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Infrastructure Australia™ is an independent statutory body that is the leading source of research and advice for governments, industry and the community on nationally significant infrastructure needs.

Infrastructure Australia has a mandate to prioritise and progress nationally significant infrastructure investments. It leads reform on key issues including means of financing, delivering and operating infrastructure and how to better plan and utilise infrastructure networks.

Infrastructure Australia has responsibility to strategically audit Australia's nationally significant infrastructure, and develop 15-year rolling infrastructure plans that specify national and state level priorities.

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Acknowledgement of Country

Infrastructure Australia acknowledges the Traditional Custodians of Australia, and pays respect to their Elders past, present and emerging. We pay respect to their continuing connection to land, and the continuation of their cultural, spiritual and educational practices.

In preparing for the future of our infrastructure, we acknowledge the importance of looking beyond the immediate past to learn from Aboriginal and Torres Strait Islander people's unique history of land management and settlement, art, culture and society that began over 65,000 years ago.

Note on the artwork

The artwork Moving Along Pathways was created by Kamilaroi/Gamilaraay artist Dennis Golding, specifically for Infrastructure Australia's first Reconciliation Action Plan. The artwork depicts examples of Australia's first infrastructure.

Pathways and river systems are prominent in the artwork and reference the pathways First Nations peoples formed on land and water for transport and communication of knowledge and stories. Images of waterholes, campsites and boomerangs within the artwork acknowledge First Nations cultural practices, technology and places for gathering that continue to be operated today.

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I. Introduction

At a glance

- The *2021 Reform Priority List* is a new publication from Infrastructure Australia and is designed to support the *2021 Australian Infrastructure Plan (2021 Plan).*

- Multi-criteria analysis has been used to qualitatively assess the expected impacts of each of the **29 recommendations** from the *2021 Plan* against a consistent set of criteria that examine their impact on **infrastructure services for users, community sustainability, ease of implementation** and **risks to success**.

- These criteria were chosen, and weighted, by 1800 people and 200 businesses. They represent the **community's priorities** for areas of reform.

- Multi-criteria analysis has identified **Place, Industry and Water** reforms as having the largest positive impact on outcomes that matter to the community.

- In addition to the community the recommendations were assessed against 5 **Australian Government policy priorities**, 6 **future scenarios** and for the simplicity of **deliverability**.

- Reforms to support infrastructure **Industry productivity and innovation** and **Water** performed most consistently against the **Australian Government policy priorities** as outlined in Infrastructure Australia's *Statement of Expectations*.[1] Sustainability and resilience, Energy, Telecommunications and digital, Transport and Place reforms also performed strongly.

- With the impacts of COVID-19 yet to be fully realised, and with increasing global uncertainty and rapid change, recommendations are also assessed against **future development scenarios** informed by *2019 Audit* future trends and findings in *Infrastructure beyond COVID-19*.[2]

- Reforms to **Transport, Telecommunications and digital, Social infrastructure, Energy**, and **Sustainability and resilience** perform highly against **future scenarios**. Water, Waste, Place-based outcomes for communities, and Industry productivity and innovation reforms also perform well.

- All 29 recommendations feature in the top 5 listing of at least one of the 13 assessments, demonstrating the breadth of impact expected from implementing all of the *2021 Plan's* recommendations.

- **Water** reforms feature in the top 5 listings more frequently than any of the other reforms.

- Each recommendation's **detailed assessment, and its supporting evidence base**, will be included in detailed plans that will be released for each of the six infrastructure sectors and three cross-sector themes.

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The *Reform Priority List* is designed to help guide decision-makers

The *2021 Plan*, supported by the *2021 Reform Priority List* and *2021 Implementation Pathway*, provides a detailed evidence-based plan for governments to implement reforms that will create meaningful outcomes for all Australians.

The *2021 Reform Priority List* assesses the relative impact of proposed reforms. It is intended to help policymakers understand the positive impacts, trade-offs and implementation challenges through a wide-ranging set of criteria and is supported by analysis in the detailed plans.

To help inform government prioritisation and planning, the *2021 Reform Priority List* also:

- identifies where reforms align with stated Australian Government policy priorities

- indicates where reforms would be expected to have greater impact under different future scenarios.

The right tools for policy development

The *2021 Plan* draws on established policy development frameworks to identify deliverable reforms that support quality of life for all Australians, including theory of change and multi-criteria analysis.

