[72]

The OECD highlights that good delivery requires strong coordination across national, regional, and local governments. Germany's federal system creates fragmentation that can slow implementation and create inconsistent project outcomes.

BVWP: Federal Transport Infrastructure Plan

The Federal Transport Infrastructure Plan 2030, is known in German as the Bundesverkehrswegeplan 2030 (BVWP / FTIP 2030). This plan is primarily funded through federal public investment, supplemented by user-pays mechanisms and private capital.[73] The "user pays" principle is emphasised in the BVMP; it includes road tolls, and other transport related user fees. These revenues help supplement federal funds and contribute to maintaining and expanding federal transport infrastructure. The BVWP 2030 is also supported by greater use of private capital, which the federal government explicitly encourages. This includes:

- Public-private partnerships (PPPs)
- Private investment contributions to individual projects
- Financing models that blend public and private funds

The German government identifies private capital as one of the three pillars of the investment strategy: *"more public funds, greater application of the user pays principle and more private sector capital."*

Germany's Federal Transport Infrastructure Plan (FTIP / Bundesverkehrswegeplan) sets priorities for road, rail, and waterway investment using cost-benefit analysis, network performance modelling, and regional impact assessments. It directs over €269 billion across more than 1,000 projects and emphasises:

[72] OECD, Infrastructure Toolkit: Germany, accessed 26 January 2026

[73] Federal Ministry of Transport and Digital Infrastructure, The 2030 Federal Transport Infrastructure Plan, August 2016

- Maintenance first (69% of funds).
- Modernisation and digital readiness.
- Bottleneck removal in critical corridors.
- Network-wide optimisation across transport modes.[74]

Funding deficit

Germany introduced a constitutional debt brake (Schuldenbremse) in 2009 which has restricted infrastructure investment.[75] The debt brake caps borrowing at 0.35% of GDP and prohibits the Länder (States) from borrowing at all. This has restricted Germany's ability to finance long-term capital investment even when interest rates were historically low.

Analysts argue that the rule became a "fiscal straitjacket", preventing the government from undertaking necessary modernisation of transport, digital and energy systems.[76] Academic and industry assessments highlight that Germany "missed a decade" of favourable financing conditions, resulting in visible infrastructure decay, from deteriorating bridges to digital connectivity gaps and grid bottlenecks that now slow the energy transition.[77]

A policy paper by the German Economic Institute (IW), *"Challenges for the debt brake: Investment needs in infrastructure and for the transformation",* highlights Germany's large and growing unmet public investment needs, arguing that these cannot be financed under the current constitutional debt brake. The authors updated a 2019 estimate of Germany's investment backlog, originally calculated at €460 billion over ten years to €600 billion in 2024. This updated backlog accounts for inflation, demographic pressures, rising costs of decarbonisation, and the additional investments already undertaken.[78]

[74] Sascha Arnold, et al. Germany's plans for energy and infrastructure, April 2025

[75] BNP PARIBAS, The German Debt Brake: The Merits and Limitations of Fiscal Rules, February 2024

[76] Bundesbank, Sound public finances, stronger investment: a proposal to reform the debt brake, March 2025

[77] Bruegel, Germany's fiscal rules dilemma, April 2025

[78] German Economic Institute, Challenges for the debt brake: Investment needs in infrastructure and for the transformation (In German), May 2024

The IW report recommends targeted reform of the debt brake to permit additional borrowing for infrastructure and transformation projects. Without reform, Germany risks continued underinvestment in critical areas such as transport, digitalisation, energy systems, and climate transition.

Germany's experience demonstrates that borrowing powers are essential for delivering sustained, large-scale infrastructure investment. Industry analysis shows private investors want to invest in infrastructure but face a lack of investable domestic projects, partly because the state cannot provide enough upfront public financing. The lack of funding increases the cost of infrastructure delivery by delaying essential investment, eroding assets, weakening planning capacity, forcing inefficient funding structures, and reducing economies of scale.[79] It would appear that Germany's rule has therefore not only suppressed investment, it has made the investment that does happen more expensive.

Reform

In March 2025, Germany approved a constitutional amendment creating a €500 billion special fund for infrastructure and defense. Of this:

- €100 billion is allocated to states and municipalities for infrastructure investment.
- €100 billion supports energy transition through the Climate and Transformation Fund.
- Deutsche Bahn receives around €150 billion for rail modernisation and public transport strengthening.

