



# INSTITUTE OF COMMISSIONING & ASSURANCE MONTHLY NEWSLETTER

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## CEO's Message

*By Paul Turner, P.Eng., PMP*

### CEO Message - Reclaiming Project Outcomes

Project outcomes are too often left to chance – project teams roll the dice and gamble with how they end.

Let's take a step back to the fundamentals. The definition of a project is a series of planned work or activities with a defined start and defined end over a period of time to achieve a particular outcome. Seems straightforward. But it is human nature to start things without finishing them. The last 5% of any task (including complex multi-billion endeavors) is always the hardest.

Too often, projects are started with no idea how to finish them. When this occurs, this violates the definition of a project. With no defined end, this leads to cost over-runs and time extensions, costing Billions/Trillions of dollars.

The current project delivery structure is flawed. The priority over the last several decades has been to focus primarily on construction and installation, and leave the outcome to chance. It is time for a new model of project delivery that adheres to the definition of a project – one that starts with outcome control and provides outcome assurance through all stages of delivery to ensure a defined finish.

The new model is the Outcome Management System (OMS). OMS is an extension of the current Quality Management Systems (QMS)

implemented on projects, to not only ensure construction/installation quality meets requirements, but also to ensure systems deliver intended outcomes.

OMS is necessary for today's complex projects. In the past, when projects were not nearly as complex as they are today, QMS was adequate to get projects across the finish line. But that is no longer the case. As the information-age has transformed the world over the last 20 years, everything has become interconnected with digital systems, and the demands on infrastructure to meet society's needs have continued to grow. QMS alone is no longer sufficient to deliver complex systems that meet original project intentions.

OMS consists of 3 core elements – Outcome-Focused Governance, repeatable and predictable commissioning processes to ensure outcome-focused alignment, and Outcome Readiness methodologies to ensure systems deliver on Day One of operation. These 3 core elements, which are missing on a lot of today's projects, ensure outcomes can be achieved on-time and on-budget, every time.

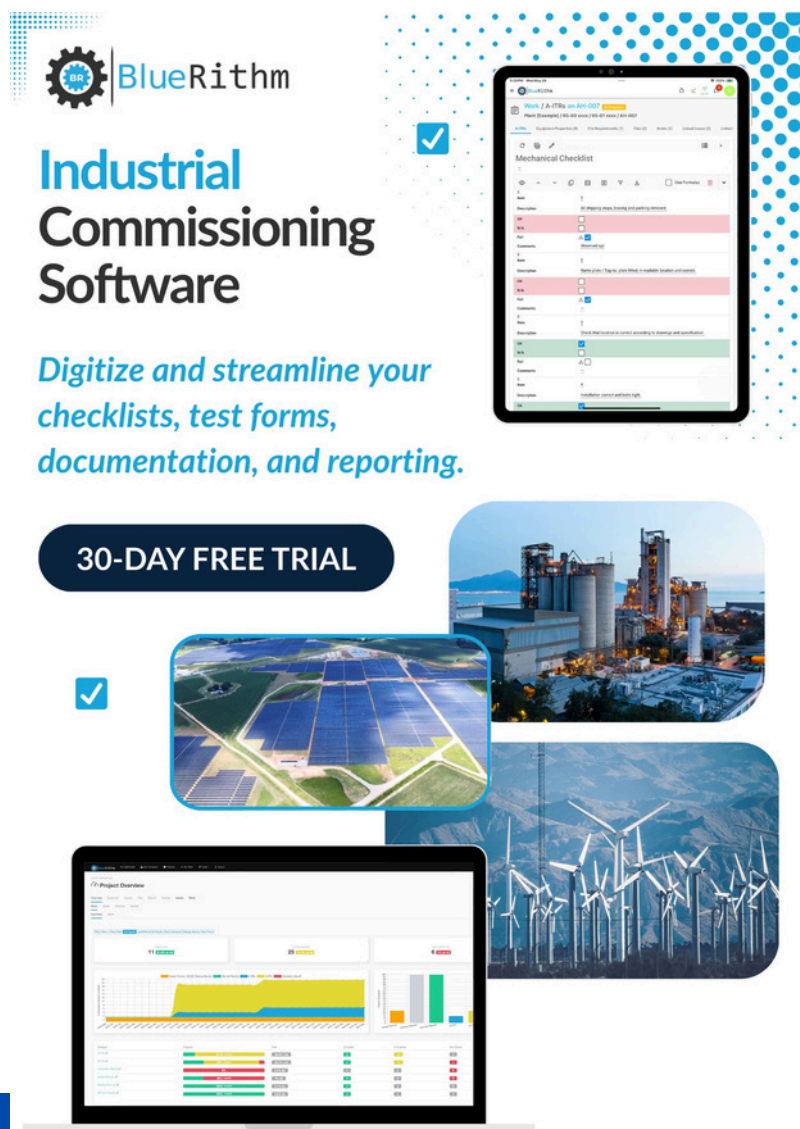
The Outcome Management System is fully defined and currently being documented and reviewed by some of the world's leading industry experts in project delivery. Once complete and defined in internationally recognized standards, the OMS standards will be available for all to use.

