ABAB

AUSTRALASIAN BIM ADVISORY BOARD

ABAB Position Paper

Driving Productivity in the Built Environment through Digital Transformation in Australia and New Zealand

FEBRUARY 2026

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Australasian BIM Advisory Board (ABAB)

In May 2017, the Australasian BIM Advisory Board (ABAB) was established by the Australasian Procurement and Construction Council (APCC) and the Australian Construction Industry Forum (ACIF), together with NATSPEC, Austroads, buildingSMART Australasia and Standards Australia. This partnership of national policy and key standard-setting bodies represents a common-sense approach that captures the synergies existing in, and between, each organisation's areas of responsibility in the built environment. It also supports a more consistent approach to the adoption of Building Information Modelling (BIM) across jurisdictional boundaries.

The establishment of ABAB is a first for the Australasian building sector with government, industry partnering to provide leadership to improve productivity and project outcomes through BIM adoption.

ABAB is committed to optimal delivery of outcomes that eliminate waste, maximise end-user benefits and increase the productivity of the Australasian economies. ABAB has evolved from a previous APCC–ACIF collaboration established in 2015 at a BIM Summit. This summit produced resource documentation to support BIM adoption (refer to www.apcc.gov.au for copies).

Members of ABAB have identified that, without central principal coordination, the fragmented development of protocols, guidelines and approaches forms a significant risk that may lead to wasted effort and inefficiencies, including unnecessary costs and reduced competitiveness, across the built environment industry.

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What is Building Information Modelling (BIM)?

BIM is a digital form of construction and asset operations. It brings together technology process improvements and digital information to radically improve client and project outcomes and asset operations. BIM is a strategic enabler for improving decision-making for both buildings and public infrastructure assets across the whole life cycle. It applies to new build projects and crucially, BIM supports the renovation, refurbishment, and maintenance of the built environment – the largest share of the sector. [EU BIM Task group Handbook, 2018].

What is BIM process consistency?

BIM process consistency is the consistent use of proven methods, techniques, standards, templates, workflows, and tools within and across the public sector. BIM process consistency improves the performance of BIM adoption and implementation.

Australasian BIM Advisory Board

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Acknowledgements

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Executive Summary

Australia and New Zealand's built environment sectors face a severe productivity challenge, compounded by recent significant infrastructure delivery now facing budget repair, rising costs, workforce constraints, and significant economic challenges including high demand for construction skills, a housing shortage and projections of a lack of skilled workers to deliver projects over the next decade. In Australia, the construction industry accounted for 7.0% of GDP in 2023–24, employing around 1.3 million people (Australian Bureau of Statistics[i]). In New Zealand, construction contributed 6.3% of real GDP, encompassing about 10.7% of the workforce (MBIE[ii]).

ABAB has established clear actions that will improve productivity by embracing digitalisation. ABAB has identified that the key elements that Governments and industry need to focus on are:

- Digitalisation is a productivity multiplier: Real-time data, automation, and transparency deliver measurable cost and time savings.

- BIM and DE underpin integrated delivery: Enabling collaboration across disciplines and project phases.

- Lifecycle thinking is essential: Data captured at each phase should serve the next phase, avoiding information loss.

- Government and client leadership is key: Mandating digital deliverables and interoperable standards ensures consistency and return on investment.

The productivity crisis in Australia and New Zealand's built environment construction sector is unmistakable and urgent. But so is the opportunity. Digital transformation-through BIM, DE, and digital twins-is a proven lever for productivity, quality, and lifecycle value enhancement.

The productivity crisis is acute: over the past three decades, Australia now builds half as many homes per hour worked compared to 1995 (a 53% decline), after adjusting for quality and size, labour productivity is still 12% lower* (Productivity Commission[iii]). In Queensland specifically, construction productivity has grown just 5% over 30 years, far below the broader economy's 65% growth (Janetzki[iv]). Addressing this imperative is critical to economic resilience.

Digital tools and processes such as Building Information Modelling (BIM), Digital Engineering (DE), and digital twins, offer transformative potential. However, to achieve the benefits that the tools and processes will deliver, strong government leadership in procurement, regulation, and standards is essential for scaling adoption and securing productivity gains.

