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REBUILDING VALUE:

A SMARTER FUTURE FOR AUSTRALIA'S INFRASTRUCTURE

Insights on innovation, people, contracts, and regulation to build infrastructure that delivers lasting value for Australia.



INNOVATION

Driving productivity through technology and capability



PEOPLE

Building a diverse, healthy and high performing workforce



CONTRACTS

Creating trust and collaboration through better contract models



REGULATION

Cutting through red tape to enable productivity and innovation



VALUE

Delivering better outcomes for communities and future generations



**BASED ON A PODCAST WITH
VENO PANICKER**

PARTNER AT HAMILTON LOCKE

Sharing insights from decades of experience advising complex infrastructure and construction projects, contract reform, and risk allocation.

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Executive Summary

Australia's infrastructure sector stands at a defining moment. Despite unprecedented levels of investment, the industry continues to face significant challenges, including cost overruns, schedule delays, contractor insolvencies, workforce shortages, declining productivity, and increasingly complex project environments. Too often, projects are constrained by adversarial contracting, fragmented regulation, and short-term decision-making that prioritises immediate cost over long-term value.

This eBook explores how the industry can move beyond these challenges and redefine what successful infrastructure delivery looks like. Drawing on the insights of Veno Panicker, Partner at Hamilton Locke, it examines the systemic issues affecting project outcomes and presents a practical roadmap for creating a more resilient, innovative, and collaborative infrastructure sector.

Chapter 1: The High Stakes of Building Big

Examines how unrealistic expectations, traditional risk allocation practices, and adversarial contracting models contribute to project underperformance, disputes, and insolvencies. It highlights the need for fairer risk-sharing and more collaborative approaches to project delivery.

Chapter 2: Innovation Isn't Optional

Explores why Australia's future competitiveness depends on technology, digital transformation, and workforce capability rather than labour cost advantages. The chapter highlights innovation as a necessity for improving productivity, resilience, and long-term industry performance.

Chapter 3: The Human Blueprint

Focuses on the people behind project success, examining the role of leadership, culture, diversity, mental wellbeing, and workforce development in creating high-performing and sustainable project environments.

Chapter 4: Contracts That Build Trust

Demonstrates how contract structures influence behaviours, relationships, and project outcomes. It highlights collaborative delivery models such as Early Contractor Involvement (ECI) and NEC that promote transparency, trust, and shared accountability.

Chapter 5: Cutting Through the Red Tape

Examines the impact of fragmented regulation, excessive compliance, and inconsistent frameworks on industry productivity. It advocates for smarter, harmonised regulation that balances accountability with innovation, efficiency, and industry growth.



Looking Forward

The future of infrastructure delivery will not be defined solely by engineering excellence or capital investment. It will be shaped by how effectively governments, clients, contractors, consultants, and communities work together to create value.

The central message of this book is clear: successful infrastructure delivery requires more than building assets. It requires building capability, fostering innovation, strengthening collaboration, supporting people, and creating systems that enable long-term success.

By rethinking how projects are planned, procured, governed, and delivered, Australia has an opportunity to build not only better infrastructure, but a stronger, more productive, and more sustainable industry for generations to come.

Chapter 1: The High Stakes of Building Big

Why Construction Keeps Failing and How We Can Fix It

It begins the same way every time. A ribbon-cutting photo op. A confident speech about jobs, growth, and transformation. A multi-billion-dollar promise to the public.

And then somewhere between the headlines and the handover, the wheels start to wobble. Deadlines stretch. Budgets bulge. Relationships fray. The “project of the century” quietly becomes “another expensive mess.”

This is not rare. In the world of mega-infrastructure, it’s routine.

The problem isn’t that we don’t know how to build. It’s that we keep building under conditions almost guaranteed to fail. In the pages ahead, we’ll explore why and what can be done to break the cycle.

The “Gambling” Mindset in Infrastructure Delivery

From the outside, mega-projects look like feats of engineering. From the inside, they often feel like games of chance.

Every major player has something to gain from rolling the dice:

- **Politicians** want a legacy project they can open before the next election.
- **Agencies** want funding approved, so they present the rosiest possible business case.
- **Contractors** want the prestige of winning the job, even if it means bidding low and taking on risky terms.

"Infrastructure should never be a gamble. Yet too often, projects are won on optimism, priced on hope, and delivered through conflict."

Two well-documented forces fuel this behaviour:

- **Optimism bias** – genuinely believing things will go better than they usually do.
- **Strategic misrepresentation** – not so genuine; deliberately downplaying costs and risks to secure a “yes.”

Once the contract is signed, the bets are placed. The risks are locked in. Everyone hopes their gamble pays off. But when the unexpected happens, and it always does the dream can quickly unravel.

Case in point: Sydney's CBD and Southeast Light Rail was sold to the public in 2012 as a \$1.6 billion project to be completed by 2019. By the end, the bill was \$3.1 billion, completion was a year late, and the government and contractor had fought a bitter legal battle along the way. A bold promise became a public cautionary tale.



Figure 1: Reimagining infrastructure through vision, inclusion, and leadership.

The Insolvency Crisis and Its Root Causes

If the gambling metaphor sounds exaggerated, the statistics say otherwise. In just two years, more than 2,000 Australian construction companies have gone into administration. Some were among the industry's biggest names.

The causes are not mysteries; they're built into the system:

- **Margins as thin as tissue paper:** 2–4% profit on huge, high-risk projects means one unplanned event can wipe out profitability entirely.
- **Fixed prices in a volatile world:** Locking in prices years ahead leaves contractors exposed to global shocks in materials, fuel, and labour costs.
- **Toxic payment practices:** Late payments and "pay when paid" clauses choke cash flow for subcontractors, creating a domino effect when one player falters.

When a large contractor collapses, the fallout is brutal: half-built sites stand idle, small businesses face ruin, and workers are left unpaid.

Case in point: The 2023 collapse of ProBuild stunned the sector. Overnight, hundreds of employees were jobless, suppliers were left millions out of pocket, and major projects were abandoned mid-construction. It was a stark reminder that even the biggest players can't survive a flawed game for long.

Why Traditional Contracts Are Setting Projects Up to Fail

Scratch the surface of almost any major project dispute, and you'll find the same problem: the contract itself.

Our dominant model, the lump-sum, fixed-scope contract, is adversarial by design. Instead of binding the client and contractor together, it sets them up as opposing sides.

Common features make this worse:

Risk dumping: Governments transfer maximum risk to contractors, who either overprice it (losing the bid) or underprice it (and hope nothing goes wrong).

Rigid scope: The moment conditions change, costly variations and arguments erupt.

