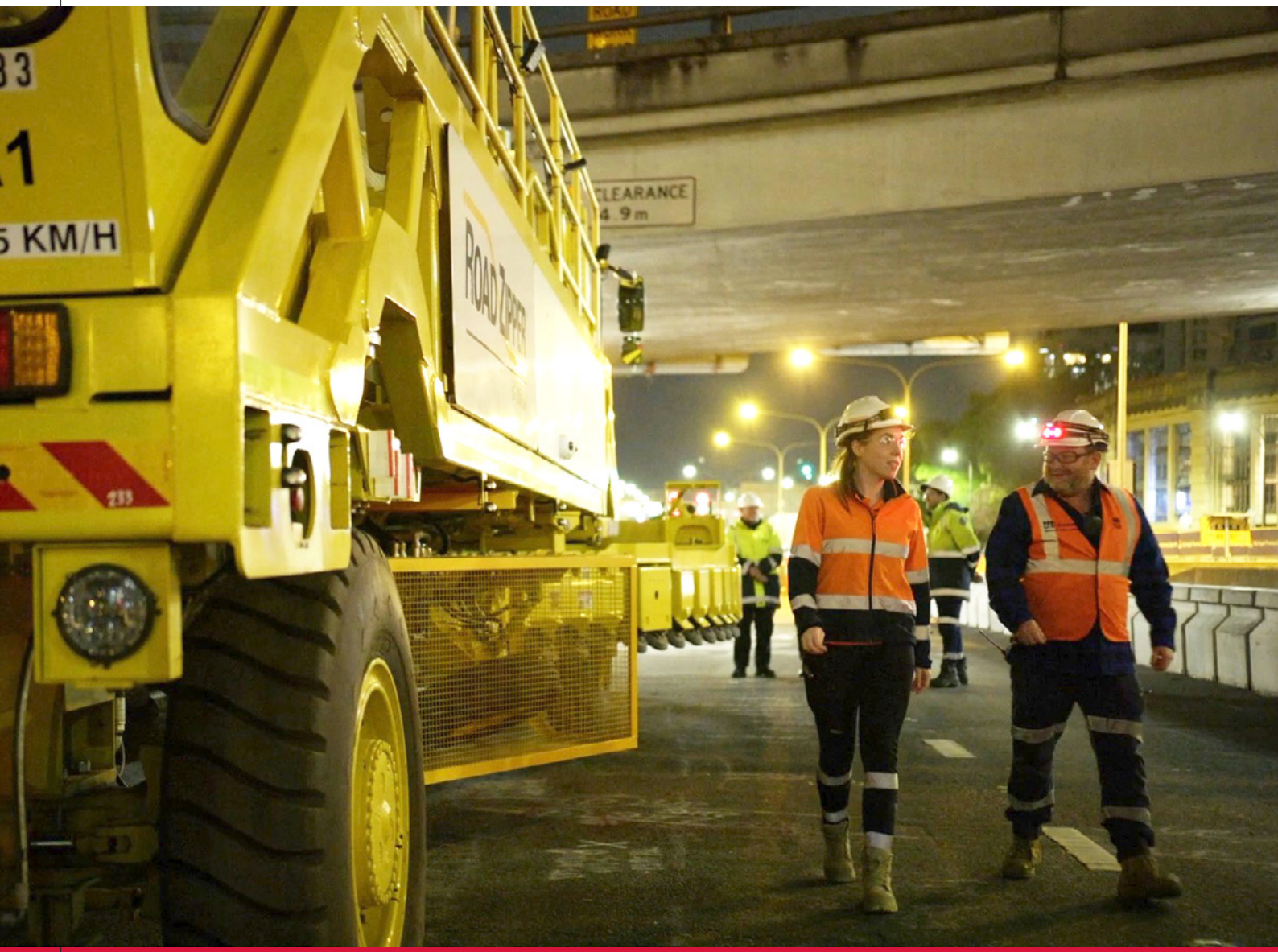
Transport
for NSW

Gateway to Innovate

Program evaluation



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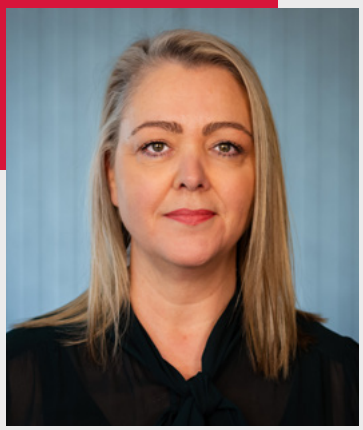
Acknowledgement of Country

Transport pays respect to Elders past and present, and recognises and celebrates the diversity of Aboriginal peoples and their ongoing cultures and connections to the lands and waters of NSW.