The Australian Procurement and Construction Council (APCC) and the Australian Construction Industry Forum (ACIF) are the parent bodies of Australasian BIM Advisory Board (ABAB). ABAB is well placed to assist governments across Australia and New Zealand address the challenges of productivity from procurement, through design and construction into operations and maintenance.

ABAB has identified that tackling productivity stagnation requires a strategic approach to digital leadership. By promoting consistency, ABAB aims to foster greater certainty and confidence, supporting governments in enhancing infrastructure delivery and driving productivity improvements.

This is not about technology or software; the key is cultural change within organisations in the public and private sectors and showing the value that digital enablement brings to asset delivery and asset management through improved productivity.

Scope

This paper examines how digitalisation can improve productivity across Australia and New Zealand's built environment. Digitalisation in this context refers to the structured use of digital information, model-based processes and interoperable data environments, including BIM, Digital Engineering and digital twins, to enhance coordination, decision-making, delivery efficiency and lifecycle asset outcomes.

To illustrate long-term productivity trends, the paper draws on housing construction data, as these are the only comprehensive and nationally consistent datasets available over multiple decades. These datasets help demonstrate system-wide performance patterns and provide evidence of productivity decline. The paper also outlines criteria for evaluating the technical and process benefits of digitalisation, including impacts on project certainty, rework reduction and asset information quality.

This paper does not address broader organisational change, market-structure implications, workforce reform, or detailed matters relating to skills development, training or wellbeing. It also does not provide recommendations on procurement policy or regulatory reform.

NOTE:

- *Housing represents only one segment of the construction sector. Its characteristics differ from those of major infrastructure and complex public assets; these differences are acknowledged but not examined in detail.*
- *References to quality in this paper relate specifically to the accuracy, reliability and completeness of project and asset information, and to the consistency and coordination of design and construction outputs enabled through digital processes.*
- *Percentage-based productivity and rework improvements presented in this paper are either directly referenced or identified as indicative case-study outcomes.*

1. The Productivity Challenge

Australia and New Zealand face similar key issues in the productivity challenge confronting the construction sector. These include but are by no means limited to; scale and complexity of projects and overall construction productivity decline despite improvements in elements such as mechanisation.

Scale and Complexity

There are four key elements that are inherent in the scale and complexity of the challenge. These are:

* Demand pressures: Australia and New Zealand are managing large capital works pipelines across transport, housing, energy, health and 'build-back-better' climate-resilient infrastructure. Public spending remains a strong growth driver (Turner and Townsend[v]).

* Cost inflation: Construction inflation remains stubborn, with certain cities among the most expensive globally (Property Market News[vi]).

* Workforce constraints: Skills shortages and reduced labour productivity, such as workers averaging only ~2.8 productive days per week, are increasing costs and delivery times (Arcadis[vii]).

* Strategic importance: Infrastructure and construction contribute materially to national economies - 7% of Australia's GDP and over 6% in New Zealand (Australian Bureau of Statistics, MBIE).

Construction Productivity Decline

Construction productivity has stagnated or regressed across both countries. In Australia construction productivity trails the broader economy by decades, and New Zealand's gains have been described as modest (One Final Effort[viii], Productivity Commission[ix]).

For example in Queensland, this has translated into lost potential for 77,000 homes due to lower productivity since 2018 (Janetzki). Australian labour productivity fell – 1.8% in construction in 2022–23, compared to long-term averages of +1.3% (Rider Levett Bucknall[x]).

CEDA highlights that micro-business dominance (91% of firms have fewer than 5 employees) which severely limits innovation and scaling of productivity improvements (CEDA[xi]) and Oxford Economics estimates that bringing industry productivity to economy-wide levels could unlock A$56 billion annually in capacity-translating to thousands of schools, roads, and hospital beds (Institution of Civil Engineers (ICE)[xii]).

2. The Productivity Imperative

There are at least three key reasons that enhancing productivity in the built environment is essential:

- It ensures value-for-money for taxpayers.

- It facilitates faster delivery of infrastructure to meet urgent needs like housing shortages.

- It enables higher performance outcomes in safety, sustainability, and resilience.

Underpinning all of these elements is comprehensive data management across the lifecycle. ABAB promotes best practice through data management and recommends the full adoption of the ISO 19650 standards (ISO 19650.1 through 19650.5)[1] for buildings and infrastructure. For a portfolio of assets ABAB further recommends adopting the ISO 55000[2] series for strategic asset management.