Claims culture: With margins so tight, contractors often rely on disputes and claims to stay afloat.

This breeds a "protect yourself first" mindset. Collaboration becomes defensive, innovation becomes risky, and delivering the actual project takes a back seat to managing the contract. Case in point: Melbourne's West Gate Tunnel began as a \$6.7 billion fixed-price deal. When contaminated soil was discovered, no one wanted to take the hit. The result? Months of delay, mounting costs, and lawyers on speed dial.

A Call for Cultural and Contractual Reform

It doesn't have to be like this. Around the world, more collaborative approaches have proven that large-scale projects can be delivered without burning through trust, budgets, and reputations.

The path forward includes:

Collaborative contracting: Alliancing, NEC, and other relational models that align incentives, share risks, and promote transparency.

Early contractor involvement (ECI): Getting delivery partners in the room early to identify risks and set realistic budgets.

Value-focused KPIs: Measuring success by whole-of-life outcomes, not just lowest cost or shortest schedule.

Shared data and co-location: Putting people and information in the same place to solve problems faster.

But make no mistake, none of this will stick without leadership courage. Ministers, executives, and project sponsors must abandon the “lowest price wins” mentality and invest in relationships, capability, and resilience.

We need to stop treating infrastructure like a game of chance. The stakes are too high. When we lose in this game, we lose public trust, taxpayer money, and years of opportunity.

If we want to build a future worth having, we must change the way we think, contract, and collaborate before the next big bet becomes the next big failure.

Chapter 2: Innovation Isn't Optional

Why Australia Must Compete on Capability, Not Cost

If you've spent any time working in Australia's infrastructure or construction sector, one reality becomes clear very quickly: the system is efficient in parts but structurally outdated in how it defines success. Projects are still overwhelmingly judged on two primary measures, time and cost. Delivered on schedule and within budget is considered a success, regardless of whether the project has meaningfully improved capability, productivity, or long-term industry strength. That mindset once made sense in a simpler environment. However, in today's world, defined by labour shortages, supply chain volatility, rapid technological change, and increasing project complexity, it is no longer sufficient. In fact, it is becoming a constraint on progress.

The central question Australia must now confront is this:

Are we competing on cost efficiency, or are we building capability that secures long-term national advantage?

The uncomfortable truth is that Australia will never be the lowest-cost producer of infrastructure or construction services. Competing with countries that have significantly lower labour costs is neither realistic nor sustainable. However, Australia does have a distinct and underutilised advantage: the capacity to lead through innovation, capability development, and advanced delivery systems.

The challenge is that innovation is still treated as an optional something introduced when convenient, rather than embedded as a core requirement of how projects are conceived, procured, and delivered.

It is time to change that.

The Case for Rethinking Value

The traditional definition of project success in infrastructure delivery is narrow. It is heavily focused on the "iron triangle" of cost, time, and scope. While these factors remain important, they do not capture the full value a project creates for society or the economy.

A completed highway, rail network, hospital, or energy project is not just a physical asset—it is a long-term productivity engine. Yet many of the benefits that determine national prosperity are rarely measured or rewarded. These include:

- Long-term operational efficiency
- Workforce capability development
- Technological advancement and knowledge transfer
- Environmental sustainability outcomes
- System resilience and adaptability

When these factors are excluded from project evaluation, decision-making becomes distorted. Contractors and consultants are incentivised to minimise upfront cost rather than maximise long-term value. Innovation, which often requires initial investment and experimentation, becomes difficult to justify.

To address this, Australia must broaden its definition of value from cost efficiency to capability creation.

This shift requires structural change in how projects are procured and evaluated. For example: AI and digital adoption should be actively incentivised, not assumed to occur organically. Workforce development should be embedded into project requirements, not treated as an optional add-on.

Risk allocation frameworks should reward innovation rather than penalise uncertainty. Without this broader perspective, the industry will continue to optimise for short-term savings while sacrificing long-term capability.

Technology: The Competitive Edge We Are Underutilising

Across global infrastructure markets, technology is rapidly redefining productivity. Artificial intelligence, digital twins, automated design systems, and advanced data analytics are transforming how projects are planned, managed, and delivered.

However, in Australia's construction sector, adoption remains inconsistent. Large Tier 1 contractors and multinational firms may have the capacity to invest in digital transformation, but the broader ecosystem—particularly subcontractors and mid-tier companies—often lacks the resources to follow.

This creates a structural imbalance: innovation becomes concentrated at the top of the supply chain while the majority of delivery participants remain constrained by traditional methods.

If Australia is serious about improving productivity, this imbalance must be addressed directly. One practical approach is to embed technology investment into project funding models. For example, allocating 1–2% of total contract value specifically for digital and technological adoption would ensure that innovation is not optional or discretionary. Importantly, this allocation must flow through the entire supply chain, rather than remain at the top tier.

Without deliberate intervention, the industry risks developing a two-speed system:

- A highly advanced, technology-enabled upper tier
- A traditional, labour-dependent lower tier

This divide would ultimately undermine productivity, collaboration, and national competitiveness.

Technology is no longer a competitive advantage it is a baseline requirement. The question is no longer whether the industry should adopt it, but whether it can afford not to.

"Australia will never compete on low labour costs. Our advantage lies in innovation, capability, and the courage to do things differently."

Education: Australia's Most Underleveraged Advantage

Unlike labour costs, Australia has a genuine structural advantage in education. The country has globally respected universities, strong technical and vocational education systems (TAFEs), and a growing network of private training providers.

Yet despite this, the connection between education and industry demand remains underdeveloped.

- To build a truly innovative infrastructure sector, education must be more tightly aligned with workforce needs. This includes:
- Expanding STEM participation, particularly among women and underrepresented groups
- Strengthening pathways from school into engineering, construction, and technical trades

- Promoting vocational careers as high-value, future-focused professions rather than fallback options
- Embedding industry exposure into education systems earlier in the learning journey
- Equally important is the recognition that workforce sustainability is not just about technical skills.
-

It also includes:

- Mental health support in high-pressure industries
- Flexible work arrangements that attract and retain diverse talent
- Leadership development that supports collaboration and innovation

Diversity in the workforce is not simply a social objective—it is a productivity multiplier. A broader range of perspectives leads to better problem-solving, improved innovation outcomes, and more resilient project delivery systems.

Australia's education system already has the foundation. What is missing is deeper integration with industry strategy.