The *2021 Reform Priority List* employs **multi-criteria analysis** to identify the expected impacts of each reform recommendation.

Multi-criteria analysis is a tool used in policy and project prioritisation processes to assess and compare options. It is often used to complement and target quantitative analyses such as cost–benefit analysis and regulatory impact statements, which should be undertaken by agencies implementing a recommendation.

For the *2021 Plan*, Infrastructure Australia has used multi-criteria analysis to assess:

- the trade-offs between beneficial impacts for community sustainability and services for users, against the ease and risk of implementation

- the impact of reforms against a set of criteria designed to identify these benefits, risks and challenges

- alignment of recommendations with a set government policy priorities

- the recommendations that are likely to be resilient to a set of future scenarios.

In addition to using multi-criteria analysis to assess the recommendations in the *2021 Plan*, Infrastructure Australia has recently included multi-criteria analysis guidance in the refreshed 2021 edition of the *Infrastructure Australia Assessment Framework*.[3]

Every recommendation in the Plan is subject to impact assessment through multi-criteria analysis, as well as **theory of change**, which has been used to identify reform pathways and articulate the activities that build towards this change.

Theory of change articulates how the activities in each recommendation will lead to the intended outcomes by linking the logical steps together over the *2021 Plan*'s 15-year timeline. Multi-criteria analysis identifies the expected impacts of each recommendation.

A pathway to reform that is pragmatic and practical

Infrastructure Australia has developed the *2021 Plan* using a user-centred design process, as shown in **Figure 1**.

The *2021 Plan* is founded on the discovery and definition of issues and evidence set out in the *2019 Audit*, which describes Australia's infrastructure challenges and opportunities.

The first phase of the *2021 Plan* developed a vision for Australia in response to these challenges and opportunities by engaging and partnering with stakeholders with deep knowledge of the required changes.

The potential reforms were then refined and prioritised by applying a theory of change approach. This resulted in the 29 recommendations in the *2021 Plan*. Reforms have been defined by recommendations, outcome and activities, with each assigned a time period, a geographic impact and a change agent. Change agents are categorised into:

- **proposed sponsor**: facilitate, coordinate and champion the recommendation

- **proposed lead**: deliver specific activities or lead related outcomes

- **support**: share ownership, contributions or knowledge to enable the reform process.

Multi-criteria analysis has been used to assess the impact of reforms. These assessments are included in the *2021 Reform Priority List*.

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Figure 1: User-centred design makes the reforms in the *2021 Plan* relevant and actionable
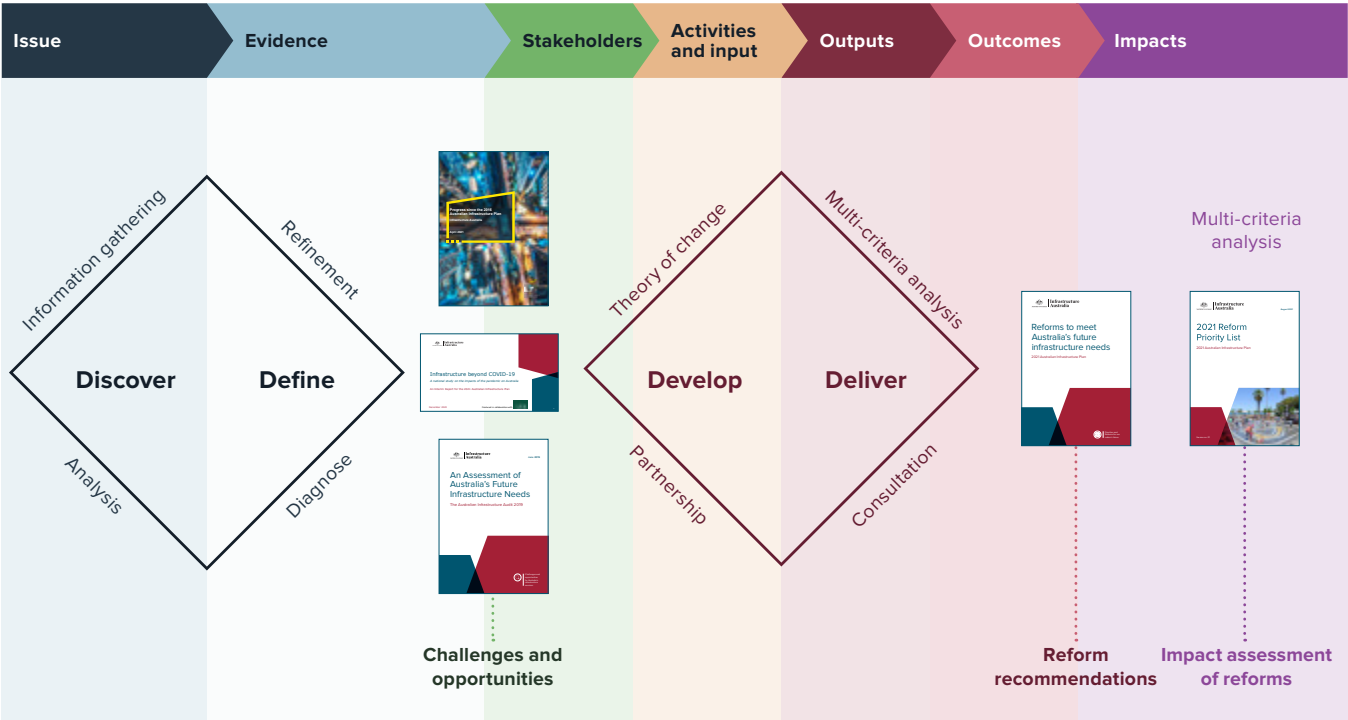
Subsequent detailed work should inform implementation