Ensuring Value-for-Money for Taxpayers

Government is the largest client of the construction sector. In Australia, the infrastructure investment pipeline exceeds A$270 billion over the next decade (Infrastructure Partnerships Australia Budget Monitor 2024 – 25[xiii]). In New Zealand, capital investment is similarly at record levels (NZ Treasury, 2023[xiv]). Yet low productivity erodes these returns, driving overruns and inefficiency. Improved productivity ensures that every dollar delivers more infrastructure and better outcomes for taxpayers (Oxford Economics, 2025[xv]).

Facilitating Faster Delivery to Meet Urgent Needs

Housing shortages are acute. The Australian Productivity Commission 2025[xvi] found that Australia is now building half as many homes per hour worked as in 1995. New Zealand also struggles to meet housing demand in Auckland and Wellington (NZPC, 2023[xvii]). At the same time, rapid rollout of renewable energy, transport, and climate-resilient infrastructure is essential (Infrastructure Australia, 2022; KPMG, 2021[xviii]). Productivity gains can accelerate delivery: Sydney Metro's BIM-enabled coordination saved months on delivery (Sydney Metro, 2020[xix]), while Auckland's City Rail Link avoided costly redesigns through advanced modelling (NZTA, 2021).

Enabling Higher Performance Outcomes: Safety, Sustainability, and Resilience

Safety: Poor productivity increases coordination failures and safety risks. BIM reduces these through clash detection and simulation (Azhar, 2011[xx]).

Sustainability: The built environment contributes nearly 40% of global carbon emissions (UNEP, 2020). Digital tools enable material optimisation, energy modelling, and predictive maintenance, reducing embodied carbon and extending asset life (McKinsey, 2021; RMIT, 2020[xxi]).

Resilience: Digital twins are increasingly applied to simulate floods, bushfires, and seismic risk, strengthening resilience in both countries (KPMG, 2021; Te Waihanga, 2022[xxii]).

3. Digital Technologies as Productivity Enablers

Core Technologies

Building Information Modelling (BIM): BIM provides an integrated, data-rich design and delivery environment, enabling clash detection, better coordination, and reduced rework. Studies show BIM adoption reduces design errors by up to 40% and cuts project costs by 10–20% (NBS, 2023[xxiii]; Global BIM Network, 2021[xxiv]). In Australia, the Australasian BIM Advisory Board (ABAB) emphasises that embedding BIM within government procurement frameworks accelerates uptake and aligns industry practices (ABAB, 2021[xxv]).

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[1] Alternative standard - Australian Standards ISO 19650
[2] Alternative standard - Australian Standards ISO 55000

Digital Engineering (DE): DE extends BIM by embedding structured, standardised data across the entire asset lifecycle. It enables evidence-based decision-making, lifecycle value assessments, and integration of ESG (environmental, social, governance) metrics into procurement. By digitalising the full chain from design through to operation, DE provides a foundation for transparent performance tracking and adaptive management (Infrastructure and Project Authority, 2020[xxvi]).

Digital Twins (DTs): Digital twins are dynamic, real-time digital representations of assets, updated continuously through IoT sensors and data analytics. They enable predictive maintenance, operational optimisation, and improved resilience planning. Global research estimates digital twin adoption can reduce asset lifecycle costs by up to 25% while extending useful asset life (KPMG, 2021; McKinsey & Company, 2021[xxvii]). Macquarie Asset Management (2022)[xxviii] highlights their role in "future-proofing" infrastructure by integrating performance monitoring and climate resilience modelling.

As Infrastructure NSW (2025)[xxix] outlined in its Infrastructure Digitalisation and Data Policy & Guide materials, "Digitalisation is key to achieving government priorities such as increasing housing supply, decarbonising infrastructure delivery and boosting domestic manufacturing. It also enables the delivery of infrastructure in a faster, smarter and more innovative way."

But to increase digitalisation across all elements in the construction sector there must be improvements in data management.

As Infrastructure NSW clearly indicate, the benefits of infrastructure digitalisation and robust data management include:

- productivity gains such as:
  o capital project cost and time savings,
  o planning, delivery and operational efficiencies,
- improved decision making, collaboration and stakeholder engagement,
- improved risk management and safety,
- better maintenance practices, leading to more reliable and resilient infrastructure and better performance.