Foreword



The productivity challenge in infrastructure is real — and growing.

Infrastructure Australia's 2024 report makes it clear: we're facing a shortfall of 197,000 workers, and productivity has declined by 0.8% over the past year. That's more than a statistic — it's a wake-up call. To meet the demands of tomorrow, we must think differently, act boldly, and collaborate to lift performance across the sector.

Since 2022, our industry sentiment survey has revealed a growing appetite for innovation in how we develop and deliver projects. We listened. We engaged. And we built something new.

Gateway to Innovate (GtI) was born from those conversations. GtI is a first-of-its-kind program in Australia, designed to capture and test bold ideas during the development and delivery phases of infrastructure projects. No other program was doing this.

GtI is not just about ideas, it's about action. It's about creating a safe space to experiment, learn quickly, and apply those lessons to future projects. It's about failing fast, learning faster, and moving forward with confidence.

Since its launch in May 2024, the response has been phenomenal. The ideas were strong. The energy was stronger. This report captures the outcomes of three initial trials and the momentum we've built together.

To everyone who contributed from across industry and Transport for NSW, thank you. We look forward to continuing this innovation journey with you.

Raquel Rubalcaba

Acting Deputy Secretary, Infrastructure Projects and Engineering

Transport for NSW

The Gateway to Innovate Program

Gateway to Innovate (GtI) was designed to foster collaboration with industry partners by providing a platform to propose and trial innovative tools, technologies, and methodologies. A gateway to make industry's new ideas and emerging innovations visible and accessible to the broader industry.

We wanted submissions that could create, adapt, or improve what we do, and in turn uplift productivity.

Over 3,000 industry representatives engaged with the program. Through a competitive selection process three proposals stood out and were invited to be matched with a Transport project for a live trial of their innovation.

This report provides an evaluation of the GtI program as well as a summary of the outcomes from the three trials.

The challenge

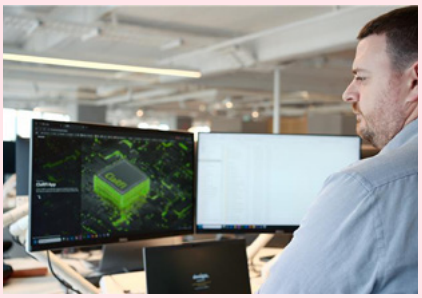
In this new program, we sought innovations ready to trial in the development or delivery phase of Transport for NSW projects. The challenge we put forward to industry aimed to inspire innovative thinking and identify practical solutions that could enhance the way we deliver transport infrastructure—by working smarter, improving productivity, and building capability across the sector.

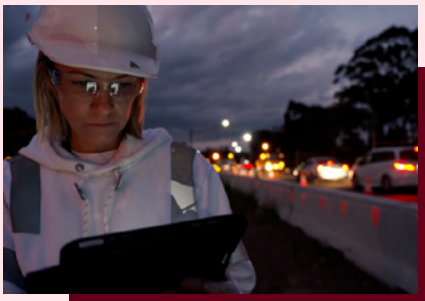
Challenge Statement:
What tools or processes could we introduce or change to increase productivity on our projects and make our industry more efficient?

By embracing innovation, we were not just responding to a challenge—we were creating opportunities. A feature of the program was that we weren't looking for just one big idea or a new piece of technology; but rather we wanted to see and hear ideas from our industry partners that were creating new approaches, adapting ideas from other industries, or improving on established ways of working.

The trials

Three pilot innovations were selected, each targeting a unique aspect of productivity improvement: automation, smarter data use, and improved safety.





Each idea had to demonstrate their potential for ongoing productivity benefits. Importantly, the trials wouldn't be funded directly. The incentive for industry lay in retaining intellectual property, and the possibility of commercialising innovations. Our aim is long-term, sector-wide benefits, not just gains for Transport for NSW.

