

The Root Causes of Delay and Cost Overruns in Major Capital Projects

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SECTION 1 Introduction

INTRODUCTION

1. This paper provides a summary of the emergent conclusions of SIB's ongoing analysis of the root causes of delay and cost overruns in major capital projects.
2. The paper has been produced to inform discussions following the publication of the NIAO's assessment of the delivery of the Executive's flagship projects; the development of the draft Investment Strategy's enabling actions and the formation of an ISNI Committee of the NICS Board.

NIAO ASSESSMENT

3. In February 2024, the NIAO assessed that the cost overruns on eleven major capital projects have totalled some £1.94bn. The average delay on these projects is 6 years.
4. The draft Investment Strategy currently contains proposals for planned capital expenditure of £24bn over the next 10 years. Within this envelope, there are approximately ninety major capital projects with total value of £12bn.
5. If performance issues remain unaddressed, we should expect the cost of delivering these projects to increase by c£5bn or for the Executive's spending power to be reduced by a similar amount.



IMPACT OF PREVIOUS REVIEWS

6. Over the last ten years, there have been many relevant reports with recommendations for improving project delivery. These include the NIAO and PAC reports into Major Capital Projects, the Planning System; Procurement, and Capacity and Capability in the NICS. Other reports, for example that into the Renewable Heat Initiative, covered similar ground. Much work has been done in England by organizations such as the Infrastructure and Projects Authority, the National Infrastructure Commission, and the Cabinet Office. Academic research has informed these reports, with influential assessment being published by, among others, the Institute for Government, and the Oxford Global Projects Academy.
7. None of the work to implement the recommendations of these reviews has significantly improved the performance of the system for delivering major projects in Northern Ireland.

Key Conclusions

8. The key conclusions from this analysis are:
 - a) The delivery system for major capital projects is growing increasingly complex.
 - b) This complexity is making the system slow, fragile and unpredictable. Without reform, the system will become unmanageable.
 - c) There are opportunities for short-term mitigations. The most important of these is to improve the expertise of the people operating the system. This is a tractable problem.
 - d) Transformational improvement requires fundamentally different approaches to policy, processes and people. These will not be delivered quickly but are the only solutions that will address the root causes of delay and cost overruns.
9. The current system has evolved rather than being the product of deliberate design. Over time, incremental changes to rules, regulations, business processes and oversight arrangements have increased its complexity. This complexity demands higher levels of expertise to understand and manage; more complicated processes take longer to complete, and decisions need to be informed by consideration of more and more factors.
10. Complex systems are full of hard-to-detect interdependencies with non-linear responses. Complex systems develop cascades or chains of reactions that decrease predictability and cause outsized events. In complex systems, interventions lead to unforeseen consequences; inviting another intervention to correct those and so on without end.
11. The result is that the system is slow, particularly in comparison with jurisdictions outside the UK and Ireland. It is fragile, in that it is unable to recover from what should be minor failures and small mistakes can have massively disproportionate adverse effects. Finally, the system is unpredictable in that it is impossible, for reasons set out below, to estimate with any confidence the likely cost or outcome of individual major projects.
12. The analysis demonstrates that the root causes that have the greatest adverse impact on the system are:

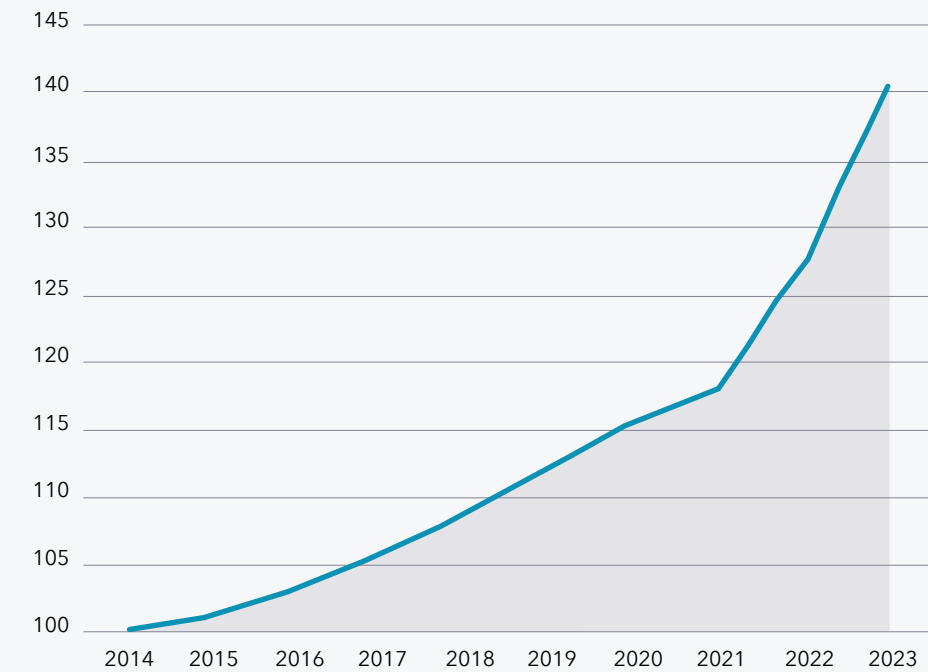
The Root Causes of Failure of Major Capital Projects