4. Demonstrated Impact

There are numerous examples of the demonstrated impact of how a digitally enabled approach will enhance productivity in the construction sector. But there is one consistent voice that argues for policy certainty and consistency which must be embedded in the construction sector and through all facets from procurement, through design, into delivery and operations and maintenance.

Policy leadership has been provided by the Australasian BIM Advisory Board (2021) which stresses that BIM adoption drives measurable productivity gains, particularly through reduced rework and over the lifecycle of the asset through better asset management.

There are numerous examples across Australia and New Zealand where organisations have adopted a digital trial and delivered clear results.

Melbourne Water in Victoria, implemented a digital twin covering 14 reservoirs, 1,200 km of water pipes, and 400 km of sewer lines, integrating over 1,000 IoT sensors. Outcomes included improved leak detection, faster emergency response, and optimised maintenance schedules improving productivity in the operation of the assets (Melbourne Water[xxx]).

In New Zealand a local government trial of a BIM-based Asset Management Common Data Environment (AMCDE) demonstrated improved interoperability across systems and stronger lifecycle asset management outcomes (International Association for Automation and Robotics in Construction, 2022[xxxi]).

The New Zealand Infrastructure Commission (Te Waihanga 2022) recommends city and nation scale digital twins as planning and productivity tools, positioning them as critical enablers of resilience and smarter infrastructure investment leading to improvements in operations and maintenance and ultimately improving productivity.

5. Government Leadership as the Fulcrum

As principal clients, funders, and regulators, Australian and New Zealand governments must lead and set clear guidance to the construction sector on what the project outcomes are that are to be achieved. ABAB has identified the following four areas for improvement.

1. **Procurement Reform**

   o Encourage BIM and DE usage across all publicly funded infrastructure projects where the Return on Investment (RoI) stacks up.

   o Leverage digital procurement platforms to monitor supplier performance and compliance.

   o Include lifecycle value, sustainability, and ESG criteria in tender evaluations.

2. **Standards and Regulation**

   o Implement a consistent national BIM strategy (e.g., Australian BIM Strategic Framework, NATSPEC guidelines) for interoperability and uniform adoption (Global BIM Network[xxxii]).

   o Encourage alignment with ISO 19650 and global best practice (Appleby 2012[xxxiii]).

3. **Capacity Building**

   o Expand digital and BIM skills training across industry and government.

   o Support SMEs to adopt digital technologies, addressing capability gaps.

4. **Planning and Approvals**

   o Digitalise and streamline planning processes to reduce approval delays-highlighted as a constraint in productivity reports (Productivity Commission).

Without government leadership, adoption risks being fragmented and inconsistent, eroding sector-wide benefits and equity.

Calls for specific measurable quantifiable data demonstrate the value that BIM, DE and a digitally enabled approach delivers, discount all the other externalities that occur in the creation of new assets. BIM/DE will deliver benefits, but Governments need to invest and evaluate a specific project with clear key performance indicators. Without specific project data clearly evaluating the digitally enabled approaches being deployed, Governments (and taxpayers) will continue to miss out on realising benefits and identifying productivity improvements that digitalisation brings.

In Australia, some recent megaprojects, (projects over $1Billion), which have adopted a comprehensive data and digital approach include;

- Sydney Metro[xxxiv] which began delivery in 2013 and will continue through to the mid 2030's,
- Cross River Rail[xxxv] in Brisbane, commenced planning in 2005/06, started substantive work in 2016 and will be completely operation in 2028/29,
- Suburban Rail Loop[xxxvi] in Melbourne, was announced in 2018 and commenced in 2019 with underground tunnelling to commence in 2026 and completion forecast for the mid 2030's.

All these projects when they commenced could not have forecast the impact of the COVID pandemic, the supply chain challenges that resulted, the increase in labour and material costs that occurred and the

competition for resources that resulted from Governments investing in infrastructure during the COVID years. The demand for resources outstripped the supply placing significant pressures on labour and resources. Without the digital enablement embedded in each project where clarity was provided and rework minimised; the cost escalation could have been considerably higher and the project delays from rework and requests for information could have resulted in increases in project delivery timeframes.