In early 2025, the following three pilots were implemented on live infrastructure projects for a short-term trial of three months. We partnered with:

- **Ethos Health to trial FatigueTech**, addressing the critical issue of worker fatigue by using scientifically-proven methods.
- **Altus Traffic Group to trial Intellitag®**, transforming how we manage and monitor traffic assets, and in turn improving safety and workforce efficiency.
- **Aurecon to trial ClaRFI**, an AI-driven approach to revolutionise the RFI process.

These trials we saw that while the innovations were small enough to be manageable on our projects, their reach is far greater with the potential to achieve long-term productivity gains for industry.

As part of the program, successful proponents would be able to share their findings and lessons learnt via Transport's industry channels. This report provides a summary of the trials' key outcomes.

Program governance and evaluation

By engaging our industry partners, the GtI program was able to explore and implement solutions to drive long-term productivity improvements not just across Transport's infrastructure projects, but for the industry more broadly.

As a platform, GtI served to:

- Accelerate innovation by enabling industry to trial new tools, technologies, and processes.
- Showcase existing innovative excellence already embedded in our projects.
- Foster collaboration between Transport and industry to co-create solutions that address real-world challenges.
- Create a pathway for change, where innovation is not only encouraged but actively supported and scaled.

Developing the program

To ensure industry buy-in and participation in the new program, a substantive consultation and communications strategy was executed. This started at the program's inception, with close to 100 conversations with various industry partners to understand and test ideas on how more innovation could be better incorporated on Transport projects. These insights helped inform a dedicated governance instrument for the program providing clear guidelines for the program requirements, as well as a transparent selection process.

Secondly, as a new pilot program, its success hinged on the participation of industry. Raising awareness was therefore critical. The submissions process had to be seamless and efficient for candidates. To achieve this an initial eight-week engagement campaign was utilised around a dedicated submissions portal created specifically for the program.

Key elements of the campaign included:

- Two dedicated webinars attended by over 350 people.
- Five innovation focused video case studies watched by more than 2300 people.
- Ten pieces of digital communication collateral including electronic direct mail (EDM) and industry newsletters —Inside IPE generating 4,800 unique visits to the portal and 1,900 document downloads.
- One media release — resulting in Channel 9 news Sydney exclusive.
- Five Transport for NSW social media and key stakeholder social media posts.

The program also received support with promotion via the following external channels:

- Innovation NSW.
- Industry associations newsletters & social channels — including Roads Australia, Australian Constructors Association.

Selection process

The program involved an application and selection process starting with an Expression of Interest (EOI) form. Applications were submitted online via a dedicated GtI portal during a set timeframe 9 May 2024 to 5 July 2024.

A panel consisting of technical and professional staff from across Transport's Infrastructure Projects and Engineering division were responsible for the assessment of proposed trials and final decision-making to select and match successful EOIs for trial to a live project. The EOIs were assessed against a set criteria to identify an initial shortlist. These shortlisted applicants were invited to pitch to the panel and ultimately three trials were selected and endorsed to trial on a live Transport project.

Program achievements and outcomes

By responding to its core objectives, the GtI program delivered measurable improvements in productivity, fostered innovation, and strengthened partnerships with industry. The outcomes of the three live trials demonstrated the value of structured innovation in real-world infrastructure settings.

Improve productivity

We created an environment for industry to trial innovation in a shared-risk setting. All three trials demonstrated that the investment would return significant savings in time or cost for a project through a reduction in manual tasks and improved decision making.

FatigueTech by Ethos Health
Improved productivity through real-time triggers for individual StartFit assessments including an integrated self-monitor for worker fatigue.

ClaRFI by Aurecon
More than 1100 hours and $100,000 could be saved with this tool over a full RFI life cycle.

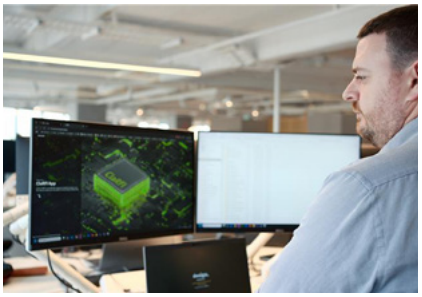
Enabled reallocation of engineering resources to higher-priority tasks.

Intellitag® by Altus Group
Avoided 125 routine vehicle trips, eliminating 100% of scheduled inspections. Saved 1,640 km of travel, reducing fuel use and emissions.

Foster innovation

The GtI program demonstrated that innovation can be supported, celebrated, and scaled. It established a clear pathway for trialling new ideas, resulting in three live trials and five additional commended proposals.

