Institute for Infrastructure in Society

Futures Briefing 2025

Australian National University

ANU I2S
Big Ideas Series

Infrastructure Futures 2025

Focus and Action Areas

The call to meet our future infrastructure needs is complex, urgent and critical.

In this Futures Briefing, I2S draws on nearly a decade of world-leading research to identify three major challenges for future-proof infrastructure. We articulate five priority areas critical to meeting these challenges. Policy and practice targeting these issues will benefit societies, shore up government and spark economies. We offer immediately available solutions and longer-term pathways to pursue, based on research evidence.

Our advice aims to assist four key audiences responsible for our shared infrastructure futures: government, industry, civil society and investors. We focus on these key decision-makers and change-makers for their influential roles in both the infrastructure sector and, importantly, in the daily lives of citizens.

The challenges we must rise to meet are:

- Future-proof infrastructure
- Project derisking
- Population-readiness.

The five priority areas for attention and action are:

- Integrated derisking
- Place-based approaches
- Politicisation, disinformation and public trust
- Climate-readiness and the circular economy
- Future-ready jobs and skills.

Recommended Actions

Social Risk Management

Social Due Diligence

Disinformation Response

Social Licence Baselines & Monitoring

Recommended actions

I2S recommends that governments, industry, investors and civil society meet these challenges through:

·**Improved social risk management** that integrates non-technical risk alongside environmental and economic risk management to achieve true-to-life investment analysis, policy decision-making and more fully informed project delivery.

·**Social due diligence** which systematizes place-based approaches to project delivery.

·**Disinformation response** that builds local government capacity to combat disinformation.

·**Social licence baselines and monitoring** to ensure robust understanding of citizens' needs and support project acceptance and community resilience.

·**Advancing sustainable infrastructure** choices that leverage emerging technologies to secure intergenerational infrastructure and industries.

·**Skills-led higher education** to equip individuals, industry and communities with life-long skills core to social inclusion and socio-economic growth.

Situation analysis

Australia now faces the largest and most transformational infrastructure challenge in its history. Communities are experiencing an unprecedented scale and pace of project delivery, with over 71% of Australia's urban population expected to be directly impacted by the current project pipeline. Bigger, more complex projects are being delivered closer together than ever before.

Within this big build, infrastructure finance is changing rapidly. Globally, private capital is progressively necessary to fund critical infrastructure. Public-private partnerships continue to increase. In Australia, our renewable energy sector is majority-fuelled (>95%) by private investment. These figures reflect the global norm. This shifting dynamic raises important questions about the role of private investment in delivering public good, and in how governments guide and regulate these investments, including to ensure social benefits that spread across social groups and locations.

These issues are echoed internationally, and Australia is poised to play a leading role to meet national and regional needs. Almost five percent of low-to-middle income countries' GDP needs to be invested each year through 2030 just to meet infrastructure gaps in electricity, drinking water, sanitation, transport and digital connections, according to the World Bank. For Australia, today's infrastructure policy and investment choices will shape citizens' wellbeing, the health of our environments and our economy's capacity to branch into emerging industries and markets.

Infrastructure is the silent partner undergirding democratic societies. When infrastructure is raised in conversation, people often think of engineering, construction or institutional investment. Infrastructure is far more than its technical components.

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Underpinning economies

Infrastructure is a major source of national governments' economic stimulus, used successfully as a policy lever during times of crisis, since at least the Great Depression. The socio-economic development achievable through smart infrastructure investment is lauded by the World Bank as one of the most influential factors in empowering social inclusion, driving education and middle-class growth, supporting well-functioning governments and ensuring human health and environmental safety.

Enabling democratic societies

Well-developed and maintained infrastructure is an essential foundation for the effective functioning of democratic societies. The ability for citizens to concentrate on concerns beyond subsistence, to live in developed towns and cities, to access the health, education and social services made possible by contemporary infrastructure, all play a major supporting role in how well societies function. For democratic societies, government investment in infrastructure and policies to guide the selection, fair distribution and usage of major public infrastructure, are cornerstones to citizen participation and socio-economic development. For Australia, this means place-based approaches to infrastructure that respond to population growth, cost-of-living pressures, internal migration to regional centres, and the superdiversity that today characterizes the majority of our urban communities, all with a long-term vision.