Area	System	Root Cause of Failure
Policy 	Planning	Planning policy and regulations are unsustainably complex.
	Social Licence	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.
	Procurement	A lack of relevant expertise means procurements are slow and expensive, and private sector competition is discouraged.
	Cost and Schedule Estimates	Weaknesses in 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 expertise to ensure successful project delivery.

The NIAO assessed that the cost overruns on eleven major capital projects totalled some **£1.94bn. The average delay on these projects was **6 years**.**



Building Cost Index



Construction Cost Inflation 2014-24



THE RELATIONSHIP BETWEEN DELAY AND INCREASED COSTS

13. A substantial proportion of increased costs are a function of delay, in that they arise through inflation over time. Costs are inflated both by increases specific to the construction industry, Construction Cost Inflation, and by inflation in the general economy.
14. Construction Cost Inflation has in recent years been fuelled by Covid, the effects of the invasion of Ukraine and by government policies. The impact on prices is shown in the graph on the following page.

15. Of the 44% of additional costs identified by the NIAO in its 2024 report, SIB estimate that about half (21%) is attributable to Construction Cost Inflation.
16. Inflation is, however, not the only cost that rises through delay. The costs of project teams continue to accrue, as do those of contractors' bid teams, which feed through into tender prices. Delays may mean that environmental studies expire and need to be repeated; some of these repetitions impose delays of 12 months or more. Other approvals processes, such as for business cases, may also need to be repeated. In the most extreme cases, planning permission may expire, and a new application must be submitted. Bidders are disincentivised by lengthy delays and this has reduced their appetite to bid for projects that they assess may be impeded. This reluctance to do business with government in Northern Ireland reduces competitive tension and increases prices.

17. The NIAO reports do not estimate the cost of benefits that are deferred because of delay. Although, in many cases, there is a financial element to these, such as savings not achieved, they are often measured in children not taught, patients not treated, and lives lost on unsafe roads.

Of the **44%** of additional costs identified by the NIAO in its 2024 report –

SIB estimate that about half (**21%**) is attributable to **Construction Cost Inflation**.

SECTION 2

Key Failings and Their Root Causes



METHODOLOGY

18. The research for the report involved the collection and analysis of performance data; discussions with officials, project managers, project teams, contractors and suppliers and benchmarking Northern Ireland against established best practice and other jurisdictions.
19. The report has found it useful to view this system from three perspectives:
- **Policy:** The rules under which the system operates.
 - **People:** The staff who operate or play a role in the system.
 - **Processes:** The actions taken to achieve the system's purpose.

20. We have sought to differentiate between the 'symptoms' of problems, the indications that the system isn't working properly and 'causes', the underlying source of those problems.

21. Rather than simply diagnosing problems, we have tried to identify solutions. In this, we have distinguished between 'treatments', short-term actions that mitigate the symptoms and 'remedies', those actions that could solve the underlying problems affecting the system.

22. SIB analysed data held on the ISNI Delivery Tracking System (DTS) to inform the review. The DTS tracks the progress of projects across six stages, from pre-procurement to completion. SIB identified 1,400 construction works contracts with a total value of £9.37 billion across the six stages between 2012 and 2022. Of these sixty-nine meet the NIAO definition

of a major capital project (value higher than £25m). Although the major projects only account for 5% of the total number of projects, they account for c51% of the total value.