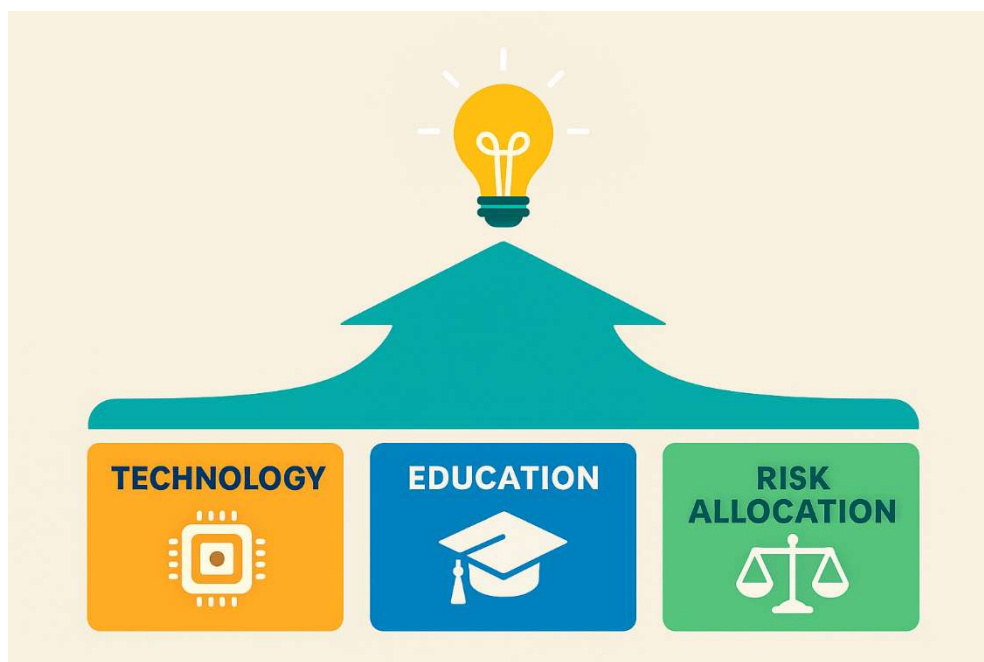


Figure 2 Creating Sustainable Infrastructure Value Through Capability, Innovation, and Smarter Risk Management.

Risk Allocation: The Hidden Barrier to Innovation

One of the most significant but least discussed barriers to innovation in infrastructure delivery is risk allocation.

Current contracting models, particularly lump-sum arrangements, often assume a level of certainty that does not reflect the realities of complex projects. In practice, they transfer disproportionate risk to contractors and subcontractors, many of whom are least able to absorb it.

This creates several negative outcomes:

- Conservative decision-making
- Reduced willingness to innovate
- Increased pricing buffers for uncertainty
- Higher rates of dispute and insolvency
- In such an environment, innovation becomes a liability rather than an opportunity.
- To change this, Australia must move toward more collaborative delivery models, including:
 - NEC-style collaborative contracts
 - Early Contractor Involvement (ECI) frameworks
 - Shared risk-reward mechanisms
 - More flexible scope management approaches

These models acknowledge a fundamental truth: large infrastructure projects evolve. Attempting to eliminate uncertainty through rigid contracts is both unrealistic and counterproductive.

Instead, contracts should be designed to manage change constructively, not suppress it. When risk is shared fairly, innovation increases. When risk is unfairly transferred, innovation disappears.

Chapter 3: The Human Blueprint

How People, Culture, and Inclusion Shape the Future of Infrastructure

In the global push to deliver infrastructure faster, cheaper, and at greater scale, one critical factor is consistently underestimated: people.

Behind every structure, every tunnel, every bridge, and every milestone, there are human beings, engineers solving complex problems under pressure, tradespeople executing physically demanding work, project managers balancing competing priorities, and leaders making high-impact decisions in uncertain conditions. These individuals are not just part of the system; they are the system.

Yet, despite this reality, infrastructure delivery models often treat people as interchangeable resources rather than the central drivers of performance. This oversight is no longer sustainable.

Australia's infrastructure sector is not only facing technical or financial challenges. It is also facing human and cultural challenges. And unless this is addressed, no amount of funding, technology, or policy reform will deliver lasting productivity gains.

The future of infrastructure will not be defined by machines or contracts alone. It will be defined by how well we design systems that allow people to perform at their best.

The Productivity Crisis Is Fundamentally Human

One of the most confronting insights emerging from industry forums such as the Future of Construction Summit is the scale of inefficiency embedded within day-to-day work.

Studies indicate that up to 40% of on-site labour time is spent on non-productive activities.

This includes:

- Waiting for approvals or instructions
- Redoing work due to design changes or miscommunication
- Navigating compliance and documentation requirements

- Searching for information or resolving coordination issues
- Dealing with fragmented planning and sequencing

In a country where labour costs are among the highest in the world, this level of inefficiency is not just a performance issue; it is a structural crisis.

The instinctive response is often to demand more productivity from workers. However, this approach misses the fundamental issue. The problem is not a lack of effort; it is a lack of system design.

The real opportunity lies in improving how work is structured and enabled. That means:

- Better upfront planning and design coordination
- Streamlined approval processes
- Integrated digital tools for real-time information sharing
- Contracts that encourage collaboration instead of control

When systems are poorly designed, even the most skilled workforce cannot perform efficiently. Conversely, when systems are well-designed, productivity increases without increasing pressure on individuals.

Productivity is not just a workforce issue—it is a system design issue.

"The future of infrastructure will not be built by technology alone. It will be built by people who are empowered to perform at their best."

Mental Health: The Hidden Cost of Infrastructure Delivery

Construction and infrastructure delivery remain among the most psychologically demanding industries in Australia. Long working hours, tight commercial margins, strict

deadlines, and adversarial contract structures create an environment where sustained stress is common.

While awareness of mental health has improved significantly in recent years, the underlying causes of workplace stress remain largely unchanged.

Common stress drivers include:

- Unrealistic project schedules
- Payment uncertainty and delayed cash flow
- Excessive administrative burden
- Lack of clarity in roles and responsibilities
- High-pressure, blame-oriented environments

As a result, burnout, anxiety, and mental fatigue are increasingly recognised as systemic risks—not individual weaknesses.

Many organisations have responded with mental health initiatives such as wellbeing programs, employee assistance services, and mental health leave policies. These are positive steps, but they primarily address symptoms rather than causes.

The deeper structural issues, contractual pressure, fragmented communication, and inconsistent expectations must also be addressed.

A key insight often overlooked in industry discussions is this: **Wellbeing and productivity are not competing priorities; they are directly linked.**

A workforce that is mentally supported is more focused, more engaged, and more capable of solving complex problems. Conversely, a stressed workforce produces higher error rates, lower productivity, and increased turnover.

In this sense, mental health is not simply a human concern, it is a performance variable.