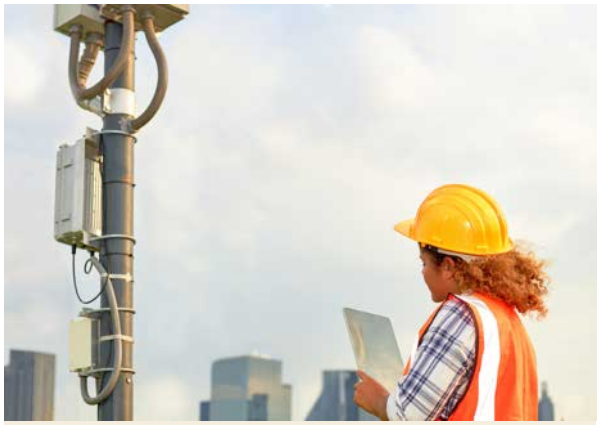
Securing our environment

Future-proof infrastructure will preserve our environment and offer intergenerational surety. For Australia, future-proof infrastructure has two main components: climate-resilience and climate-readiness. Climate-resilience encompasses the retrofitting, upkeep and adaptation of existing infrastructure

to weather and respond to more severe weather events and changing climates. Climate-ready infrastructure is intergenerationally focused and aims to equip current and future populations with the infrastructure that will both preserve our environment and open socio-economic opportunities. This includes the infrastructure of the circular economy, encompassing renewable energy, sustainable urban water systems, blue-green infrastructure, nature-based solutions, inclusive digital infrastructure, waste-to-energy and emerging technologies in green hydrogen and aerospace.

Empowering societal transformation

The right infrastructure is a catalyst for new knowledge, skills, technologies and markets. As Australia's population and infrastructure changes, so too, do our social, educational, health, industrial and economic needs and opportunities. To date, much attention has focused on economic and jobs transitions from our historic reliance on the fossil fuels sector to renewables. We must think bigger. Australia can be a powerhouse of green energy and related exports, critical minerals, aerospace and waste-to-energy. Our regional esteem means that we can inform the policies and priorities of neighbouring allies, including Indonesia, as they pursue their national 'Blue, Green, Digital' policy agenda. Back home, we need to advance the urban planning, housing and industrial development pivotal to 21st century societies.



Rising to the challenges

The three major challenges shaping Australia's future infrastructure and consequent sustainability and development are:

Future-proof infrastructure

Future-proof infrastructure means making infrastructure investment, selection and planning decisions today to meet the social, economic and environmental needs of tomorrow. This encompasses climate-resilience and climate-readiness, population change, and economic and industrial transformations and growth.

Rising to the challenges (cont'd)

Project derisking
Risk management is a perennial priority and challenge for major infrastructure. Australia's secure infrastructure future will demand integrated project derisking. Integrated derisking encompasses economic, environmental and social risk management, applied robustly and systematically with rigorous governance oversight. To achieve this, we need new policies, guidelines and tools, especially for social risk management, that both raise the bar for derisking requirements while simultaneously improving investor analysis and decision-making.

Population-readiness
The challenge of population-readiness works in two directions. It involves infrastructure planning and adaptation to meet the needs of our future population. It equally involves the extent to which citizens are ready for infrastructure and related industrial transformations, incorporating acceptance, community resilience and willingness to grant a social licence.

Australia's Future-Proof Infrastructure: Five priorities
There are five distinct but largely interconnected priorities that governments, industry, investors and civil society must address, each in their own way. We need to transform our investment analysis, policy development and citizen engagement by focussing on:

·Integrated derisking
·Place-based approaches
·Politicisation, disinformation and public trust
·Climate-readiness and the circular economy
·Future-ready jobs and skills.

