Global practices and insights for improving infrastructure delivery models

It’s time to change the way we deliver infrastructure
Improving Delivery Models

Introduction

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Overview of Improving Delivery Models

Approach, methodology, resources, and online application

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How can we improve infrastructure delivery?

Delivering infrastructure has and always will be a challenge.

The difficulties faced with planning, procuring, constructing and operating infrastructure presents a problem that evolves with society, technology and government.

GI Hub’s Improving Delivery Models initiative addresses this question in four ways:

1. Identifying and summarising delivery challenges faced by governments and industry
2. Collating and exemplifying improvements to infrastructure delivery
3. Raising awareness on the importance of delivery strategies, beyond the contractual model
4. Sharing the key functional differences and suitability of different contractual models.
Why delivery models?

Market gap

• Infrastructure is a key driver of the post-COVID economic recovery, with every USD1 invested in infrastructure leading to a USD1.50 increase in economic output
• Despite an abundance in research, there is no global collated source of improvements for infrastructure

Importance of delivery models

• Many of the challenges faced in project delivery can be traced to the delivery model strategy. Research by the International Monetary Fund (IMF) showed that 67% of cost overruns originate prior to contract award
• The IMF also found that 33% of a project’s budget merely covers inefficiencies in the delivery process, while a separate report from the Inter-American Development Bank found that cost overruns account for 28% of the total infrastructure investment cost.
Partners and implementation
The initiative was designed for those planning, designing, procuring and delivering infrastructure, and was developed with input from global experts...

Expert partners

We asked feedback from a variety of delivery agencies, contractors, central governments, and global and regional entities to inform the development of Improving Delivery Models

Implementation

Practitioners can use Improving Delivery Models to identify improvements to their projects based on the challenges they face

The initiative compliments the other GI Hub guidance and tools, such as:

- InfraTracker
- Inclusive Infrastructure
- PPP Risk Allocation Tool
- Project Preparation

Stakeholder engagement:

1. Jacobs
2. Acciona
3. Infrastructure Australia
4. European Bank for Reconstruction and Development
5. Bouygues Construction
6. UK Infrastructure and Projects Authority
7. The World Bank
8. Engie
9. Infrastructure Ontario
10. European Investment Bank – EPEC
11. Webuild
12. OECD
13. Sao Paulo Government
14. John Holland
15. SNCF
16. Plenary
17. Société du Grande Paris
18. Lendlease
Improving Delivery Models – Overview (i)

*The Improving Delivery Models tool uses four main components to address six themes relevant to project execution...*

**Overview**
The Improving Delivery Models initiative has 4 main components:

1. Delivery Challenges and Improvements Framework
2. Case studies
3. Key references
4. Contractual Models Overview

**Infrastructure themes**
We identified six universally relevant themes that inform the structure of the challenges and improvements collated in the framework:

- **Capability and Capacity**
- **Cooperation**
- **Efficiency**
- **Finance**
- **Risk**
- **Sustainability**

**Framework structure**

1. **Theme**
   - One of the six challenges listed below left e.g. **Theme 3: Efficiency**

2. **Delivery challenges**
   - 28 identified
   - thematically related e.g. **High cost of bidding projects**

3. **Delivery improvements**
   - 61 specific improvements related to the challenges e.g. **Reimbursement of bid costs for projects can introduce new market entrants**

4. **Case Studies**
   - 67 real-world case studies illustrating the delivery improvement e.g. **Bid Cost Contribution Policy (NSW Government)**
   - 25 examples and 11 resources.
Snapshot of Challenges and Improvements Framework

Improving Delivery Models

Partnering with other connected parties to achieve improved shared outcomes.

**Cooperation**

**Challenge:** Insufficient early project planning and consultation leading to poor procurement outcomes for projects with a high level of complexity.

Poor or insufficient early planning resulting in inadequately scoped projects and the potential selection of an infrastructure delivery model that is unable to deal with the scope, schedule, and budget risks, particularly where these is a complex scope to deliver. This is counter to the aim of structuring procurement works packages that appeal to the market and thereby improve bidder participation and lowering interface risk.