This special fund effectively loosens fiscal constraints, enabling long-term investment beyond normal budget limits.[80]

[79] German Economic Institute, Challenges for the debt brake: Investment needs in infrastructure and for the transformation (In German), May 2024

[80] Manuel Indlekofer, Germany's turning point for infrastructure and defense funding, March 2025

The Government recognise that Germany must mobilise large volumes of private capital. This could account for up to 90% of future investment, according to government statements to close the infrastructure gap. [81]

The German government has plans to streamline its planning process, reduce bureaucracy and make the system faster and more predictable for investors. Indeed the German Government has set out plans to modernise the country's entire energy and infrastructure systems. The plan, published in April 2025, is a response to years of underinvestment, slow approval procedures, and increasing pressure from climate change, digitalisation and economic competitiveness. The government wants to combine major public funding with large amounts of private investment, while at the same time cutting red tape and speeding up project delivery.[82]

6 Summary

Major capital projects are inherently complex, and the evidence reviewed in this paper demonstrates that the challenges faced in Northern Ireland are not unique. Across Great Britain and Ireland, large-scale infrastructure schemes such as HS2, Crossrail, Edinburgh Tram, the A9 Dualling Project, and Dublin's MetroLink have encountered similar systemic issues: optimistic early cost and schedule estimates, fragmented governance, skills shortages, and planning delays. These factors consistently lead to cost overruns, missed deadlines, and diminished public confidence in delivery.

Projects have been found to proceed on the basis of best-case assumptions, locking in unrealistic budgets and timelines. Governance structures, whether in Northern Ireland or elsewhere, have struggled to provide clear accountability and timely intervention. Planning systems remain complex and unpredictable, while insufficient attention to social licence has resulted in judicial reviews and community opposition, adding years to delivery schedules.

[81] Sophie Kiderlin, Could German infrastructure be the next hot investment? 30 May 2025

[82] Sascha Arnold, et al. Germany's plans for energy and infrastructure, April 2025

The comparison with other jurisdictions underscores that these problems are global rather than local. However, the consequences in Northern Ireland are particularly acute because of smaller budgets and shorter funding cycles, which amplify the impact of overruns and delays on public services. Lessons from the UK and Ireland point to the need for structural reforms such as integrated oversight bodies like NISTA, realistic forecasting, streamlined planning processes, and early stakeholder engagement.

Ultimately, improving delivery is less about inventing new tools than about consistently applying proven practices: robust governance, transparent engagement, and disciplined risk management. The evidence presented here would suggest that these principles are essential if Northern Ireland is to achieve value for money and deliver the infrastructure needed to support economic growth and societal well-being.

6.1 Possible solutions

Based on the information presented in this paper and a combination of previous recommendations and reforms carried out elsewhere, the committee might want to discuss the following possible solutions to improve the delivery of major projects in Northern Ireland:

- Consider an independent Infrastructure Commission for Northern Ireland to provide central monitoring, expert advice, and consistent scrutiny across all major projects. This mirrors successful models like NISTA in England and similar bodies in Scotland and Wales.
- Consider the governance structures so that they have clear accountability and authority to intervene early when risks arise. Current fragmented oversight is a major contributor to delays and cost overruns.
- Consider how planning regulations might be reformed to reduce complexity to avoid delays and judicial reviews. Current planning policies are described as “daunting” and have been shown to lead to excessive documentation and litigation.
- Consider the introduction of expedited mechanisms for regionally significant projects and consider legislative reforms to allow minor

corrections in planning determinations to prevent unnecessary project halts.

- Explore ways to make community engagement a core part of project planning, not an afterthought. Evidence shows that early and transparent consultation can prevent judicial reviews and political opposition that add years and millions of pounds in costs. A model, such as, France's Commission Nationale du Débat Public (CNDP), may be appropriate.
- Invest in recruiting and retaining experienced project managers and technical specialists. There are skills gaps among Senior Responsible Officers (SROs) and project teams.
- Develop a structured training and accreditation programme for infrastructure delivery roles to build long-term capability.
- Move away from annual budgeting cycles toward multi-year funding frameworks to enable realistic planning and reduce inefficiencies caused by stop-start financing.
- Require robust, evidence-based cost and schedule estimates at the business case stage, with contingency allowances for inflation, planning delays, and scope changes.
- Apply lessons from UK and Irish projects: avoid optimism bias, enforce strict scope control, and maintain continuous cost discipline throughout delivery.
- Consider legislative reforms similar to England's Planning and Infrastructure Act to accelerate consenting processes and reduce legal challenges.