The best examples of where savings have been realised is in the United Kingdom where BIM was mandated during the Global Financial Crisis (2008-09) to ensure that productivity gains were built into the infrastructure delivery process. The [Centre for Digital Built Britain](#)[xxxvii] produced clear evidence that BIM/DE delivers benefits across the asset lifecycle and organisations like Highways England have embraced the [Gemini Principles](#)[xxxviii] resulting in cost reductions through reduced rework and greater project clarity.

6. Integration of the Internet of Things (IoT) and Artificial Intelligence (AI)

BIM has demonstrably reduced project costs by decreasing rework and errors through clash detection, improving cost estimation accuracy, and increasing overall efficiency via better collaboration and automated quantity take-offs.

BIM integrates more with advanced technological approaches like the IoT and AI[xxxix]. These technologies enhance the capabilities of BIM, providing more innovative, dynamic solutions for managing construction projects and their ongoing operations.

In BIM, IoT devices can be integrated into a building during construction and used throughout its lifecycle. In addition, sensors embedded in a building's infrastructure, such as glass facade sensors, room occupancy sensors, HVAC systems, lighting, and security, can provide real-time data to the BIM model. This data allows building managers to monitor energy usage, occupancy, air quality, temperature, and other performance metrics.

IoT devices can also monitor construction sites in real time, tracking variables like equipment location, material inventory, and worker productivity. This data can be integrated into the BIM model to provide live updates, optimise workflows, and enhance safety on site.

AI algorithms analyse historical data to provide predictive insights, such as identifying potential delays or cost overruns. AI can also automatically generate design options based on specific parameters. It can help architects and engineers quickly explore configurations or optimise building performance.

7. Productivity Gains Across the Asset Lifecycle

There are many gains that can be achieved through the various Lifecycle Phases of a project. Governments and organisations need to review and identify opportunities for productivity improvements in every element of a project.

ABAB has identified the following elements that Governments and organisations need to consider, to improve productivity. Each phase identifies the digitalisation opportunities, the associated productivity benefits and the outcomes to be delivered.

Infrastructure productivity and quality are constrained by fragmented data, siloed delivery, and rework across the asset lifecycle. Digitalisation through BIM and DE enables a seamless data flow from planning through to operations, enhancing efficiency, coordination, and performance. When applied consistently, BIM and DE can reduce rework by up to 60%, improve coordination by up to 40%, and raise build and operational quality by between 25–30% ([BRANZ 2015](#)[xl]) [3].

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[3] Figures are based on case-study and survey evidence; they represent indicative rather than guaranteed outcomes. Variations will occur depending on project size, complexity, maturity of digital delivery, and lifecycle stage.

A. Planning and Approvals Phase

Digitalisation Opportunities

- GIS–BIM Integration: Data-rich spatial analysis of environmental, topographic, and utility constraints.

- 3D/VR Visualisation: Immersive models for stakeholder and community engagement.

- Model-Based Submissions: Automated compliance checking against planning codes.

- Digital Collaboration Platforms: Real-time interagency coordination within a Common Data Environment (CDE).

Productivity Benefits

- Early constraint identification reduces design rework by up to 20% (Izran, Khudzari, Rahman, Alias and Naganathan 2024[xli]).

- Model-based validation accelerates approvals by up to 15%.

- Visual communication enhances stakeholder confidence, reducing objections.

Outcome:

Transparent, faster, and evidence-based planning process.

B. Procurement Phase

Digitalisation Opportunities

- Model-Based Tendering (5D BIM): Automated quantity extraction and cost simulations.

- CDE-Enabled Procurement: Single source of truth for tender documentation.

- Digital Twin Specifications: Embedding lifecycle information requirements in procurement contracts.

- Automated Model Checking: Validates scope, codes, and standards pre-award.

Productivity Benefits

- Improved cost and scope accuracy.

- Reduced tender ambiguity and disputes.

- Shorter evaluation and award cycles.

Outcome:

More accurate tenders, improved cost certainty, and foundation for digital continuity.

C. Design Phase

Digitalisation Opportunities

- Federated 3D Models: Multi-disciplinary coordination and design integration.

- Clash Detection: Early identification of design conflicts.

- Parametric and Generative Design: Data-driven optimisation for cost and performance.

- Digital Design Reviews (VR/AR): Enhanced client validation and approvals.

- Design for Manufacture and Assembly (DfMA): Prefabrication-ready digital models.

Productivity Benefits

- 50–90% reduction in design-related rework.

- Improved constructability and design quality.

- Faster design cycles through automation.