**What improvements have been used to address the challenges?**

- Perform early market sounding with potential contractors, consultants, and suppliers to inform possible works packaging options. This type of engagement can inform scope and wider project risks.

**How have infrastructure projects benefited from improvement?**

**Case Studies:**

- Sydney Metro (Australia) is Australia's largest public transport project and will include 46 stations and 113 km of elevated stabling track and alignment work once complete. As part of its early market engagement, it conducted industry briefings and obtained market feedback which resulted in a whole new packaging configuration. Incorporating industry recommendations resulted in a procurement process that was better informed.
Improving Delivery Models – Overview (ii)

The Improving Delivery Models tool also includes additional examples and further resources for infrastructure practitioners and policy makers...

Key references

- The tool includes a compendium of delivery frameworks and guidance from authorities in different jurisdictions
- These references compliment and expand on the insights from the Delivery Challenges and Improvements Framework

Contractual Models Overview

- To create language commonality around infrastructure delivery, the initiative includes an overview of the different contractual models
- The models are organised by the functions and services they contract
- It also explains their functions, key features and what they may also be referred to as.
Key Messages

From Improving Delivery Models Introductory Paper
## Global trends

We identified eight trends changing the way infrastructure is delivered across the globe, and are closely related to the six themes in the framework.

<table>
<thead>
<tr>
<th>Trend</th>
<th>Description</th>
<th>Link to IDM Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand</td>
<td>Unprecedented demand for new infrastructure projects has placed pressure on existing delivery models</td>
<td>Theme 1: Capability and Capacity</td>
</tr>
<tr>
<td>Complexity</td>
<td>Large, complex and more expensive infrastructure projects are becoming more common, especially in urban areas with growing populations and already established networks</td>
<td>Theme 2: Cooperation</td>
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<tr>
<td></td>
<td></td>
<td>Theme 3: Efficiency</td>
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<tr>
<td>Solvency</td>
<td>Unbalanced risk allocation, changes to scope and cost overruns have threatened the solvency of major contractors and by extension the structure of the construction industry</td>
<td>Theme 4: Finance</td>
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<td></td>
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<td>Theme 5: Risk</td>
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<tr>
<td>Outcomes and Transition</td>
<td>The breadth of outcomes expected in infrastructure projects has changed – it is no longer just about the physical asset. Transition to more sustainable infrastructure models will effect how infrastructure is constructed and operated, as governments seek to achieve net zero outcomes at all stages of the asset life cycle</td>
<td>Theme 1: Capability and Capacity</td>
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<tr>
<td></td>
<td></td>
<td>Theme 2: Cooperation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Theme 6: Sustainability</td>
</tr>
<tr>
<td>Digitalisation</td>
<td>The potential for infra technology and data-based technology continues to grow, but requires improved processes and integration to be realised</td>
<td>Theme 3: Efficiency</td>
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<tr>
<td>Evolving roles</td>
<td>Over the past decade, the internal capacity of governments has declined, with capability increasingly supplemented by the private sector. Governments have become an enabler rather than a supplier of infrastructure</td>
<td>Theme 1: Capability and Capacity</td>
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<td></td>
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<td>Theme 2: Cooperation</td>
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<tr>
<td>Cooperation</td>
<td>Interest in collaborative approaches to contracting has grown in response to the rigidity of traditional, adversarial procurement models</td>
<td>Theme 2: Cooperation</td>
</tr>
<tr>
<td>Skills shortage</td>
<td>Skills shortages of infrastructure engineering and technical skills is a major concern globally both in developed and emerging markets, both on the public and private sector side</td>
<td>Theme 1: Capability and Capacity</td>
</tr>
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## Key messages from Introductory Paper

An introductory paper explores some of the key messages from developing the Initiative