Figure 3: The Human Blueprint—People at the Centre of Project Delivery.

Diversity: The Industry's Most Underutilised Advantage

Despite gradual progress, the infrastructure sector remains heavily dominated by a narrow demographic profile, particularly in trades, site-based roles, and senior leadership positions.

Women remain significantly underrepresented in engineering and construction trades. Cultural diversity is present in parts of the industry, but is often concentrated in lower or mid-level roles. LGBTQ+ representation in leadership remains limited. These patterns reflect long-standing structural barriers rather than a lack of capability or interest. This lack of diversity is not just a social imbalance; it is a strategic limitation.

Research consistently shows that diverse teams:

- Make better decisions under uncertainty
- Generate more innovative solutions

- Identify risks earlier and more effectively
- Adapt more quickly to change

In an industry that is increasingly complex, interconnected, and technologically driven, diversity is not optional; it is a competitive advantage.

Australia also faces a critical workforce reality: reliance on international labour migration alone will not solve long-term shortages. Fast-track visa solutions may assist in the short term, but sustainable capability must be built domestically.

This means unlocking the full potential of the local workforce by ensuring that infrastructure careers are accessible, attractive, and inclusive to all segments of society.

Diversity is not about meeting quotas—it is about expanding the talent pool and improving decision quality.

Education and Exposure: Building the Workforce Pipeline

If Australia is to build a stronger infrastructure workforce, the solution begins long before individuals enter the industry.

Early exposure to construction, engineering, and infrastructure careers is essential in shaping perception and interest. Many young people simply do not consider these careers because they are not visible or actively promoted in schools.

To address this gap, the education-to-industry pipeline must be strengthened through:

- Structured school engagement programs linked to real projects
- Mentorship initiatives connecting students with industry professionals
- Internship and cadetship pathways that provide early practical experience
- Stronger integration between TAFEs, universities, and industry employers

It is also critical to reframe how trades and technical careers are perceived. These roles should not be positioned as secondary options, but as high-value, high-impact professions essential to national development.

Equally important is ensuring that academic pathways are not isolated from real-world application. Engineering and construction education must be paired with practical exposure so that students understand not only theory, but also how systems operate in practice.

Without this connection, the industry risks producing graduates who are technically qualified but insufficiently prepared for the realities of complex project environments. The future workforce must be both technically capable and practically grounded.

Flexibility and the Future of Work in Infrastructure

The expectations of the modern workforce are evolving rapidly. Infrastructure delivery models, however, have been slow to adapt.

Traditional work structures in the industry are often rigid, characterised by long hours, fixed site attendance, and limited flexibility. While some of these requirements are inherent to physical construction work, many roles within the sector—particularly in design, planning, and management—can be restructured to better reflect modern work practices.

Key areas for evolution include:

- More balanced working weeks to reduce fatigue and burnout
- Remote and hybrid work options for design and administrative roles
- Flexible arrangements for caregivers and employees with family responsibilities
- Leadership approaches that prioritise outcomes over presenteeism
- Greater emphasis on work-life integration rather than rigid schedules

These changes are sometimes misunderstood as reduced commitment or decreased productivity. In reality, they are mechanisms for improving retention, focus, and long-term performance.

A workforce that is overworked is not a high-performing workforce—it is a fragile workforce.

If the industry wants to attract and retain top talent, it must align more closely with the expectations of contemporary professionals.

Leadership and Culture: The True Drivers of Transformation

While systems, contracts, and policies are important, the most powerful influence on workplace culture is leadership.

Leadership determines whether an organisation operates through fear or trust, rigidity or adaptability, silence or open communication.

Effective leadership in modern infrastructure delivery requires:

- Shifting from adversarial contracting mindsets to collaborative approaches
- Investing consistently in training, capability development, and upskilling
- Encouraging psychological safety so employees can raise issues without fear
- Rewarding innovation and problem-solving rather than only compliance
- Actively modelling empathy, accountability, and transparency

Culture cannot be mandated through policy alone. It is created through repeated behaviours, daily decisions, and leadership consistency over time.

Every project becomes a reflection of its leadership environment. Where leaders prioritise collaboration, teams become more engaged and effective. Where leaders prioritise control and blame, performance declines and risk increases.

Ultimately, culture is not an abstract concept; it is the operating system of the organisation.

Conclusion: The Human Blueprint Is the Foundation

Infrastructure is often discussed in terms of physical output roads, bridges, tunnels, and buildings. However, the true foundation of infrastructure success lies not in what is built, but in who builds it and how they are supported to perform their work.

Every productivity gain, every innovation, and every improvement in project delivery ultimately depends on people.

If Australia wants to build a more resilient, productive, and innovative infrastructure sector, it must begin by rethinking how it treats its workforce.

That means:

- Embedding diversity as a strategic priority
- Treating mental health as a performance driver
- Designing workflows that support efficiency rather than hinder it
- Building inclusive cultures grounded in trust and respect
- Aligning leadership practices with modern workforce expectations

The future of infrastructure will not be determined solely by engineering capability or technological advancement. It will be determined by whether the industry can create environments where people are empowered to perform at their best. The human blueprint is not a supporting element of infrastructure delivery, it is the foundation of everything the industry hopes to achieve.

Chapter 4: Contracts That Build Trust

From Adversarial Models to Collaborative Success

For decades, infrastructure contracts across Australia have been structured around one central idea: transfer as much risk as possible away from the client and onto the contractor. In theory, this approach promised certainty. Governments and private clients believed that fixed-price, lump-sum contracts would lock in costs, minimise exposure, and protect taxpayers from overruns. Contractors, eager to secure work in an increasingly competitive market, accepted these conditions even when risks could not be fully understood or accurately priced.

Yet the results have often been the opposite of what was intended.

Instead of certainty, projects experience escalating claims, delays, disputes, and insolvencies. Instead of collaboration, projects become adversarial environments where each party focuses on protecting itself rather than solving problems collectively. Across the Australian infrastructure sector, contractors and subcontractors continue to collapse under unsustainable risk burdens. The industry has entered what many experts describe as a “profitless boom”, a period where enormous volumes of infrastructure are being delivered, yet many of the companies building them struggle to remain financially viable.

This issue is not simply commercial. It is deeply cultural.

Contracts shape behaviours. They influence whether organisations collaborate openly or hide information defensively. They determine whether risks are discussed honestly or buried until they become crises. They affect whether innovation is encouraged or suppressed. Most importantly, they determine whether relationships are built on trust or suspicion.

When contracts are structured around confrontation, projects become confrontational. When contracts are designed around shared success, projects become more resilient, transparent, and adaptive.