Outcome:

A coordinated, data-rich design that is accurate, buildable, and traceable.

D. Construction Phase

Digitalisation Opportunities

- 4D BIM: Linking schedule and model for sequencing and logistics simulation.

- Field BIM and AR: On-site visualisation of installation and QA data.

- Reality Capture (Drones, LiDAR): As-built verification against design models.

- Digital QA and Inspection Systems: Model-linked quality control workflows.

- Integration with Prefabrication and Robotics: Data-driven automation in production.

Productivity Benefits

- Rework reduction of 30–50% through real-time issue detection.

- Improved coordination and sequencing, reducing downtime.

- Higher build quality through data-driven QA.

Outcome:

Lean, efficient, and higher-quality delivery environment.

E. Operations and Maintenance Phase

Digitalisation Opportunities

- Asset Information Models (AIMs): Comprehensive as-built data for maintenance and renewal.

- Digital Twins: Real-time asset monitoring, predictive maintenance, and lifecycle optimisation.

- Integration with Asset Management Systems (AMS): Data continuity into ISO 55000 frameworks.

- AR/VR Maintenance Tools: Visual access to maintenance histories and specifications.

- Energy and Carbon Monitoring: Track operational performance for sustainability goals.

Productivity Benefits

- Reduced manual inspection and re-surveying up to 25–50% effort savings.

- Enhanced asset reliability up to 10–15% availability improvement.

- Better maintenance quality and resource efficiency.

- Lifecycle data supports informed renewal and investment planning.

Outcome:

Data-driven operations with predictive, proactive maintenance and improved lifecycle performance.

F. The Closed-Loop Digital Lifecycle

- Data Continuity: Information flows seamlessly from planning to operations via common data standards and structured model environments.

- Feedback Loops: Operational performance data informs future planning and design, creating continuous improvement.

- Digital Twin Ecosystem: The asset evolves digitally in parallel with its physical form, enhancing value across its lifecycle.

G. Strategic Takeaways

- Digitalisation is a productivity multiplier: Real-time data, automation, and transparency deliver measurable cost and time savings.

- BIM and DE underpin integrated delivery: Enabling collaboration across disciplines and project phases.

- Lifecycle thinking is essential: Data captured at each phase should serve the next phase, avoiding information loss.

- Government and client leadership is key: Mandating digital deliverables and interoperable standards ensures consistency and return on investment.

The following summary table presents the Lifecycle phase, digital approach, rework reduction, coordination gain and quality improvement.

Governments and industry need to embrace this if they want to see productivity improvements in their projects.

Summary Table – Productivity and Quality Gains through Digitalisation

Lifecycle Phase	Key Digital Tools	Rework Reduction (%)	Coordination Gain	Quality Improvement
Planning and Approvals	GIS–BIM Integration, VR Visualisation	20–40%	Interagency collaboration	Faster, evidence-based approvals
Procurement	5D BIM, CDE, Model Checking	10–20%	Shared scope and data	Reduced contract risk
Design	3D/4D BIM, Clash Detection, Parametric Design	50–90%	Coordinated multidisciplinary design	Fewer design changes
Construction	4D Simulation, Drones, Digital QA	30–50%	Real-time site coordination	Improved build quality
Operations and Maintenance	Digital Twins, AIMs, Predictive Analytics	25–50%	Integrated asset data	Higher uptime and reliability

8. Conclusion

ABAB has identified that leveraging BIM and DE across all phases of infrastructure delivery transforms how projects are conceived, procured, designed, and built. The integration of data-rich, model-based processes ensures:

- Rework is minimised through early detection and resolution.
- Coordination is enhanced by transparent, federated information flows.
- Build quality is raised through precision, accountability, and feedback loops.

The result is greater productivity, cost efficiency, and sustainability across the entire asset lifecycle.

The productivity crisis in Australia and New Zealand's built environment construction sector is unmistakable and urgent. But so is the opportunity. Digital transformation-through BIM, DE, and digital twins-is a proven lever for productivity, quality, and lifecycle value enhancement.

Government leadership through digitalisation of procurement requirements, standards, funding, and digitalisation of regulatory processes can catalyse sector-wide advancement.

ABAB recommends that by acting now, Australia and New Zealand can unlock billions in capacity, deliver infrastructure more efficiently, and secure economic resilience for decades to come.

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