23. SIB identified and analysed events and data, seeking to identify patterns of behaviour over time and determining the underlying policies, processes and roles that drive those events and patterns.

24. The key priority of this work was to determine which of these factors had the most impact and what could be done in the long and short term to improve the system's performance. The proposals do not seek perfection but to reduce the problems in the system as quickly as is practicable, given the likely available resources in a way that delivers sustainable change at a broad scale.



PLANNING

25. There are many indicators that the planning system is failing to work effectively. These were documented in the 2022 NIAO report and have been rehearsed in Assembly debates. They include:
- Planning Authorities consistently missing their performance targets.
 - Delays in obtaining reports from statutory consultees.
 - Delays in the work of the Planning Appeals Commission.
 - Delays in the agreement of Local Development Plans.
 - Large increases in the volume of paperwork submitted in planning applications.
 - Increases in the number of challenges to planning determinations.
 - Risk aversion in both applicants and planning authorities.
 - 'MOT' Applications (where applications are made with the main purpose of identifying issues and flaws in that application).
 - Inconsistency in determinations.
 - High levels of planning staff turnover.
 - The absence of a 'fast track' system for urgent, regionally significant projects.

“In our view, the ‘planning system’ in Northern Ireland is not currently operating as a single, joined-up system. Rather, there is a series of organisations that do not interact well, and therefore often aren’t delivering an effective service. This has the potential to create economic damage to Northern Ireland. Ultimately, as it currently operates, the system doesn’t deliver for customers, communities or the environment.”

NIAO, 2022

26. 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. A good example of why that is the case is the Doraville Wind Farm planning application, the largest submitted in the region, which took five years to reach a final determination. Similarly, an application to build a solar farm at Kells was submitted in June 2015 but not approved by the minister until October 2022, over seven years later.

27. The environmental impact assessment and environmental scoping documents for a recent 'non-contentious' wind farm contained 13,275 pages. In 2012, a typical planning application for a major infrastructure project contained 381 documents. By 2020, the document count had risen to 1,143.
28. The consequences of this growing complexity are that it takes longer to prepare and assess planning applications; more and more expert staff are required to draft and assess them and there are more opportunities to introduce errors and thus greater likelihood of challenge. It also makes the process less transparent for affected communities who cannot, realistically, be expected to review such volumes of paperwork.
29. The root cause of these issues is the complexity of planning policy and regulations.
30. In 2022, the Court of Appeal quashed planning permission for a Further Education College in Craigavon. In its judgement, the court made several observations on the state of planning policies.
31. Firstly, it deplored the absence of a single codified body of policies:
“The search for a central instrument collating in a sensible, coherent, logical and accessible manner all material local planning policies bearing on a given land use is sadly in vain.”

32. The Court then described the *“frankly daunting”* process that the planning officer had to follow:
“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 SPO 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.”
[Edited for brevity.]

33. The Court concluded:
“That this veritable maze has generated protracted and expensive litigation is unsurprising. [The case] demonstrated how difficult the exercise of interpreting planning policies can be.”
34. The fact that the Court of Appeal overturned a judgement of the High Court was, of itself, further evidence of the complexity of the relevant policies. If a High Court Judge, learned in law, cannot correctly interpret and apply planning policy and regulations, it is difficult to criticise the planning officers and

“The planning system makes broader infrastructure costs and delays far worse. [It is] a byzantine set of rules and procedures.”

The Times, 25 February 2024

“The planning system is a conspiracy against prosperity.”

Financial Times, 22 December 2023

“The planning system is complex and unpredictable.”