The future of infrastructure delivery depends not only on engineering capability or financial investment, but on creating contracting environments that encourage trust, fairness, and collaboration from the beginning.

The Adversarial Legacy of Traditional Contracting

Australia's infrastructure industry has historically relied heavily on lump-sum contracting models, particularly Design and Construct (D&C) agreements. Under these arrangements, contractors commit to delivering a project for a fixed price within a fixed timeframe. On the surface, this appears attractive because it provides governments and asset owners with apparent budget certainty. However, infrastructure projects are rarely predictable.

Complex projects involve countless uncertainties: underground conditions, design development, utility relocations, weather impacts, regulatory approvals, labour availability, inflation, community objections, and supply chain disruptions. Many of these variables cannot be fully known at the time contracts are signed.

Despite this reality, traditional contracts often force contractors to assume risks they cannot reasonably control.

As a result, contractors are compelled to include large contingencies in pricing or, worse, underprice projects in order to remain competitive. In aggressive bidding environments, companies may gamble that risks will not materialise. If they do, margins disappear rapidly. This creates a dangerous cycle.

Clients seek lower prices. Contractors accept greater risk. Subcontractors inherit further pressure downstream. Eventually, one disruption can destabilise the entire supply chain. The collapse of several major construction firms in recent years has highlighted the fragility of this system. Insolvencies do not affect only contractors. They impact subcontractors, suppliers, workers, consultants, communities, and governments. Delayed projects create economic losses far beyond the original contract value.

"Contracts do more than allocate risk. They shape behaviour, influence culture, and determine whether teams collaborate or

The adversarial model also damages relationships. When risks emerge, parties often retreat into contractual positions rather than focusing on solutions. Lawyers become more involved than engineers. Communication deteriorates. Problems that could have been resolved collaboratively become prolonged disputes.

In this environment, trust disappears.

Horses for Courses: Choosing the Right Contract Model

One of the most important lessons in modern infrastructure delivery is that no single contract model suits every project.

Projects differ enormously in scale, complexity, uncertainty, stakeholder involvement, and technical risk. A straightforward warehouse development is fundamentally different from a major underground rail system beneath a dense urban environment. Treating them identically creates unnecessary risk.

The principle should always be “horses for courses.”

Simple, well-defined projects with stable scopes may suit traditional lump-sum arrangements. However, highly complex or uncertain projects require more collaborative approaches that allow flexibility, shared problem-solving, and adaptive risk management. Different models exist because different projects demand different behaviours.

Early Contractor Involvement (ECI)

Early Contractor Involvement contracts bring contractors into the project during the design phase rather than after design completion. This allows contractors to contribute construction expertise early, improving buildability, identifying risks, and refining project methodologies before major decisions are locked in.

ECI models reduce the disconnect between designers and builders. Instead of discovering problems during construction, teams identify challenges early when changes are less expensive and easier to implement.

This collaborative approach improves cost certainty because risks are better understood before final pricing occurs.

ECI is especially valuable for complex infrastructure where site conditions, staging constraints, or stakeholder interfaces create uncertainty.

Design and Construct (D&C)

Design and Construct contracts remain common because they offer efficiency and single-point accountability. Under this model, one contractor is responsible for both design and construction delivery.

When the project scope is clear and risks are manageable, D&C contracts can work effectively. They streamline coordination and reduce fragmented accountability.

However, problems emerge when D&C contracts are applied to projects with incomplete design information or poorly understood conditions. Contractors are then forced to price unknown risks, often resulting in inflated contingencies or disputes later when assumptions prove inaccurate.

D&C contracts are not inherently flawed. The issue arises when they are used inappropriately.

Engineering, Procurement and Construction (EPC)

EPC contracts are commonly used in sectors such as oil and gas, energy, and industrial facilities. Under this arrangement, one party takes responsibility for engineering, procurement, and construction delivery.

These models provide high accountability but can encourage extremely conservative pricing because contractors assume broad risks. EPC arrangements work best where scope definition is mature and risks are relatively quantifiable.

New Engineering Contract (NEC)

The NEC model, developed in the United Kingdom, represents a major shift toward collaborative contracting.

Unlike traditional adversarial contracts, NEC contracts are designed to promote transparency, proactive communication, and shared problem-solving. They encourage early warning systems where parties identify emerging issues before they escalate.

The philosophy behind NEC is simple but powerful: projects perform better when everyone succeeds together rather than protecting themselves individually.

NEC contracts focus heavily on behavioural alignment. They create mechanisms for collaboration rather than relying solely on legal enforcement.

Increasingly, Australian organisations are exploring NEC principles as they seek alternatives to adversarial delivery environments.

Sharing Risk, Protecting Value

At the centre of contract reform is one fundamental principle:

Risk should be allocated to the party best able to manage it.

This sounds obvious, yet many projects continue to violate this principle repeatedly.

For example, geotechnical conditions are often poorly understood at tender stage. Rather than investing adequately in early investigations, some clients transfer this uncertainty directly to contractors. Contractors then either inflate pricing to protect themselves or underestimate the risk in order to win the work.

Neither outcome benefits the project.

A more effective approach involves investing earlier in site investigations, design development, and scope clarification. Where uncertainty remains unavoidable, risks should be shared transparently rather than hidden within contractual clauses.



Figure 4 Trust-Based Contracting Drives Better Infrastructure Outcomes.

Similarly, inflation risk has become a major issue in long-term infrastructure projects. Over recent years, rapid increases in material costs, fuel prices, labour expenses, and supply chain disruptions have devastated contractors locked into fixed-price agreements.

Historically, many contracts included rise-and-fall clauses that adjusted payments according to market conditions. Over time, these mechanisms became less common as clients pursued greater price certainty.

The result has been severe financial strain across the supply chain.

Reintroducing fair adjustment mechanisms does not eliminate accountability. Rather, it recognises economic realities and prevents catastrophic losses caused by circumstances beyond reasonable control.

When risks are shared fairly, contractors can focus on delivery performance instead of survival.

Chapter 5: Cutting Through the Red Tape

Smarter Regulation for a More Productive Industry

Australia's construction sector is the engine of one-fifth of the economy, yet it operates under a patchwork of rules and compliance demands that often slow projects, inflate costs, and deter innovation. Regulation is meant to protect the public interest, but when it becomes fragmented, inconsistent, or heavy-handed, it can do the opposite—exacerbating the skill shortage, crippling productivity, and pushing good players out of the market.

This chapter explores how smarter, harmonised regulation can unlock productivity, improve trust, and deliver genuine value for both industry and the community.