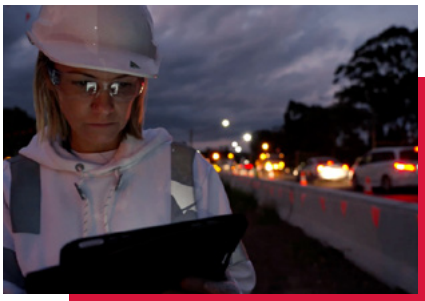
- Three innovations trialled on live projects
- Five commendable proposals referred for internal review
- Structured platform created to foster innovation



Strengthen industry partnerships

The GtI program generated strong engagement and support from key industry associations and networks. It attracted 66 applications and engaged over 3,000 individuals. Our transport delivery partners also embraced the opportunity to host a trial innovation.

- 3,000+ individuals engaged
- 66 applications received
- Three live trials delivered
- Supported by Roads Australia, Australian Constructors Association, Consult Australia, Civil Contractors Federation, Infrastructure Partnerships Australia and others



Trial case studies

FatigueTech by Ethos Health

FatigueTech is designed to transform how fatigue is managed within the industry. Ethos Health's innovation, inspired by elite sports and mining techniques, introduces real-time fatigue monitoring to enhance worker safety and productivity. This approach promises to address one of the industry's most critical challenges by balancing safety and performance on-site.

Case study 1

Location of trial:
St Marys Station

Delivery partner:
Laing O'Rourke Australia Construction

Purpose

Evaluate how digital, real-time fatigue management system can enhance decision-making, ensure compliance with fatigue guidelines, and support a healthier, safer workforce.

Performance highlights

Key insights

Productivity and efficiency – reduced administrative burden through automation — replacing manual, paper-based processes, freeing up supervisor time.

Improved compliance and fatigue risk assessment i.e. automated alerts triggered for excessive work hours (>72 hrs/week) and targeted follow-ups and mitigation strategies enabled via StartFit (fitness-for-work checks, FatigueCheck (point-in-time fatigue management plans assessments)and Journey Management Plans.

Enhanced work safety culture – workers reported comfort discussing fatigue with supervisors reinforcing a culture of safety and proactive risk management.

Key benefits

Proactive fatigue management: Workers and their supervisors nudged to take action when fatigue risk was elevated, and provided simple to use tools to guide actions to maintain safe operating environments.

Efficiency: Automated monitoring saved time, reduced interruptions, removed administrative burden, and improved compliance with work hour guidelines and audit readiness.

Data driven insights: Real-time data via dashboards enhanced transparency, promoting shared action and a culture of safety.

Lessons learnt

- Integration with existing systems requires strategic planning.
- Engagement strategies needed to improve compliance with fatigue checks.

Application at scale

FatigueTech is scalable across multiple projects and workforces:

- Modular design allows tailored deployment.
- Suitable for high-risk shift-based workforces.
- Can integrate with HR, payroll, and scheduling systems via APIs.

Future considerations

- Address system integration challenges (technical, contractual, governance).
- Enhance user compliance through training and support.

Unexpected outcome:

Strengthened safety culture and openness around fatigue discussions.

Supervisors gained new tools for team support and risk reduction.

ClaRFI by Aurecon

ClaRFI leverages generative AI to streamline the Request for Information (RFI) process, a critical yet often cumbersome part of project management. By simplifying collaboration and enhancing project intelligence, this tool promises to make the RFI process faster and more intuitive, saving valuable time and resources.

Case study 2

Location of trial:
Henry Lawson Drive (HLD) Upgrade Stage 1

Delivery partner:
Arup Australia

Purpose

Evaluate ClaRFI's potential to enhance project delivery by improving and streamlining the traditional Request for Information (RFI) process using generative AI.

Performance highlights

Key insights

Saving of over 1100 hours and over $100,000 could realistically be achieved through the implementation of ClaRFI over the full RFI life cycle of a project like Henry Lawson Drive.

Accurate response quality achieved for simple RFIs but needs improvement for more complex requests.

Key benefits

Productivity: Faster RFI processing, reduced time spent searching across platforms allowing time to be spent on higher-priority tasks.

Efficiency: Centralised data access improved consistency and reduced duplication.

Onboarding: Improved onboarding time for new staff as ClaRFI allows them to access project history and context quickly, reducing dependency on others.

Knowledge management: Improved accessibility to project data via a centralised, controlled and secure system.

