Standards Australia

ENGINEERS AUSTRALIA

Trusted Standards in a Connected Digital Engineering Environment

White Paper

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Enabling Greater Value Through Connection and Integration

Engineering practice in Australia continues to evolve as digital design tools, automation, and emerging AI capabilities become more embedded in everyday workflows.

Standards remain a critical foundation within this environment. They provide the reference framework for safety, quality, and consistency, and underpin confidence in engineering outcomes across sectors.

However, as engineering practice becomes more digital, there is a growing need to improve how standards are accessed and applied within these environments.

A Shared Industry Focus

To address these challenges, Standards Australia and Engineers Australia convened stakeholders across Australia in November 2025 to explore how standards can better support modern engineering workflows. Consultations included Emerging Engineers, Practice Leaders, Digital Specialists, and Senior Executives.



To frame discussions, Standards Australia invited CalcTree, an engineering software developer, to show a prototype of their platform featuring AI enabled standards content.

The team demonstrated an automated calculations review tool, illustrating how embedding standards directly into engineering software has the potential to streamline verification and unlock meaningful efficiency gains.

A consistent theme emerged from the discussions:

> *"The value of standards can be further enhanced through better integration into engineering practice."*

Participants recognised that standards are well understood and widely relied upon. The challenge is how that information is applied efficiently and consistently within the current and future digital environments.

The Digital Engineering Context

Engineering work is now predominantly undertaken within digital platforms, including modelling tools, analysis software, drafting environments, and asset management systems.

These tools are becoming increasingly capable, incorporating automation and, in some cases, early-stage AI-assisted functionality.



While standards continue to play a central role, they are often accessed separately from the tools in which engineering work occurs. Requirements are typically identified, interpreted, and applied manually.

This approach remains effective but can introduce inefficiencies, particularly where similar processes are repeated across projects or teams.

Participants in the workshops identified there is a clear and increasingly urgent opportunity to better connect standards with the digital environments in which they are applied.

A More Connected Approach

Industry discussions pointed to a practical and achievable direction:

> *"Maintain the authority of standards, while improving how they integrate into engineering workflows."*

This includes enabling:

- Access to standards content in structured, digital-ready formats
- Use of relevant requirements within engineering tools at the point of need
- Clear linkage between engineering outputs and source clauses
- Visibility and traceability for assurance and compliance

This approach supports more efficient workflows while reinforcing the role of standards in guiding professional judgement.

Integration as the Key Enabler

Integration emerged as the central enabler of this opportunity.

Value increases when standards can interact with a broad range of engineering tools, including:

- Design and modelling platforms
- Engineering analysis tools
- Documentation and drafting systems
- Compliance and assurance processes

Importantly, integration must reflect the diversity of the engineering ecosystem; both now and in the future.

Organisations operate across a range of systems, from open toolchains to more controlled internal environments.

Any approach must therefore support:

- Flexible integration across platforms and future developments
- Secure use within proprietary systems
- Alignment with organisational governance and processes

Trust, Verification and Professional Responsibility

A consistent priority across discussions was the need to preserve trust and accountability in engineering practice.

> *Engineering judgement must remain central, regardless of the tools used.*

For integrated approaches to be adopted, they must support:

- Confidence that content is current and accurate
- Clear linkage to authoritative sources
- Transparency in how outputs are generated
- Auditability for compliance and review

These elements are particularly important as digital tools become more capable, and as organisations consider how automation and AI may support engineering processes.

Perspectives from Industry



Rod Balding

Chief Executive Officer, Standards Australia

"Standards provide a strong and trusted foundation. The clear opportunity now is to work with the engineering profession to better connect standards content into modern workflows, so they can be applied more efficiently while maintaining their integrity."



Bernadette Foley BE(Hons) GCertEd(H.Ed) FIEAust CPEng EngExec NER

Group Executive, Professional Standards and Engineering Practice, Engineers Australia

"Hosting these sessions with Standards Australia enabled our members to share candidly their experiences and discuss opportunities. These insights are critical to considering how engineers can more readily access and embed standards into their everyday work practices, with the assurance the information is verifiable."



Tim Rawling

Chief Executive Officer, CalcTree

"Standards need to seen more like digital infrastructure, rather than just static documents. If you can link checks to the exact clause, software can make QA quicker and more consistent without taking judgement away from engineers. That's the future we're building toward at CalcTree."



Brent Burgess (AFIEAust CEngA NER IntETn(Aus))

Digital Engineering Lead, Engineers Australia and Deputy President (WA), National Committee for Engineering Associates and Technologists

"Working with digital data sets and designing using analogue/static standards on reader specific platform is challenging. Having the ability to access digital standards across multiple platforms provides greater flexibility for users. Accessing digital standards through a platform like CalcTree will provide the next link in digital delivery."

Unlocking Value Through Better Connectivity

The discussions highlight a clear theme:

> *Improving how standards are connected into practice can enhance overall value, efficiency and quality.*

More connected approaches can support:

- Reduced duplication of effort
- Greater consistency across engineering outputs
- Improved efficiency in design and compliance processes
- Stronger assurance and traceability

Areas to Support Progress

Participants identified several areas that can help advance this opportunity:

Structured, Digital-Ready Content

Enhancing standards so they can be more readily used within digital environments, while maintaining authoritative control.

Integration Pathways

Supporting practical and secure mechanisms for standards to be used within engineering tools.

Verification and Traceability

Ensuring digital workflows maintain strong links back to source material for confidence and compliance.

Improved Visibility of Requirements

Making it easier to understand relationships between standards, codes, and regulatory requirements.

Reinforced Importance of Professional Judgement

Ensuring that all developments support engineering judgement and accountability.

Conclusion

As the engineering profession becomes increasingly digital, there is a clear opportunity to improve how standards content is accessed and applied within modern workflows.

By strengthening the connection between standards and engineering tools, the industry can support more efficient, consistent, and transparent outcomes; while maintaining the core principles that underpin safe and effective engineering practice.

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