Together, the *2021 Plan* and the *2021 Reform Priority List* present an evidence-based plan for achieving better outcomes for all Australians. These documents should inform subsequent detailed assessments of the activities and options required to implement the recommendations.

These assessments will then be the basis for policy assessment processes such as regulatory impact statements and cost–benefit analyses, and should be used to drive the subsequent design and implementation of reforms.

II. How we assessed reform impacts

Assessing the impact of policy recommendations

Multi-criteria analysis is often used in policy and project prioritisation processes to complement and target quantitative analyses (for example, cost–benefit analyses) that should be undertaken before implementing significant reform.

Infrastructure Australia has used multi-criteria analysis as a framework for qualitatively identifying the impacts and trade-offs for the recommendations in the *2021 Plan*. We have also recently included best-practice guidance on its use in the *Infrastructure Australia Assessment Framework*.[4]

This multi-criteria analysis framework identifies the impacts of the recommendations across benefits for service users and community sustainability, risk and ease of implementation.

It provides a strategic framework for qualitatively assessing the potential impact and implementation challenges of each reform. Our aim is to help inform, rather than replace, a quantitative assessment such as a business case or regulatory impact statement before a decision is made.

This qualitative analysis is particularly important in the context of policy recommendations, where it is essential to consider impacts that are difficult or costly to monetise. These include:

- impacts related to governance or social equity issues, such as service availability across different places

- challenges, such as governance capacity

- risks, such as community acceptance, that could not be captured in a quantitative analysis.

Where else is multi-criteria analysis used?

Multi-criteria analysis is used frequently by government agencies to assess projects and policies. Examples include:

- Transport for NSW's *Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives*, which describes multi-criteria analysis as an evaluation tool used for decision-making between a range of projects or options that are not easily quantifiable.[5]

- The *North East Link Business Case Options Assessment*, which used multi-criteria analysis to test the strategic merit of options before quantitative cost–benefit analysis was undertaken.[6]

- The *Victorian Guide to Regulation*, which identifies multi-criteria analysis as an appropriate tool for assessing policy effects that cannot easily be monetised, such as social equity outcomes.[7]

- The *Queensland Government's Smarter Solutions: Multi-criteria Analysis Tool*, which provides decision-makers with a framework for undertaking multi-criteria analysis, ensuring that a consistent approach is applied and that the structure of decision problems effectively captures the benefits and impacts of low-cost and non-infrastructure solutions.[8]
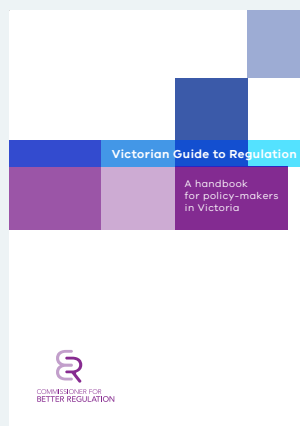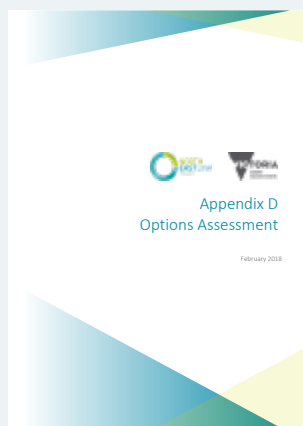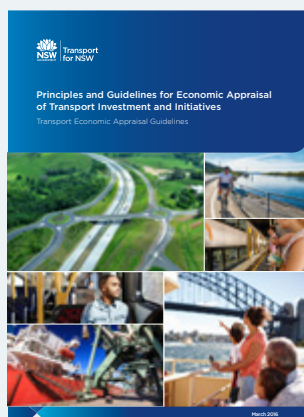
Source: Transport for NSW (2016), Victorian Government (2016, 2018), Queensland Government (2019)