<table>
<thead>
<tr>
<th>Predictability with Flexibility</th>
<th>Managing Uncertainty</th>
<th>Capabilities and Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Include sufficient risk allowances in cost estimates</td>
<td>4. Go slow to go fast. Align design maturity with contract price firming through further studies and investigations</td>
<td>7. Invest massively in infrastructure competencies</td>
</tr>
<tr>
<td>2. Use market consultation to test procurement and packaging decisions</td>
<td>5. Appropriate risk allocation, regardless of contractual model, is the best way to achieve a desired level of competition</td>
<td>8. A strong policy framework is required to attract innovation and innovators</td>
</tr>
<tr>
<td>3. Adopt a clear, agnostic approach to contract model selection</td>
<td>6. Consider collaborative and progressive contracting approaches where a firm price cannot be realistically determined</td>
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Key Messages 2, 3, 4 and 6 form the basis of today’s panel discussion
# Case studies and examples – Cooperation

Seven case studies from the Cooperation theme, including their relevant challenge and improvements...

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Improvement</th>
<th>Country</th>
<th>Case study</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient early project planning and consultation leading to poor procurement outcomes for projects with a high level of complexity.</td>
<td><strong>Industry briefings before and after the packaging configuration</strong> took into consideration the inputs/recommendations from the industry</td>
<td>Australia</td>
<td>Sydney Metro</td>
<td>Sydney Metro is building Australia’s first fully automated metro railway.</td>
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<tr>
<td>Lack of a cooperative approach between client and delivery teams (design/build teams)</td>
<td>Used an <strong>early contractor involvement approach</strong> under a two-stage process that involved integrating design, development and construction planning to the client’s objectives, and a target price.</td>
<td>United Kingdom</td>
<td>High-Speed 2</td>
<td>HS2 is a new high-speed rail line that will connect London with Birmingham, and later to Manchester and Leeds.</td>
</tr>
<tr>
<td>Co-location of project owner, project management consultants and delivery consortium members to address issues collaboratively</td>
<td>Utilised an <strong>integrated delivery team</strong> under an alliance framework with a 10-year program of works, with aligned incentives. Expected to deliver GBP 100 million in savings.</td>
<td>United Kingdom</td>
<td>Team 2100</td>
<td>TEAM2100 is delivering the first 10 years of the Thames Estuary Asset Management Program that covers tidal flood defences.</td>
</tr>
<tr>
<td>Co-location of project owner, project management consultants and delivery consortium members to address issues collaboratively</td>
<td>Utilised an <strong>NEC3 ECC Option A contract</strong> that required fast track design development driven by specialist user requirements</td>
<td>United Kingdom</td>
<td>Thames Tideway</td>
<td>It involves the construction of a ‘super sewer’ tunnel that will run for 25 kilometers through central London.</td>
</tr>
<tr>
<td>Conventional O&amp;M arrangements can lack collaborative planning</td>
<td>The Rocky Flats Contract contained a <strong>schedule performance incentive</strong>, <strong>a cost performance incentive</strong>, and a <strong>performance gateway measure</strong>. The compensation schemes applied only if threshold performance metrics were achieved</td>
<td>USA</td>
<td>Rocky Flats Closure</td>
<td>Rocky Flats was a U.S. nuclear weapons plant located 24 kilometers from central Denver, that required closure and remediation.</td>
</tr>
<tr>
<td>Conventional O&amp;M arrangements can lack collaborative planning</td>
<td>The 10-year agreements with the Regional Delivery Consortia were let under the <strong>NEC type of contracts</strong>, which provided flexibility and shared terms, conditions and clauses</td>
<td>Australia</td>
<td>Sydney Water Consortia</td>
<td>Sydney Water’s new collaborative framework called ‘Partnering for Success (P4S)’ called for appointment of long-term integrated planning partners</td>
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Discussion session and Q&A

Co-moderators

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Discussion session and Q&A

Shared experiences from policymakers and infrastructure delivery agencies

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Grand Paris Express

Angela Jeffery
Project Director
Sydney Metro – Western Sydney Airport

Charl van Niekerk
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Infrastructure Ontario

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