Policy and practice advances in these priority areas can ensure that Australia realizes a long-term infrastructure vision that is both robust and flexible; robust enough to meet people's continuous infrastructure needs and flexible enough to accommodate the innovation leaps that will characterise Industry 5.0.

Integrated derisking
I2S' research demonstrates that community opposition and social risks, both perceived and realised, play a considerable role in project delays, cancellations and loss of social licence. Building on our research, Infrastructure Australia estimates that we can expect at least $40 billion in project costs to 2030. We can already expect more than one-third of Australia's major projects to overrun their budgets, a figure that sits at greater than 91% of megaprojects globally.

Infrastructure leaders, investors and researchers have aimed to get these figures down for decades. The vast majority of solutions suggest a focus on technical fixes, doubling-down on project management, being even more rigorous with engineering and construction choices and breaking megaprojects into modular, achievable chunks. All of these are good ideas. None of them are achieving the wholescale reduction in costs or delays they seek. Why?

I2S research suggests our focus is off. The technical and financial aspects required for project success are largely in place, at least in Australia. It is the human element which is most often deprioritized but which also ultimately contributes to delays and associated costs. Integrated derisking introduces systematic and robust social risk management into projects through methods that align with traditional project risk management practice. Integrated derisking is the most mature form of risk management and is today more practicable than ever, as we have better data and tools to identify, assess and manage risks that were previously deemed too intangible or amorphous.

Social due diligence

Social due diligence is a second, important practice that must be introduced in order to achieve Australia's long-term infrastructure needs. I2S' research shows that communities experiencing intensive project environments (defined as four or more projects in one local government area), those communities are less likely to have confidence in regulation guiding projects, and are less likely to agree that they have positive relationships with government and developers. Those experiencing the most projects simultaneously (six or more) are far less likely than others to agree that there is a good overall plan for their community. Given that Infrastructure Australia estimates that 95% of Australian communities experiencing a major project (>$500 million project value) have another major project within 250km and that more than 40% have another megaproject within 5km, cumulative impacts are real and we must find better ways to formally acknowledge and address them.

Social due diligence pushes infrastructure beyond project-by-project business-as-usual. It offers governments and developers a robust, practical means to implement place-based approaches that directly address the cumulative effects and social licence challenges I2S' research identifies. Social due diligence generates a shared evidence-base for all key parties in a LGA or region, addresses cumulative impacts, reduces consultation fatigue, and facilitates intergenerational community planning.

Politicisation, disinformation and public trust

I2S research reveals that the majority of Australians believe that projects politicised as Ministerial ‘announceables’ or political agendas are not in the best public interest nor will they involve genuine consultation. Combined with

rising disinformation and declining public trust in governments and institutions, this situation is a red flag. And it is one that is playing out globally. In 2025, the World Economic Forum named disinformation and misinformation the top global risk of the immediate term. Infrastructure, and the very large-scale investments it demands, are not immune to these factors.

Politicisation and disinformation in disaster preparedness and response hinders infrastructure-readiness, planning and rebuilding. It slows technological transitions, including those related to smart cities and renewable energy zones. Identity-based disinformation affects the capacity of local governments to enact plans and services.

The Municipal Association of Victoria (MAV) Disinformation in the City Project recommends collaborative, cross-sectoral (including infrastructure) approaches, informed by local government, to identify disinformation, understand its impacts on local communities and formulate place-based responses. MAV and I2S research shows the costly and damaging effects of politicisation, disinformation and declining public trust. Tools including the 'Disinformation Response Playbook' are helping to address and mitigate these impacts.

Climate-readiness and the circular economy

Our ability to deliver climate-ready infrastructure and the circular economy is shaped by derisking, place-based approaches and our capacity to deal with politicisation and disinformation to improve public trust. The response to climate mitigation in Australia has (justifiably) focused on the energy transition with less attention given to other climate-related factors, including securing our water supplies. Yet the majority of our large urban centres face water shortages due to increasing populations and climate change. Both Canberra and Sydney, for example, will require new water sources by 2040. We have technical solutions (e.g., recycling water) and demand management tools (e.g., water restrictions) but our water utilities seek a social licence to invest in and implement sustainable options. Similar situations face our transition to renewables, waste-to-energy and emerging industries of the circular economy, including green steel and aerospace; the technological nous is in place, the social licence may be lacking.