Competition and Markets Authority, 19 February 2024

- 35.** The consequence of such complexity is to create a vicious circle that over time increases costs, lengthens processes and increases uncertainty in outcomes. As project teams seek to comply with every possible interpretation of every policy and regulation, they produce larger and more complex applications. These take longer and more resources to prepare and then for planning authorities to assess. These complex assessments are more vulnerable to challenge by way of judicial review. The risk of such review incentivises project teams to put even more resources into creating even larger applications, and so the cycle is reinforced.
- 36.** There is a risk that the implementation of new regulations to achieve the target set in the Climate Change Act will increase the complexity of planning applications and provide additional opportunities for challenge and delay. In respect of critical infrastructure, there is a consequent risk that local interests will override regional priorities, particularly urgent Net Zero projects. Even where projects enjoy strong community support, they may be frustrated by individuals initiating planning appeals and court action.
- 37.** There are mitigations that could be applied to address current performance issues. More resources could be allocated to planning authorities, the Planning Appeals Commission, and statutory consultees. However, unless the underlying issue is addressed, this can only be a temporary and expensive fix.
- 38.** Improving the quality of planning applications for major capital projects by ensuring that project teams contain specialist planning expertise (including in the management of planning consultants) would reduce the likelihood of errors in public sector planning applications slowing down their assessment. However, if the complexity of regulation continues to increase, this again can only be a temporary fix.
- 39.** Legislating to enable urgent, regionally significant projects to be ‘fast tracked’ through the planning system could reduce some delays but risks creating grounds for additional challenges if it is perceived such projects have been pre-judged or been subject to less scrutiny.
- 40.** Reform programmes rarely run too quickly. A consultation paper on planning reform was issued in 2009. Fifteen years later, little has improved. However, the only effective solution to the problems caused by the complexity of planning policy is, as the Court of Appeal argued, for this regulatory environment to be codified and simplified.



The planning application for Strule Shared Education Campus contained **547** separate documents.

The planning application for SRC Craigavon Campus contained **4,977** pages.

The environmental impact assessment and environmental scoping documents for a ‘non-contentious’ wind farm contained **13,275** pages.

The planning application for the Lower Thames Crossing project contained **359,000** pages.

The training manual for the Planning Inspectorate contains **3,240** pages.



SOCIAL LICENCE

- 41.** Social Licence is usefully defined by the Institute of Public Administration of Canada as:
Society's moral and political approval, sufficiently widespread and stable to allow legal approvals to proceed and to assure ongoing community support.
- 42.** The importance of gaining and maintaining a social licence for major infrastructure projects has been long recognised in private sector industries such as mining. However, inadequate attention has been paid to it by government in the UK and Ireland.
- 43.** Social Licence is required because infrastructure projects have diffuse benefits shared by many people over long periods, but their costs are focused, with a small number of people immediately bearing the weight of a project's negative consequences. For this reason, all major infrastructure projects tend to engender some degree of opposition. If the public feels it has not been consulted early enough, that it has not been offered alternatives and that it has not been involved in the development of a project, it will resist.
- 44.** Citizens will, in such circumstances:
- Voice displeasure.
 - Demonstrate.
 - Threaten politicians with loss of support.
 - Argue to change processes.
 - Go to court to check the law is being applied properly.
- 45.** They may also:
- Dismiss the outcomes of Planning Authority processes.
 - Attempt to intimidate politicians & institutions that make difficult decisions.
 - Refuse to recognise their legitimacy unless the decision is the one they want.
 - Ignore injunctions and resort to civil disobedience or even crime.
- 46.** Taken to extremes, the objectors may succeed in establishing a 'vetocracy,' where change must be approved by its opponents. This is possible because the number of opponents of a 'difficult' decision (e.g., the siting of a waste plant) may be sufficient to influence a local election and thus - perhaps - a regional political outcome. These decisions are only 'difficult' politically, but this can be sufficient to delay them almost indefinitely.
- 47.** In Northern Ireland, objectors have succeeded in preventing or delaying the construction (to date) of the following major projects by pursuing the Judicial Review of planning decisions:
- A5
 - Casement Park
 - SRC Craigavon Campus
 - Arc21 Energy from Waste Plant
 - N/S Electricity Interconnector
- 48.** The increased costs attributable to delays in these projects total some £3bn. However, the costs measured in terms of lives lost, savings foregone, environmental damage and young people not educated are arguably greater.
- 49.** The root cause of this issue is that the public sector fails to recognise and act upon the importance of Social Licence.
- 50.** The indicators of this are that government has:
- Limited engagement to pro-forma 'consultation exercises' that rarely, if ever, lead to changes in project objectives, options appraisals, or approach.
 - Conducted debates in purely technical and economic terms, ignoring citizens' emotional responses.
 - Delayed stakeholder engagement and failed to allocate it sufficient time.
 - Undermined its own credibility by not giving reliable information and failing to deliver on its own promises.
 - Dismissed opposing views too early and too easily.
 - Required citizens to think and speak like bureaucrats.
 - Aimed to complete consultation quickly to get on and conclude a procurement.
- 51.** Officials see their key priorities as gaining ministerial support, an approved business case and planning permission. Other than cursory consultation, there is no process within the project delivery system that has as its aim the achievement of a social licence.
- 52.** The actions of some former ministers have aggravated the situation. As demonstrated above, they have failed to provide a stable policy framework supported by predictable and unambiguous legal requirements. More significantly, they responded to pressure from objectors working outside the statutory processes. In doing so, they undermined the essential assurance provided to those playing by the rules that decisions made under these rules will be upheld.
- 53.** In the short term, project teams should:
- Understand the concept of Social Licence and recognise its importance.
 - Conduct a Planning Risk Assessment at the outset of every project.
 - Create a Social Licence workstream, distinct from other project communications work.
 - Allow sufficient time and funding for genuine engagement activities throughout the project's duration.
 - Start those activities at a time when the public can still influence key decisions.
 - Build trust by giving reliable information and delivering on promises.
 - Avoid dismissing alternative views too early or too easily.