The Cost of Fragmented Laws

For decades, Australia has tolerated different security of payment regimes, OHS rules, and compliance processes across states. A contractor delivering projects in NSW, Victoria, and WA often faces three sets of paperwork, three penalty regimes, and three compliance frameworks.

The result? Wasted effort, higher costs, and barriers to entry for new firms. For an industry already facing a one-in-four insolvency rate, regulatory complexity is a weight it can ill afford.

Regulation as a Blunt Instrument

Events like London's Grenfell Tower fire sparked important reforms in residential construction. But some responses have gone too far. In NSW, for example, retrospective ten-year duty of care provisions has left small consultants—people who retired with seven years of cover—exposed to losing their homes when sued years later.

Regulation should enforce accountability, but it cannot substitute for quality management and culture. Over-regulation risks treating the entire industry like criminals, driving perverse outcomes.

Breakout: Carrots vs Sticks

- **Stick:** Additional hold points, mandatory commissioner oversight, retrospective liabilities.

- **Carrot:** Accreditation schemes like *iCIRT* that reward firms for strong quality systems.
- **Lesson:** Incentives build capability; punishment drives avoidance.

"The construction industry does not need more rules. It needs smarter rules that protect quality while enabling productivity."

Incentivising Quality, Not Just Compliance

A good builder or developer doesn't need regulation to enforce quality—they build it into their systems. Regulation should focus on raising the floor without capping ambition.

The **iCIRT accreditation scheme** is a positive example: it rewards developers and contractors who demonstrate robust assurance systems, signalling quality to both financiers and consumers. Such initiatives shift regulation from reactive policing to proactive capability-building.

Over-Regulation and Productivity Loss

The transcript revealed a startling figure: up to **40% of site labour is absorbed by compliance tasks**. While safety must never be compromised, unnecessary duplication and paperwork slow projects and exacerbate the labour shortage.

Every hour spent ticking boxes is an hour not spent building. In a country with among the highest labour costs globally, that's unsustainable.

Towards Harmonisation

With Labor in power federally and in most states, there's a rare opportunity for **national consistency**. A harmonised framework for security of payment, OHS, and building compliance would:

- Reduce duplication for contractors working across jurisdictions.
- Improve certainty for international entrants.
- Support more efficient project delivery.

Just as standardised contracts are gaining traction, standardised laws could be a turning point.

Case Spotlight: North Sydney Pool

A lack of early geotech investment and adversarial posturing turned what should have been a modest risk issue into millions wasted in disputes. Smarter planning and proportionate regulatory oversight could have prevented years of delay.

Smarter Red Tape, Not No Red Tape

This is not about removing regulation—it is about making it smarter, fairer, and more consistent. Good regulation should:

- **Protect the public** from unsafe or poor-quality work.
- **Enable productivity** by harmonising frameworks and reducing duplication.
- **Reward quality** through accreditation, not just punishment.
- **Support innovation** rather than stifle it.

The construction industry doesn't need more rules, it needs better ones.



Figure 5 Smarter Regulation Enables Better Infrastructure Outcomes.

Looking Ahead

Australia stands at a crossroads. Continue with fragmented, heavy-handed rules, and the industry risks further insolvencies, stalled projects, and a demoralised workforce. Move toward harmonised, incentive-driven regulation, and the country can unlock productivity, restore trust, and deliver infrastructure that is safe, efficient, and genuinely valuable.

"Twenty percent of our economy is tied to construction. Certainty of laws across states isn't a luxury—it's essential for national productivity."

Conclusion: Final Reflections

Infrastructure has always been about more than concrete, steel, and technology. It is about creating the foundations upon which communities thrive, economies grow, and future generations prosper. Yet throughout this book, one message has emerged repeatedly: the greatest challenges facing the construction and infrastructure industry are not technical problems. They are systemic, cultural, and human challenges.

Australia possesses world-class engineers, skilled tradespeople, innovative businesses, and ambitious infrastructure programs. The industry has repeatedly demonstrated its ability to deliver projects of extraordinary complexity. However, despite these strengths, many projects continue to experience cost overruns, delays, disputes, workforce shortages, and declining productivity. These outcomes are not inevitable. They are symptoms of systems that have not evolved at the same pace as the challenges they now face.

The chapters in this book have explored several interconnected themes.

We began by examining the high-stakes nature of major project delivery and the risks created by unrealistic expectations, adversarial contracting, and a culture that often rewards optimism over realism. We explored how infrastructure delivery too frequently resembles a gamble, where success depends less on planning and collaboration than on hoping risks do not materialise.

We then challenged the industry to rethink its definition of value. Innovation is no longer optional. In an increasingly competitive and complex world, Australia cannot compete on cost alone. The nation's long-term advantage lies in capability, technology, education, and the ability to continuously improve how projects are delivered.

From there, we turned our attention to the most important asset in any project: people. Productivity, wellbeing, diversity, leadership, and culture are not secondary considerations—they are the foundations of sustainable performance. Every project outcome is ultimately shaped by the people making decisions, solving problems, and delivering work every day. We also explored the role of contracts in shaping behaviour. Contracts are not merely legal documents; they are cultural frameworks that influence trust, communication, innovation, and collaboration. When contracts reward adversarial behaviour, projects become adversarial. When they encourage shared accountability and collective problem-solving, projects become more resilient and successful.

Finally, we examined the role of regulation. Effective regulation is essential, but regulation alone cannot create quality, productivity, or trust. Smarter regulation should remove unnecessary complexity, encourage capability, reward excellence, and support an industry that is both accountable and innovative.

Across all these themes, a common thread emerges.

Success in infrastructure is not determined by any single factor.

It is not determined solely by funding.

It is not determined solely by technology.

It is not determined solely by contracts, regulations, or policies.

Success occurs when all these elements work together within a system designed to support collaboration, learning, transparency, and continuous improvement.

The future of infrastructure will require a different mindset from the one that has dominated the past.

It will require leaders willing to challenge outdated assumptions.

It will require governments to be prepared to move beyond lowest-cost procurement.

It will require clients who value long-term outcomes over short-term savings.

It will require contractors and consultants who embrace innovation and partnership.

Most importantly, it will require an industry that places people at the centre of every decision.

The challenges ahead are significant. Population growth, urbanisation, housing demand, climate resilience, energy transition, and digital transformation will place unprecedented pressure on infrastructure systems over the coming decades. The scale of investment required will be enormous. Yet these challenges also present a unique opportunity.

Australia has the chance to redefine what world-class infrastructure delivery looks like.

Not by building faster at any cost.

Not by transferring more risk.

Not by creating more regulation.

But by creating a system that values capability, collaboration, trust, innovation, and human potential.