I2S' work on community and stakeholder engagement offers a pathway to build and maintain social licence while identifying sustainable and acceptable infrastructure options. Our recommendations include, integrating social considerations as early as project development model selection, adopting national guidelines for social risk identification, involving social practice professionals at the contracting stage, and updating project approvals requirements (e.g., Gateway Reviews) to include social performance.

Future-ready jobs and skills

Sustainable infrastructure futures require an upskilled and well-equipped workforce and supply chain. Australia holds resources, knowledge and market potential to support emerging green steel, renewable battery, waste-to-energy, large-scale cabling, aerospace and critical minerals. We now need to support Australian workers to acquire the knowledge, skills and experience necessary to the successful enactment of these industries and their underpinning infrastructure. We have long discussed the transition of mining sector workers into renewable energy, a skills pathway that remains both discontinuous and unclear, despite great effort.

The Higher Education Futures Lab recommends a new approach to Australia's knowledge and workforce needs, skills-led higher education. Much like place-based approaches to infrastructure, a skills-led higher education approach adopts a new perspective to meet education and training needs. Instead of starting with the degree programs on offer, skills-led higher education begins with the individual. Through individualized assessments to pinpoint people's strengths and knowledge-gaps skills-led higher education would offer bespoke and quick educational pathways to support Australian workers to open new job opportunities. This innovative and emerging approach to future-ready jobs and skills is one I2S is exploring in Australia's circular economy and aerospace sector, and by looking regionally to create the education-offerings future-proof infrastructure needs.

Together, these five priorities circumscribe the policy, industry and investment activities I2S' research identifies as critical to Australia's infrastructure future. The recommendations and initiatives we offer in this Futures Briefing are based on I2S' emerging and established research. We welcome new ideas, partners and supporters to help us in this effort to secure Australia's infrastructure future.

About ANU I2S

The ANU Institute for Infrastructure in Society is the leading research institute for social risk management, social licence, and community engagement for infrastructure delivery. We aim to transform the relationship between major projects and communities.

Behind the Briefing: Our Research

The evidence and advice in this Futures Briefing is based on nearly a decade of I2S Research, supported by ANU, the ARC (ARCLP210200697) and our many industry partners and supporters. Our current projects include:

State of Infrastructure & Engagement

Australia's longitudinal study of social risk, social licence and community engagement for major infrastructure.

Australian Perspectives on Infrastructure

Regular, national survey on citizens' experiences of and expectations for infrastructure.

ARCLP Social Risk Management for Major Projects

Evidence-based social risk management tools for integrated project derisking.

Infrastructure Engagement Excellence Standards

Lifecycle and auditing tools to guide and implement best practice community engagement.

Social Licence and Major Projects

SLO strategy-development and assessible implementation plans for public trust and project acceptance.

I2S Water Community of Practice

Informing sector-wide efforts to secure Australia's water supplies.

Superdiversity Research Australia

Urban planning for Australia's changing population.

City of Greater Dandenong Urban Revitalisation

Future-planning for a diverse urban centre.

Future-ready Jobs and Skills with HEFL and CircularEco

Asia-Pacific readiness for Skills-Led Higher Education.

Energy Transition and Circular Economy

Social licence and community acceptance of emerging industries and related infrastructure.

MAV Disinformation in the City

Research, policy advice and toolkits to equip local government to respond to disinformation.

Space+Place: RDA Sunshine Coast & Moreton Bay, InSpace and Gunggadji Aerospace

Regional planning for the aerospace industry.

Natural Hazards Research Australia

Nature-based solutions for flood-plain management.

Next Generation Communities

Place-based approaches to project planning and delivery using social due diligence.

Australian National University

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