Social Licence
Society's moral and political approval, sufficiently widespread and stable to allow legal approvals to proceed and to assure ongoing community support.

- 54.** In the longer term, new legislation should enable early public engagement in decision-making processes for major infrastructure projects.
- 55.** Objectors in Northern Ireland lack any effective formal mechanism except the Judicial Review (JR) process to seek changes to proposals for major projects. (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.) When the JR mechanism is used, however, it does not lead to an independent and objective assessment of the issues that gave rise to the objection.
- 56.** The following table shows the rationale of the objectors who brought JR proceedings in recent hearings, together with the issue on which the cases were eventually determined. In no case was the determinant issue the same as the objectors' complaint. This demonstrates the ineffectiveness of using the judicial system as a means of resolving social licence issues.
- 57.** The JR process introduces substantial additional cost and delay. In the SRC case described above, the High Court took two years to hand down a judgement and the legal costs to the defending council were over £650,000.
- 58.** One legislative change that could reduce the likelihood of JRs, and reduce their impact if successful, would be to enable 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.

Judicial Reviews – Complaints and Determinant Issues

Project	Complaint	Determinant Issue at JR
A5	<ul style="list-style-type: none"> Loss of farming land to new road. 	<ul style="list-style-type: none"> Rigour of environmental impact assessment.
Casement Park	<ul style="list-style-type: none"> Impact of stadium mass on blocking light to nearby houses. Noise from events. 	<ul style="list-style-type: none"> Failures in the environmental impact assessment.
SRC Craigavon	<ul style="list-style-type: none"> Loss of amenity (walking space). 	<ul style="list-style-type: none"> Rigour of the environmental impact assessment. Compliance with zoning policy.
Arc21 EfW Plant	<ul style="list-style-type: none"> Perceived pollution and health hazards. Impact on property prices. 	<ul style="list-style-type: none"> Vires of the decision-maker.
N/S Electricity Interconnector	<ul style="list-style-type: none"> Loss of farming land along route of overhead cables. Perceived health hazards. 	<ul style="list-style-type: none"> Vires of the decision-maker.

A model for such engagement can be found in the French Commission Nationale du Débat Public (CNDP). The purpose of the CNDP is 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.





PROJECT INITIATION

- 59.** The purpose of the Project Initiation process is to provide project sponsors with the confidence that a project has a high chance of achieving its desired outcomes through successful delivery. The current mechanisms for providing such assurance are not working effectively.
- 60.** The analysis found that:
- Cost and schedule estimates are consistently inaccurate.
 - Project teams consistently overestimate their own expertise.
 - End-to-end, the Business Case Process is often slower than should be necessary.
 - Approvals processes are often more complicated than in other jurisdictions.
- 61.** As with procurement, a lack of expertise is the main cause of these issues. This, and the root causes of inaccurate cost estimates, are considered below.
- 62.** SIB additionally found that those involved in early-stage project assurance were failing to follow the procedures established for providing integrated assurance. For example, there should be a strong link between the business case approval process and the Gateway Review process, with each informing the other. However, we found that this is not always, or even often, the case. A relatively straightforward action would be to enforce this connection.