The infrastructure projects of the future will not be remembered solely for their physical size or construction cost. They will be judged by the value they create, the communities they serve, the opportunities they unlock, and the legacy they leave behind.

The ultimate goal is not simply to build projects.

It is to build an industry that is productive, resilient, inclusive, and sustainable.

An industry where innovation is encouraged, risks are managed intelligently, people are supported, and success is shared.

If we can achieve that, the future of infrastructure will be about far more than constructing assets.

It will be about building a stronger nation.

What's Next?

Writing about the challenges facing infrastructure is only the beginning. The real value of any discussion lies in what happens afterward. Knowledge without action changes nothing. The question is not whether the industry faces challenges; we already know it does. The question is whether we are willing to act differently.

The future of infrastructure delivery will be shaped by decisions being made today in boardrooms, government departments, project offices, construction sites, universities, and training institutions. Every stakeholder has a role to play.

For Governments and Policy Makers

Governments must move beyond measuring success solely by project announcements, budget approvals, and lowest-cost procurement outcomes. The focus must shift toward long-term value creation, industry capability development, and sustainable delivery models.

Future procurement frameworks should:

- Encourage collaboration rather than confrontation.
- Reward innovation and productivity improvements.

- Support workforce development and diversity.
- Promote fair and balanced risk allocation.
- Measure outcomes over the entire asset lifecycle.

The objective should not simply be delivering more projects—it should be building a stronger industry capable of delivering them successfully.

For Industry Leaders

Executives and business leaders must recognise that culture, capability, and innovation are strategic investments rather than operational expenses.

The organisations that thrive in the next decade will be those that:

- Invest in technology and digital transformation.
- Develop future leaders at every level.
- Create psychologically safe and inclusive workplaces.
- Build strong relationships across the supply chain.
- Embrace continuous improvement rather than defending the status quo.

Leadership will increasingly be measured not by the projects completed, but by the capability and resilience created along the way.

For Project Teams

Project managers, engineers, designers, supervisors, and contractors have the power to influence outcomes every day.

Small improvements accumulate into major change:

- Better communication.
- Earlier risk identification.
- More transparent decision-making.
- Greater collaboration across disciplines.
- A willingness to challenge inefficient processes.

The most successful projects are rarely those with the fewest problems. They are the projects that solve problems quickly, collectively, and constructively.

For Educators and Future Professionals

The next generation will inherit an industry undergoing significant transformation. Educational institutions must continue strengthening connections between learning and industry needs. At the same time, students and young professionals should view infrastructure not simply as a technical career, but as an opportunity to shape communities, economies, and society.

The future workforce will require more than technical expertise. It will require adaptability, creativity, emotional intelligence, digital capability, and collaborative leadership.

For the Industry as a Whole

Perhaps the most important step is adopting a mindset of shared responsibility. No single organisation, government agency, contractor, consultant, regulator, or industry association can solve these challenges alone.

The future will belong to those who recognise that infrastructure delivery is an ecosystem. Success depends on how effectively all participants work together toward common goals.

A Final Challenge

As you close this book, consider one simple question:

What is the one change you can make today that will improve the way projects are delivered tomorrow?

It may be a conversation that builds trust.

It may be a process that reduces waste.

It may be a contract clause that encourages collaboration.

It may be an investment in technology, training, or people.

It may simply be challenging an outdated assumption that no longer serves the industry.

Meaningful transformation rarely begins with sweeping reforms. More often, it begins with individuals and organisations choosing to do things differently.

The future of infrastructure is not something that happens to us.

It is something we build—together.

How EDSICO Can Help

At EDSICO, we help public and private sector organisations navigate complex infrastructure challenges by applying the principles explored throughout this book. From project planning and governance to procurement strategy, risk management, project controls, and delivery assurance, we work with clients to improve outcomes, strengthen collaboration, and create lasting value.

Whether you're seeking to improve project performance, adopt more collaborative delivery models, strengthen governance, or better manage uncertainty, our team can help translate these ideas into practical actions.

Start with one area where greater clarity, stronger alignment, or smarter decision-making can make a difference—and put it into action on your next project.

Take the Next Step

[Book a complimentary consultation with our team.](#)

Visit <https://edsico.com.au/> to learn more about our services and capabilities.

[Explore the Knowledge hub for more eBook and free resources](#)

Biography

About Veno Panicker | Partner at Hamilton Locke

Veno Panicker is a Partner at Hamilton Locke and a recognised leader in construction and infrastructure law, with decades of experience advising governments, contractors, and financiers on the delivery of Australia's most complex projects. Known for his pragmatic and collaborative approach, Veno specialises in navigating the contractual, commercial, and regulatory challenges that shape the infrastructure sector.

His career has been defined by helping clients move beyond adversarial contracting models toward frameworks that balance risk, encourage innovation, and deliver sustainable value. Veno has been a strong advocate for contract reform, early contractor involvement, and the adoption of collaborative models such as NEC principles that have proven essential in avoiding disputes, reducing insolvencies, and strengthening industry capability.

At Hamilton Locke, Veno provides strategic advice on:

- Risk allocation and reform of traditional lump-sum contracts.
- Collaborative contracting and relational models that foster trust.
- Regulatory impacts, including security of payment and building reforms.
- Supporting clients through disputes and insolvency challenges with a focus on long-term industry health.

Respected across the industry for his ability to cut through complexity, Veno combines technical legal expertise with a deep understanding of the cultural and political dynamics that influence infrastructure delivery. His insights are regularly sought on how governments and industry can work together to rebuild trust, improve productivity, and deliver infrastructure that serves communities for generations.

Beyond his legal practice, Veno is a vocal contributor to industry conversations on reform and capability-building, drawing on his broad experience across infrastructure, resources, and construction to help shape a smarter, fairer future for the sector.

About EDSICO

EDSICO is a leading Australian project management company with access to global expertise. At EDSICO, we have highly qualified and professional teams who provide a range of services to develop projects from inception to delivery and commissioning.

EDSICO has been operating since 2006, with a primary focus on providing a comprehensive range of integrated project services for infrastructure projects. With 25 Years of experience from multi-billion-dollar projects and serving numerous clients, EDSICO opened its first Australian Branch in Sydney in 2014.

We appreciate that our clients are different, and their projects are unique, so one solution doesn't fit all. This is why we take the time to listen and analyse each client's specific requirements, enabling us to provide tailored solutions that adequately address their needs.

EDSICO's client portfolio includes a range of public and private sector clients, including Australian Federal, State, and local government agencies, as well as tier-one contractors and Consultants.

Further Reading and Standards References

Infrastructure Australia – Assessment Framework (2021)

Publisher: Infrastructure Australia

A nationally recognised framework for evaluating major infrastructure proposals, business cases, and long-term public value outcomes. Covers strategic alignment, economic appraisal, risk management, resilience, and benefits realisation.