But the standards alone won't be enough. ICxA has formed strategic partnerships with industry-leading organizations to champion the OMS delivery framework and take OMS to government and policy organizations, making OMS non-negotiable as a requirement of project delivery. Projects that continue to

gamble with the end will no longer be accepted, and will no longer be funded by governments, project lenders, and will not be eligible for insurance or bonding. The world has had enough of poor project performance, and it is no longer acceptable for projects to gamble with the end – OMS will be an institutional requirement in order to reshape the industry and deliver projects that succeed. The process is being fast-tracked, since OMS is long over-due and must be institutionalized ASAP.

Exciting times at the ICxA! If you would like to join the movement and be one of the primary organizations to lead and shape the future of project delivery, contact us at [info@icxa.net](mailto:info@icxa.net)

*Paul Turner, P.Eng, PMP*  
CEO/Founder, ICxA



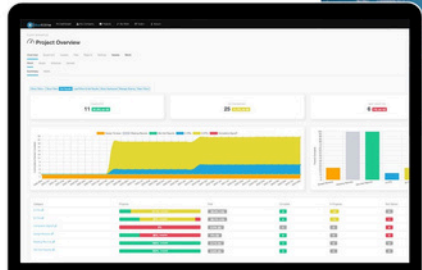



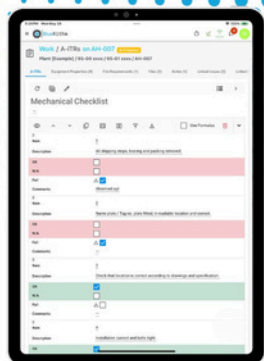
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# THE ANALOGY CORNER

*Distilling key ICxA themes into clear, concise, and engaging perspectives*

*by Peter Foxley*

*ICxA Commissioning Governance & Policy Director*



*Welcome to ICxA's Analogy Corner - where complex ideas in infrastructure performance are decoded through vivid analogies. Each month, we bridge technical detail with institutional vision, helping practitioners, policymakers, and the public see how governance can evolve into a licensed profession of public trust.*

## FROM QUALITY TO OUTCOMES: WHY INFRASTRUCTURE NEEDS A NEW DISCIPLINE OF TRUST

### Introduction

For more than a century, **Quality Control (QC)** and **Quality Assurance (QA)** have been the backbone of industrial legitimacy. QC was the inspector on the factory floor, checking each product as it rolled off the line. QA was the system of processes ensuring the factory consistently met specifications. Together, they answered the question: "Did we build it right?"

But infrastructure is not a widget. It is the backbone of society - powering cities, connecting communities, and sustaining economies. Technical compliance alone is no longer enough. Infrastructure must also

deliver **public legitimacy**: outcomes that citizens can trust across social, economic, and environmental dimensions.

### *From Factory Floors to Public Trust*

That is where **Outcome Control (OC)** – typically a chief engineer and **Outcome Assurance (OA)** – commissioning outcome authority or commissioner come in. Together, they form the governance discipline of the 21st century, activated through the **Outcome Management System (OMS)**.

### **Factory vs. Whole-of-Life Governance: Two Disciplines, Two Questions**

#### **QC/QA – The Factory, Field Installation & Test Discipline**

- QC is the inspector checking each product as it rolls off the line.
- QA is the system of processes ensuring the factory and field team consistently meet specifications.
- **Focus:** "Did we build it right?"
- **Scope:** Technical compliance, defect prevention, standards.



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# THE ANALOGY CORNER CONT'D...