PROCUREMENT

- 63.** The indications that the procurement system is performing ineffectively include:
- Prolonged and unsuccessful procurements.
 - Limited private sector interest in major projects.
 - Costs consistently higher than expected.
 - Solely transactional relationships with the private sector.
 - Risk aversion, including a reluctance to embrace the use of frameworks and modern procurement strategies.
 - Inappropriate risk allocation between public and private sectors.
 - A lack of alignment between operational procurement guidance and operational procurement practice.
 - Inconsistent approaches to tender documentation and assessment and contract strategies across the Centres of Procurement Expertise (CoPEs).
 - Private sector complaints about high bid costs.
 - Project sponsor frustration with the limited choice of procurement routes and contract strategies offered by the procurement function.
 - The asymmetry of skills, knowledge and experience of government procurement staff when compared with their private sector counterparties, who are better qualified, paid and incentivised.
- 64.** SIB's analysis suggests that a lack of expertise is the root cause of these issues, a factor that is addressed below.
- 65.** However, the failure to set clear strategic objectives for construction works procurement with measurable outcomes, and a persistent inability to collect data and monitor compliance with policies and guidance means that it is difficult to assess the efficiency and effectiveness of operational procurement in NI.
- 66.** One key action that should be completed once Ministers approve the Investment Strategy is for the Centres of Procurement Expertise to produce an integrated procurement plan. This should identify the resources required to carry out all the procurement activities necessary for the delivery of projects in the early years of the ISNI. The construction of this plan will highlight areas where capacity and capability are inadequate.



DECISION-MAKING

- 67.** The analysis of data relating to the time taken to reach decisions is ongoing. However, in discussions with those involved in this process the following issues have been raised sufficiently often to merit their inclusion here.
- There is much duplication in the decision-making system. It was suggested, for example, that in appraising business cases, departmental and DoF economists follow the same process and apply the same criteria.
 - Excessively complicated requirements and processes that fail to pass any plausible cost-benefit analysis have accumulated.
 - The time required to take a decision is extended so that accountability can be diffused. Staff who lack confidence in their own expertise seek the widest possible external confirmation of the judgement they are asked to make in an approach described as 'defensive decision-making.' *[One example demonstrates this tendency. In a recent project developed with the RoI, the decision to proceed required authorisation from two officials in Dublin and thirty in Belfast.]* There is no evidence to suggest that involving larger numbers of officials in a decision improves its quality.
 - There have been suggestions that officials seek to 'run down the clock' on proposals that they are unwilling to support in the expectation that delay will lead to increased and unaffordable costs. Acts of omission, that is, delaying decisions, are not considered acts and do not appear to be reported, costed or assessed. No calculation is made of the cost of delay incurred through stifling attention to marginal detail.
- Increasing numbers of staff involved in decision-making and decision-reporting require more coordination bodies, meetings and report-writing. This results in less time for project delivery activities that add value.
 - The range and volume of data available to decision-makers is increasing and this is making its analysis more complex and time-consuming. However, it appears that the more data decision-makers collect, the less comprehensible the problem becomes. Quality matters, not quantity. There is no evidence to suggest that such additional analysis has led to better decisions.
 - Much effort has been made by senior finance managers to emphasise the importance of proportionality in business cases. This does not, however, seem to have resulted in shorter business cases being produced more quickly.
 - There is little evidence of institutional learning from past mistakes. There is little retrospective review of why individual business cases were inadequate or why decision making took so long.
- 68.** Even when staff have good intentions, it is hard to get anything done with so much complexity and so many management layers to work through. When staff do not share the same intentions, process provides limitless opportunities for obstruction.
- 69.** The remedy for these problems will be found in simplifying processes, shortening reporting lines, and improving expertise. None of this will happen until the senior leadership of the NICS incentivizes such change.