Relevant to themes explored in:

- Long-term value creation
- Better procurement decisions
- Whole-of-life infrastructure outcomes
- Strategic project governance

[Infrastructure Australia Assessment Framework](#)

International Standards and Project Delivery

International Organization for Standardization – ISO 21502:2020 Project, Programme and Portfolio Management

Publisher: ISO

Global guidance standard covering project governance, lifecycle planning, stakeholder management, leadership, and integrated delivery practices.

Strongly aligned with:

- Collaborative delivery
- Program governance
- Capability development
- Integrated planning

[ISO 21502:2020 Standard](#)

Collaborative Contracting and Procurement

Institution of Civil Engineers – NEC4 Contracts

Publisher: ICE

The NEC contract suite is internationally recognised for promoting transparency, collaboration, proactive risk management, and shared accountability in infrastructure delivery.

Relevant to:

- Early warning systems
- Collaborative project delivery
- Shared risk management
- Behavioural contracting principles

[NEC Contracts Official Site](#)

Infrastructure and Projects Authority – Transforming Infrastructure Performance: Roadmap to 2030

Publisher: UK Government

A globally influential publication exploring digital engineering, manufacturing-led construction, productivity reform, and whole-of-life infrastructure thinking.

[Transforming Infrastructure Performance](#)

Rebuilding Value: Infrastructure Delivery Health Check

How to Use This Checklist

This checklist helps project owners, government agencies, contractors, consultants, and project teams assess whether their projects are positioned to deliver sustainable value, improve productivity, and reduce delivery risk.

Successful projects are not defined by the absence of challenges, but by the systems, decisions, and behaviours that enable teams to respond effectively when challenges arise.

What Does This Checklist Help You Achieve?

Successful infrastructure projects are shaped by more than technical expertise alone. They depend on effective governance, collaborative relationships, capable people, sound decision-making, and a commitment to continuous improvement.

This checklist has been designed as a practical self-assessment tool to help project owners, government agencies, contractors, consultants, and project teams evaluate their readiness to deliver successful project outcomes.

By completing this assessment, organisations can:

- Identify potential risks and gaps before they impact project performance.
- Evaluate whether governance, risk management, and decision-making processes are fit for purpose.
- Assess how effectively innovation, technology, and workforce capability are being incorporated into project delivery.
- Strengthen collaboration, trust, and alignment across stakeholders.
- Improve procurement and contracting strategies to support better project outcomes.
- Reduce productivity losses caused by inefficient processes and unnecessary complexity.
- Support a culture of continuous improvement and long-term value creation.

The objective is not simply to achieve a high score. The real value lies in identifying opportunities for improvement, strengthening project capability, and starting meaningful conversations about how infrastructure can be delivered more effectively, collaboratively, and sustainably.

Use this checklist at key project stages including initiation, planning, procurement, delivery, and close-out to monitor progress and drive continuous improvement.

Scoring

✓ Yes = 1 Point

✗ No = 0 Points

1. The High Stakes of Building Big – Risk & Governance

Key Area	Question	Status
Business Case	Has the business case been tested for optimism bias and realistic delivery assumptions?	☐ Yes ☐ No
Risk Management	Have major project risks been identified and assessed before procurement?	☐ Yes ☐ No
Value Focus	Are project decisions based on whole-of-life value rather than lowest upfront cost?	☐ Yes ☐ No
Governance	Is there a clear governance and assurance framework throughout the project lifecycle?	☐ Yes ☐ No

2. Innovation Isn't Optional – Capability & Technology

Key Area	Question	Status
Digital Strategy	Has a digital delivery or technology strategy been established?	☐ Yes ☐ No
Innovation	Are innovation opportunities actively identified and encouraged?	☐ Yes ☐ No
AI & Automation	Have AI, automation, or data-driven solutions been assessed to improve productivity?	☐ Yes ☐ No
Workforce Capability	Is investment being made in workforce skills and future capability development?	☐ Yes ☐ No

3. The Human Blueprint – People & Culture

Key Area	Question	Status
Wellbeing	Are workforce wellbeing and mental health initiatives actively supported?	☐ Yes ☐ No
Leadership	Do leaders promote collaboration, trust, and accountability?	☐ Yes ☐ No
Diversity & Inclusion	Does the project actively encourage diverse perspectives and inclusive participation?	☐ Yes ☐ No
Learning & Development	Are training, mentoring, and capability-building programs available to project teams?	☐ Yes ☐ No

4. Contracts That Build Trust – Procurement & Contracting

Key Area	Question	Status
Contract Strategy	Has the contract model been selected based on project complexity and risk profile?	☐ Yes ☐ No
Early Involvement	Has Early Contractor Involvement (ECI) been considered where appropriate?	☐ Yes ☐ No
Risk Allocation	Are risks allocated to the party best able to manage them?	☐ Yes ☐ No
Collaboration	Do contract arrangements encourage transparency, collaboration, and shared outcomes?	☐ Yes ☐ No

5. Cutting Through the Red Tape – Regulation & Productivity

Key Area	Question	Status
Compliance Efficiency	Have unnecessary compliance burdens and duplication been minimised?	☐ Yes ☐ No
Regulatory Planning	Are regulatory and approval risks identified early?	☐ Yes ☐ No
Harmonisation	Have opportunities to standardise processes and requirements been considered?	☐ Yes ☐ No
Productivity Focus	Does the project actively measure and seek to improve productivity outcomes?	☐ Yes ☐ No

Total Score

0–5 Points → High Risk

Significant gaps exist across governance, capability, collaboration, and delivery practices. Immediate attention is recommended.

6–10 Points → Developing

Some foundations are in place, but several areas require improvement to support successful project outcomes.

11–15 Points → Strong

Good practices are established across most areas. Focus on continuous improvement and capability development.

16–20 Points → Leading Practice

Your project demonstrates strong alignment with the principles of sustainable infrastructure delivery and is well positioned to create long-term value.

Reflection

Successful infrastructure delivery is not determined by a single factor. It requires effective governance, innovation, strong leadership, collaborative contracting, and smart regulation working together.

Use this checklist as a conversation starter with your team and stakeholders to identify opportunities for improvement and build a stronger foundation for project success.

Need Support?

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Discover how governments, contractors, consultants, and project leaders can create greater value through smarter risk allocation, innovation, workforce capability, collaborative contracting, and more effective regulation.

Learn practical strategies for improving project outcomes, strengthening industry capability, and delivering infrastructure that creates lasting value for communities and future generations.

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