## OC/OA – The Whole System, Whole-of-Life Governance Discipline

- OC is the governing authority deciding whether a deviation is legitimate, balancing social, economic, and environmental trade-offs.
- OA is the independent audit verifying that promised benefits are delivered to citizens.
- **Focus:** “Did we build the right thing, and does it deliver the outcomes society expects?”
- **Scope:** Public legitimacy, societal trust, balanced value creation across the full lifecycle.

## Why OMS Matters

**QC/QA assures that the thing is correct. OC/OA assures the value of the thing in context.**

The **OMS framework** brings this governance discipline to life:

- Outcome Readiness – embedding requirements and value metrics from the very start.
- Outcome Assurance – validating performance through value-creation stages, integrated testing, trials, and independent review.
- Outcome Control – adjudicator of deviations and trade-offs to safeguard public trust.

These components elevate infrastructure

performance from **technical compliance to societal legitimacy.**

## Manifesto

**QC/QA ensures infrastructure is built correctly.**

**OC/OA ensures infrastructure is built meaningfully.**

**QC/QA is the discipline of factory, site installation, and testing.**

**OMS is the framework for whole-system, whole-of-life governance.**

Collectively, they elevate infrastructure from simply meeting specifications to consistently delivering intended outcomes and benefits that matter.

## Closing Thought

Just as QC/QA defined the legitimacy of industrial production in the 20th century, OC/OA must now define the legitimacy of infrastructure in the 21st.

By embedding an OMS program across the lifecycle, we move from asking “*Did we build it right?*” to answering the deeper question: “*Did we build the right thing - and does it deliver the outcomes society expects?*”

# LEARNING FROM THE SITE C PROJECT - KEY TAKE-AWAYS FOR OUTCOME ASSURANCE IN MAJOR PROJECTS

by Paul Turner, CEO | ICxA

On 30 October 2025, BC Hydro submitted an executive summary of its Lessons Learned Report for the Site C hydroelectric project to the British Columbia Utilities Commission. The report offers a rich source of insights for project leaders focused on Outcome Assurance and provides a robust real-world case to reflect on how commissioning and operational readiness can shape project outcomes.

Here are the key findings and how they speak directly to the Outcome-first leadership mindset that the ICxA promotes.

## The Project and its Scale

The Site C Project is located on the Peace River in northeastern British Columbia, about 7 km from Fort St. John.

With a generating capacity of 1,100 to 1,230 MW and average annual production of 5,100 GWh (enough to power some 450,000 homes), it is a major public-infrastructure commitment. Construction began in July 2015, and by August 2025, the facility's six generating units were in service.

## Why this matters to Outcome Assurance:

When we speak of outcome-first leadership, we emphasize early clarity of the end-state: what capacity, what performance, what benefit the asset must deliver. Site C is a high-stakes example where defining the outcome mattered - and the delivery scale was immense.

## The Challenges and Budget Escalations

Despite its ambition and eventual success, Site C encountered several major challenges which drove significant budget increases.

- Initial approved budget (Final Investment Decision, Dec 2014): CAD 8.775 billion.
- First budget increase in Feb 2018: to CAD 10.7 billion – driven by higher bids, civil works issues including tension cracks, resource ramp-up needs.
- Second increase in Feb 2021: to CAD 16.0 billion – major drivers included the COVID-19 pandemic (~CAD 1.6 billion), geotechnical challenges on the right bank (~CAD 1.1 billion), plus claims, schedule recovery and additional resources.

The report notes that while many geotechnical risks were known, they had been assessed as “low probability” and thus insufficient contingency/reserves were in place when those risks materialised.

## Lesson for Outcome Assurance:

The lessons learned executive summary reinforces the principle that focusing on the outcome (e.g., what must be delivered, by when, at what cost) must go hand in hand with rigorous scenario planning and contingency for high-impact risks. Recognising the risk of “low-probability, high-consequence” events early - and reflecting that in reserves,

governance and metrics - supports true outcome assurance rather than simply managing deliverables.

### Six Lesson Areas Identified

BC Hydro organised the lessons learned across six major areas:

1. Contract Management
2. Risk Management
3. Geotechnical Risk
4. Project Governance
5. Indigenous Consultation & Community Engagement
6. Budget / Contingency & Reserve Structures (integrated)

Here are selected highlights:

- **Contract Management:** The use of large consortiums with limited prior joint experience introduced complexity. The evaluation criteria for bidders should have more strongly considered the team's ability to ramp up together, work in the local jurisdiction, and integrate roles/responsibilities upfront.
- **Risk Management:** The risk register grew to over 1,100 active/closed items. Improvements during the project included centralising registers, improving visibility, linking cost/schedule risk analyses to mitigation, increasing frequency of analyses, enhancing systems and staffing. However, these improvements should have been made earlier.
- **Geotechnical Risk:** Even with decades of geotechnical investigation (1975-2014) and an observational approach, unexpected



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ground conditions occurred (tension cracks on the left bank; foundation enhancements on the right bank). This case underscores that known risks - even when low probability - can still materialise and impose major cost/schedule impact.