PROJECT DELIVERY EXPERTISE

- 70.** The analysis concludes that the public sector finds it difficult to fill key project delivery roles with staff who have the required skills, knowledge and experience at the time when they are needed.
- 71.** The consequent lack of expertise in key project roles is the root cause of much delay and increased costs.
- 72.** The indicators of this deficiency are:
- There is little evidence of workforce planning. Project teams are often incomplete, lack the necessary specialist expertise and are thrown together at the last moment.
 - HR policies and procedures actively dissipate expertise and discourage organisational learning. Staff are regularly moved mid-project for career development reasons, or on promotion, without consideration of the impact on project outcomes.
- Replacements are often inexperienced and unable to operate effectively at the required level. Handovers are often rushed or do not take place at all.
 - Staff lacking the expertise required for a specific role understandably seek to move on as quickly as possible, preferably before taking decisions for which they may later be held accountable.
 - Staff lacking expertise take longer to complete routine work and cannot respond effectively to unexpected events or unusual situations.
 - There is an asymmetry of expertise between the private and public sector staff in projects. This has a particular impact in procurement.
 - There is a reluctance to value expertise in areas outside policy development. Those brought in from outside the NICS with specialist expertise report that they were often treated as 'outsiders' rather than being 'on the same side.'



- 73.** These are not recent issues. In 1968, the Fulton Report found that the Civil Service relied too much on the ‘generalist’ or ‘all-rounder’. Scientists, engineers, and other specialists were not being given appropriate responsibilities, opportunities and authority. Recent reports by Michael Gove, Francis Maude and the Institute of Government have reached the same conclusions, calling for more expertise; lower turnover of officials in jobs; more competence in execution and delivery, and stronger commercial, IT and project delivery capability.
- 74.** The RHI Inquiry (2020) made recommendations in respect of improvements to the recruitment of civil servants; the gaining of commercial expertise; staff moves and learning from experience. Insofar as these recommendations have been implemented, they have not resulted in better outcomes.

“The civil service machine has every freedom to choose who it recruits and promotes; what kind of jobs exist; what kind of people get them; and who is removed from them.”

Sir John Kingman, Former Permanent Secretary to HM Treasury

- 75.** Staffing issues are tractable as Permanent Secretaries have full control over civil service reform. If they wish, they can change policies and procedures in areas such as the shape, size and capability of the NICS together with those for recruitment and organization. Changing a culture that prefers policy expertise to operational skills will not be easy, but it is the only sustainable solution to the current crippling lack of expertise.
- 76.** In the meantime, the following actions are necessary, but not sufficient, to mitigate the impact of current problems. The NICS Board should:
- Oversee the construction of a realistic workforce plan for the implementation of the ISNI. This should identify the capacity and capability required to deliver the major capital projects planned by the Executive and explain how these requirements will be met. Despite the political risk that will arise from creating a long-term spending commitment, understanding the scale of this problem is a necessary precursor to its solution.
 - Make it easier to bring in external expertise at every level. It must recognise that the private sector is currently better at recruiting, retaining and incentivising project delivery talent and the public sector must compete for the expertise it requires.
 - Halt the application of HR policies that hinder the development and deployment of expertise.



COST ESTIMATES

- 77.** The cost estimates produced in business cases are consistently inaccurate. This has been demonstrated by the NIAO in its reports and is a constant cause of concern for Ministers, politicians, the construction industry, the media and the public.
- 78.** The problem is not, however, confined to Northern Ireland. The list of projects in the UK and Ireland that are being delivered vastly over budget and years late include HS2, the Dublin Children’s Hospital, Hinkley Point Nuclear Power Station and many others. The ubiquity of such problems has been explained by academics in four main ways:
- Incompetence on the part of those compiling the cost estimates.
 - Optimism bias: the tendency on the part of project promoters to expect everything to proceed to plan.
 - Strategic misrepresentation: the deliberate underestimation of costs in order to gain approval for projects that would otherwise be judged uneconomic.
 - Any combination of the above.
- 79.** It is unlikely that incompetence is sufficient reason to explain the consistent underestimation of costs. Random incompetence would, for example, result in occasional cost overestimates. It is difficult to accept that decade after decade, otherwise competent staff will be consistently unable to produce accurate estimates.
- 80.** Optimism bias is a recognised problem in cost estimation. It is formally addressed in every business case through an optimism bias allowance that inflates the overall cost estimate for the project. This allowance has, however, proved consistently to be an underestimate of the eventual cost overrun.
- 81.** Although strategic misrepresentation has, apparently, been a feature of almost every ‘megaproject,’ that is, the very largest and most complex undertakings, there is little evidence of this in Northern Ireland.
- 82.** SIB’s analysis suggests a different rationale for inaccurate cost estimates.
- 83.** As demonstrated above, key processes within the system for delivering major projects are complex and fragile. Deficiencies in planning policy, lack of project delivery and procurement expertise and a failure to establish social licence, when taken together, create a system that is vulnerable to external events and unpredictable. There are multiple opportunities for breakdowns and stoppages. Even relatively minor mistakes can have non-linear effects, incurring lengthy delays and additional costs.
- 84.** The weaknesses of these underlying systems mean that OBC costs will almost certainly be significantly underestimated.