Lessons learnt

- RFI queries must be well-structured and specific for optimal tool performance.
- Staff and project upskilling is essential to help teams format RFIs effectively and ensure all context is available to ClaRFI.
- ClaRFI needs further development to handle multi-step and context-heavy queries and improve quality of responses.

Application at scale

ClaRFI has strong potential to support a project throughout its lifecycle. Its contextual understanding is expected to improve over time, making it a valuable digital project assistant.

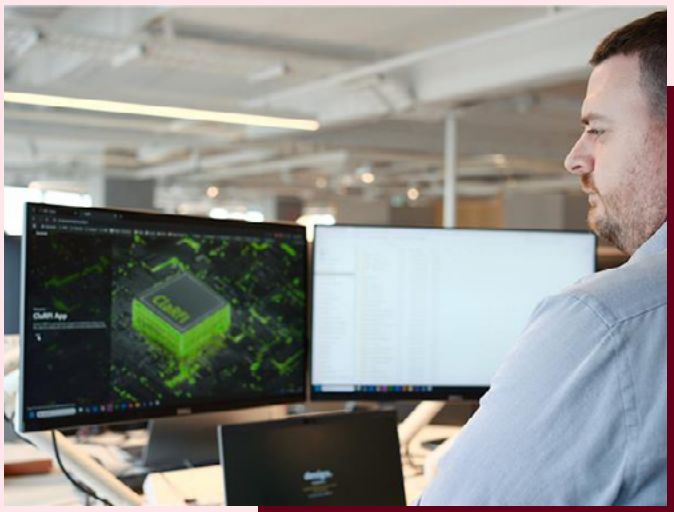
Future considerations

The tool delivered measurable productivity gains and improved data accessibility. With continued refinement, ClaRFI could become a transformative tool for infrastructure projects.

Unexpected outcome:

ClaRFI was trialed primarily for handling the RFI process, but it revealed its potential to become a scalable digital project assistant by supporting onboarding and knowledge transfer across teams.

"AI tools like ClaRFI have the potential to support broader project management processes."



Intellitag® by Altus Group

The Intellitag® system attaches to road signs, cones, and barriers, creating a mapped digital twin of the work zone. This innovative use of technology will help make high-risk traffic management environments safer and more efficient. By providing real-time data on work zone conditions, Intellitag® addresses the complex needs of road safety and efficiency.

Case study 3

Location of trial:
Mamre Road Upgrade

Delivery parnter:
Seymour Whyte

Purpose

Evaluate the effectiveness of a digital twin and real-time monitoring system in replacing manual, routine traffic signage inspections — aiming to improve safety, productivity, environmental outcomes, and data-driven decision-making.

Performance highlights

Key insights

Achieved 99.96% compliance rating, maintaining near perfect uptime.

125 routine vehicle trips avoided, eliminating 100% of scheduled inspections.

1,640 km of travel avoided, saving fuel and reducing emissions.

1.150 metric tonnes of CO2e emissions avoided.

Key benefits

Productivity: Routine inspections eliminated and crews reallocated to higher-priority tasks and staying focused on managing traffic.

Economic efficiency: Reduced fuel, maintenance, labour, and supervisor callouts.

Safety: Reduced worker exposure to live traffic environments.

Operational efficiency: Real-time alerts enabled faster, data-led responses.

Environmental impact: Reduced vehicle emissions and road noise.

Cultural shift: Teams improved signage practices organically due to real-time visibility.

Compliance: Enhanced compliance, auditability, and operational transparency due to complete digital twin of the traffic management site.

Data integrity: Verified and timestamped data availability improved accountability and decision-making.

Lessons learnt

Early integration into project planning enhances effectiveness by implementing user training and onboarding for adoption and confidence.

Application at scale

The trial demonstrated clear productivity, safety, and environmental benefits.

Removing the need for routine inspections and faster incident response times all point to significant productivity gains.

The system is modular, easy to deploy, and suitable for a wide range of project types.