- **Governance:** Effective oversight, such as the Project Assurance Board, Independent Oversight Advisor (Ernst & Young) and Technical Advisory Board played valuable roles. As the project matured, expertise, structure and clarity improved; yet the recommendation is clear: apply these governance enhancements early in the lifecycle.
- **Indigenous Consultation & Community Engagement:** Early and deep engagement with Indigenous Nations, use of forums, direct business procurement pathways and ongoing environmental/cultural monitoring were key strengths.

### Outcome-first lens:

For ICxA's target audience (project leaders & decision-makers), the message is: Focus on the outcome you are assuring - and build your contracts, risk systems, governance and stakeholder engagement around delivering that outcome. Each of these six areas is a lever for aligning delivery with Outcome Assurance rather than simply tracking milestones.

### Next Steps & Completion Focus

With the bulk of the work in service, the report notes remaining activities to bring the project to full completion by March 2027:

- Finalising project documentation and transitioning assets to operations
- Closing out contracts and addressing any deficiencies
- Site reclamation, full removal of temporary works (diversion tunnels, construction bridge, etc)

- Submission of a Project Completion & Evaluation Report to the regulator in 2027

### Take-away for Outcome Assurance:

Assuring outcomes doesn't stop when commissioning is complete - it continues into operations, close-out, transition and evaluation. The lifecycle view matters. For project leaders: consider the "end-use" outcome, then back-engineer governance, commissioning, transitions and hand-over phases to secure that outcome.

### Relevance to ICxA Membership & Outcome Assurance

This report is highly relevant for ICxA members and followers of our Outcome Assurance standard and certification:









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- It exemplifies how an infrastructure mega-project can align with outcome-first goals (safe, reliable, clean energy) while navigating massive complexity.
- It surfaces tangible lessons around risk, contracts, governance, stakeholder alignment and resource uncertainties - areas all aligned with ICxA's Outcome Assurance Standard initiative and Certification Framework.
- It underscores the vital role of commissioning/operational readiness thinking - ensuring that delivery isn't just about "finish construction" but "achieve operational outcome and hand-over with assurance".
- It reinforces the message to decision-makers (ICxA's senior audience) that the early structuring of contracts, risk, governance and stakeholder programs is as critical as execution.
- It provides a case study for ICxA members

to advocate internally for stronger Outcome Assurance, Commissioning, and Operational Readiness integration: This is real evidence of where we could apply outcome-focused leadership, and what the consequences are when we don't.

### Summary

The Site C Lessons Learned Report offers a rich and candid reflection of executing a major capital project under extraordinary and complex conditions. For those championing Outcome Assurance, Commissioning leadership, and Operational Readiness, it draws a clear path: define your outcome early, ensure your delivery mechanisms (contracts, risks, governance, stakeholder engagement) are aligned to that outcome right from the start, and maintain a systems-based mindset through to operations and evaluation.

[You can read the complete executive summary report here](#)



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# LOWER THAMES CROSSING - A CASE FOR OUTCOME GOVERNANCE

*by Peter Foxley*

*ICxA Commissioning Governance & Policy Director*

## A Landmark Project, A Familiar Problem

The UK Government's Autumn Budget has finally approved the **Lower Thames Crossing** - a £9-10 billion scheme that will deliver the country's longest road tunnel, connecting Tilbury in Essex to Gravesend in Kent. Construction is scheduled to begin in 2026, with opening projected in the early 2030s.

This is a landmark project. Yet it also exposes the **systemic inefficiencies of traditional infrastructure** planning. More than **20 years of preparation** and **£590 million in seed investment** have been consumed before a single tunnel segment is laid. That is two decades of uncertainty, sunk costs, and deferred public benefit.

The Crossing is emblematic of a wider malaise: infrastructure projects too often lack transparency, accountability is opaque, and performance is judged by inputs and outputs rather than outcomes.