- 85.** Until such time as these underlying weaknesses are addressed, decision-makers can have little confidence that OBC costs will be a reliable indicator of actual costs.
- 86.** This does not mean that every project will inevitably exceed its OBC cost. It does mean however, that OBC costs cannot be seen as a reliable predictor of actual costs.
- 87.** There are mitigations that could lessen the reputational impact of incorrigible cost overruns. These include:
- Using FBC estimates as the baseline against which overruns are measured. This is entirely legitimate and is the approach used in many other jurisdictions.
 - Using constant prices, or at least calculate and report the effect of inflation.
 - Expressing OBC cost estimates as a range rather than a single price point. This would have the added advantage of sensitizing ministers to the deficiencies in the systems that affect costs.
- 88.** The only sustainable solution to the problem of inaccurate cost estimates is to improve the systems for planning, procurement, social licence and to improve the expertise of those charged with their operation.



ACCOUNTABILITY

- 89.** Accounting Officers (AOs) and Senior Responsible Owners (SROs) are nominally responsible for ensuring success in project delivery; however, as demonstrated above, they have little ability to control costs or schedule as these are driven by the performance of elements in the system over which they have little or no control; primarily planning, procurement, and HR. While these systems remain slow, fragile and unpredictable, no amount of training or personal development will enable an SRO to deliver to time and budget.
- 90.** Ministers, MLAs, the press and the public understandably seek to hold to account those responsible for the poor performance on major projects. However, holding SROs accountable for problems beyond their control is entirely counter-productive as it provides a strong incentive for competent officials to do everything in their power to avoid involvement in such projects. Where the system is to blame, and that system has a multitude of progenitors, most of whom have long departed, a search for scapegoats directs attention away from the real problems that determine outcomes.

It should be noted that the method the NIAO uses to calculate cost overruns differs from that used in other jurisdictions. Professor Bent Flyvbjerg, the Professor of Major Programme Management at Saïd Business School, Oxford, and the most cited scholar in the world on megaprojects, states that overruns should be defined as:

“The amount by which actual cost exceeds estimated cost, with cost measured in the local currency, constant prices, and against a consistent baseline.”

He goes on to assert that:

“The budget at the time of decision to build [should be used as the] baseline for measuring cost overrun.”

The NIAO’s approach to measuring cost overruns differs from that recommended by Professor Bent Flyvbjerg. It does not use constant prices (i.e. the NIAO does not exclude inflation from its calculations), and it measures overruns against OBC rather than FBC estimates.

SIB agrees with Professor Flyvbjerg that the choice of baseline for measuring cost overrun depends on what one wants to understand and measure. Calculating the difference between estimates produced at the OBC and FBC stages is a measure of the performance of the systems for design, planning, procurement, decision-making and social licence. Measuring the difference between costs estimated at FBC stage and the actual costs is a measure of the performance of the construction and / or contract management systems. Each is useful in its own way. The NIAO’s approach, which merges the two, maximises the apparent overrun but is less useful as a diagnostic tool.



SECTION 3

Conclusions



EXPECTATIONS

- 91.** The delivery system for major capital projects is becoming more and more complex. This complexity is making the system slow, fragile and unpredictable.
- 92.** Transformational improvement requires fundamentally different approaches to policy and processes. These should be focused on removing complexity.
- 93.** Such transformation will not be delivered quickly but is the only approach that will address the root causes of delay and cost overruns.
- 94.** In the meantime, there are opportunities for short-term mitigations. The most important of these is to improve the expertise of the people operating the system. This is a tractable problem that Permanent Secretaries can solve if they have the will.
- 95.** Until this transformation is complete, the Executive, Ministers, MLAs, the NIAO, the media and the public should expect ongoing delays and cost overruns in the delivery of major capital projects.

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