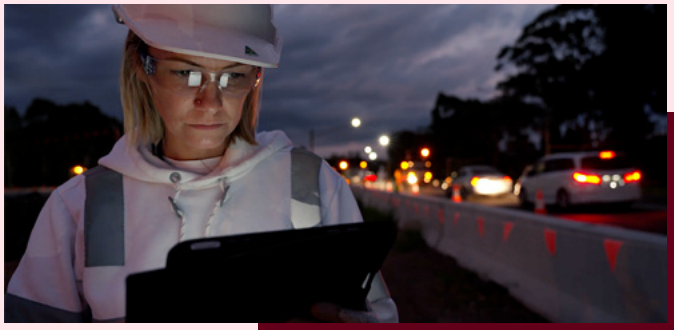
Projected annual benefits on 25 TfNSW projects could equate to:

- 18-25t of CO2e avoided
- 2,000+ vehicle trips eliminated
- 1,800+ crew hours reallocated
- Fewer incidents and lower insurance costs
- Improved compliance audit trail and incident transparency

Unexpected outcome:

Real-time monitoring led traffic crews to take greater pride and ownership of signage placement, improving accuracy and care — not through enforcement, but through visibility.

"Innovation isn't just about technology — it's about shaping culture and accountability."



Key learnings and recommendations

The program demonstrated that innovation isn't just about technology—it's about shaping culture and accountability.

Our annual Industry Sentiment Survey revealed a rising concern over limited innovation opportunities, up 25% from 2022.

Industry feedback and program outcomes strongly support continuing and evolving the GtI program.

A future program should be refined and expanded in the following ways:

- Promote cultural change in how innovation is viewed — continue to champion innovation to reinforce culture where new ideas are welcomed, tested and scaled.
- Enhance program resourcing and simplify the selection process to create a continuous review and match of potential trials.
- Ensure program continuity beyond the 2024 first tranche by investigating ways to establish a year-round 'pitch to select' process.
- Review selection criteria and allow a longer submission period to encourage broader cross section of industry to apply.
- Develop clearer, more flexible reporting templates enabling better communication of trial results and lessons learnt.

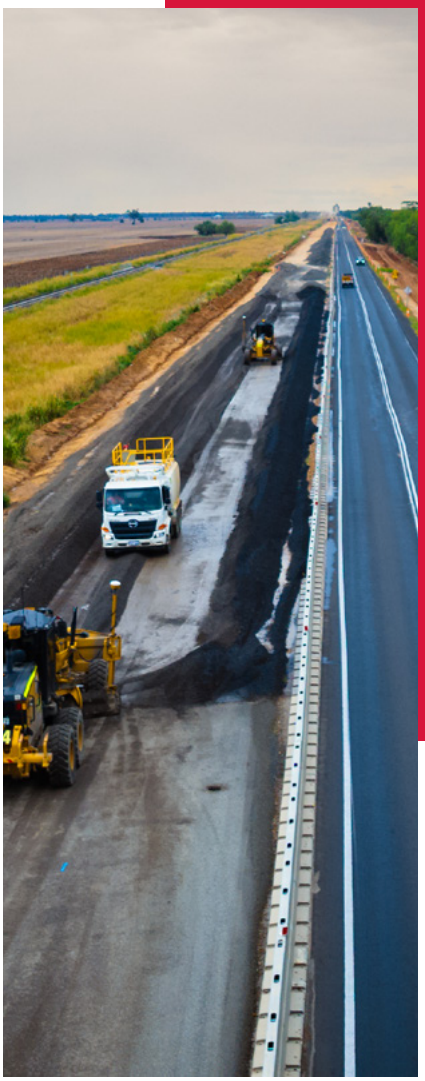
Lessons learnt

Implementation insights

- Each pilot addressed a specific productivity barrier — process automation (ClaRFI), data-driven safety (FatigueTech), and smart infrastructure monitoring (Intellitag®) — and delivered measurable benefits.
- Innovation is occurring but not yet applied systematically across the portfolio — broader application could reduce duplication, accelerate delivery, and improve consistency.
- Systematic integration is needed — embedding innovation into business-as-usual (BAU) processes is essential for long-term impact and cultural change.

Participant feedback

- Successful applicants appreciated the safe space, visibility, and support provided by the program.
- Participants expressed interest in ongoing opportunities to engage with innovation programs and clearer pathways for scaling successful trials.
- GtI has inspired at least one other interstate agency to develop a similar infrastructure innovation program.
- Industry have been requesting details for future intake dates indicating strong demand.



Highlights

As a program, GtI:

- helped elevate innovation as a valued and supported activity
- fostered new partnerships and genuine collaboration
- positioned Transport for NSW as a champion of innovation in the infrastructure development and delivery phase.

Want to find out more?

Check out our dedicated Gateway to Innovate portal: https://industry.transport.nsw.gov.au/tfnsw/gti

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