## What an Outcome Management System Could Have Changed

At ICxA, we argue that the **Lower Thames**

**Crossing** exemplifies why the UK must move beyond traditional, input-driven commercial project controls - focused narrowly on scope, cost, and schedule - and instead adopt **Outcome Management Systems (OMS)**, reinforced by a governance framework of **outcome control and outcome assurance**.

- **Time certainty:** Instead of 20 years of iterative planning, OMS would have established clear governance checkpoints aligned with social, climate, and economic imperatives, reinforced by value-creation metrics. This framework would have compressed decision-making and accelerated **evidence- and value-based project approvals**, ensuring that progress was both faster and more accountable.
- **Cost certainty:** By overlaying OMS with independent outcome assurance at every stage, the risk of escalating costs would have been significantly reduced - from the **£590m already spent during infrastructure planning** to the **£9bn now projected for delivery**.
- **Outcome readiness:** By embedding societal benefit, economic relevance, and environmental resilience into the governance framework, OMS ensures projects are not simply delivered, but delivered **fit-for-purpose, future-ready, and primed to perform**.

Seed investment without robust governance is a gamble. The Lower Thames Crossing shows how decades of drift and billions in uncertainty could have been avoided with a system designed to **define, measure, and assure outcomes**.

## Integrating Infrastructure Governance

The Lower Thames Crossing illustrates

precisely the challenge our approach to **Infrastructure Governance** is designed to address. Without a coherent outcome assurance and outcome control ecosystem, accountability becomes opaque, responsibilities blur, and projects drift.

Our innovative approach calls for an Institutional Charter that:

- **Defines clear institutional responsibilities**, creating a cohesive and coordinated movement.
- **Professionalizes value measurement**, embedding commissioning-led outcome assurance at the core of delivery.
- **Unifies trans-disciplinary practice**, aligning diverse expertise around a shared commitment to public purpose.

Had such a Charter been applied, the Lower Thames Crossing would have been governed for outcomes from the outset - safeguarding design integrity, embedding public value, and ensuring readiness at every stage.

This is not about adding bureaucracy. It is about embedding **clarity, accountability, and assurance** into the DNA of infrastructure delivery and lifecycle performance. It is about shifting from fragmented accountability to a coherent outcome readiness programme that serves society with enduring integrity, resilience, and impact.

### Lessons from Toronto: A Global Perspective

This is not just a UK challenge. At the **Transforming Infrastructure Performance Summit in Toronto**, Divya Shah, Managing Director of Trade & Transport at the Canada Infrastructure Bank, emphasized that infrastructure must be governed for **outcomes, not inputs and outputs**.

Canada is already experimenting with governance models that reduce uncertainty and accelerate delivery. The Canada Infrastructure Bank's approach demonstrates how outcome-based governance can unlock investment confidence, shorten planning horizons, and deliver projects that are resilient, relevant, and ready to serve society.

The UK must embrace this approach. By embedding **Outcome Management Systems**, driven by adaptive governance programmes, we can align with international best practice and restore public confidence in infrastructure delivery - ensuring long-term value creation and realization.

### A Call to Action

The Lower Thames Crossing should be

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remembered not only as the UK's longest road tunnel, but as a turning point in how we govern infrastructure. By adopting **Outcome Management Systems**, future projects can avoid years of strategic delay and the spiralling costs that erode public trust and value.

ICxA's message is unequivocal: **infrastructure must be judged by outcomes, not by processes or deliverables**. The next generation of projects - across energy, transport, water, health, and beyond - must embed **outcome readiness** at their core. Only then will we deliver infrastructure that is timely, cost-effective, and truly transformative.

### Closing Thought

The **Lower Thames Crossing** is a powerful reminder that infrastructure is not merely about concrete and steel - it is about **governance, accountability, and public**

**purpose**. The UK has already invested £590m in seed funding and now faces a delivery bill of more than £9bn. The real question is whether we will continue to gamble on activities and expenditures, or whether we will seize the opportunity to embed outcome-based governance.

At ICxA, we believe the path forward is clear. The future of infrastructure lies in **Outcome Management Systems**, activated through **outcome-readiness programmes**, reinforced by **Institutional Charters** that clearly define responsibilities, and strengthened by **global collaboration** that draws lessons from leaders such as the Canada Infrastructure Bank.

The Lower Thames Crossing could have been the first UK megaproject to embody this paradigm. It was a missed opportunity - but it is not too late for the next one.

## Lower Thames Crossing (LTC): proposed route