Impact criteria focus on what matters to the community

The multi-criteria analysis framework contains 33 criteria in 13 impact categories, against which each recommendation has been assessed.

The criteria were selected through specialist input and by empowering 1,800 people and 200 businesses in a focused engagement process to prioritise criteria that are most meaningful to the community.

As shown in **Table 1**, these criteria provide a framework for qualitatively assessing impacts across:

- **Service users**, categorised into impacts on **quality, access and affordability** of services, which was the framework applied by the *2019 Audit*.

- **Community sustainability**, assessed through a quadruple-bottom-line approach to **economic, environmental, social and governance** impacts for community sustainability, as outlined in Infrastructure Australia's *Sustainability Principles*.[9]

- **Ease of implementation**, which helps governments understand the potential delivery challenges and trade-offs across the **costliness** and **complexity** of the reform, and the capacity of government and industry to deliver it.

- **Risks to success**, which indicate risks for the implementation of policy recommendations across community and stakeholder **acceptance**, the level of **confidence** in the analysis of impacts, and the extent of government **control** over the success of the reform.

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Table 1: Each recommendation is assessed against 33 impact criteria

Impact themes	Impact categories	Impact criteria
Service users	**Quality**	1. Provides a fast service that is easy to use
		2. Services available with minimal disruption and variance in quality
		3. Enhanced safety and security for users
	Access	4. Comparable services across all places
		5. Services on demand when users need them
		6. Improved access for disadvantaged groups
	Affordability	7. Pricing reflects usage and costs to deliver the service
		8. Affordability for an average Australian household
		9. Costs distributed fairly based on users' ability to pay
Community sustainability	**Economic**	10. Improved efficiency
		11. Improved access to a higher-quality workforce
		12. Increases national employment or Gross Domestic Product (GDP)
	Environmental	13. Supports waste reduction and circular economy
		14. Reduced harmful air and water pollution
		15. Reduced greenhouse gas emissions
	Social	16. Opportunities for education and employment
		17. Reduced anti-social behaviour and crime
		18. Improved health outcomes
	Governance	19. Improved planning and decision-making within government
		20. Transparency of decision-making
		21. Consideration of the needs of local communities and businesses
Ease of implementation	**Costliness**	22. Minimises upfront and ongoing costs
		23. Minimises financial burden on the taxpayer
	Complexity	24. Minimises time to implement
		25. Minimises complexity of implementation
	Capacity	26. Capability of government to implement
		27. Capacity of industry to deliver
Risks to success	**Acceptance**	28. Community acceptance
	Confidence	29. Expected impacts are clear
		30. Confidence that benefits will be achieved
		31. Confidence that reform will be successful during COVID-19 recovery
		32. Quality and availability of supporting evidence
	Control	33. Extent of government control over success of reform

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Impacts assessed on a five-point scale

Each recommendation is scored against the 33 criteria as having a high negative, low negative, neutral, low positive or high positive impact, as shown in **Table 2**.

Scoring is a qualitative assessment of the impact, based on available evidence and supported by specialist judgement.

As an example of how the five-point scale is applied, the table includes the intended qualitative meaning of each score for an example criterion.

It shows the extent to which the suggested recommendation minimises the upfront and ongoing costs of implementation.

The scoring and evidence for each of the 33 criteria will be included in the detailed plans for each sector or cross-sectoral issues.

Infrastructure Australia will also be releasing a guidance note on how impacts have been assessed against the five-point scale in each criterion. This will be available on the Infrastructure Australia website.

Table 2: Each criterion is graded on a five-point scale

Qualitative rating	Score		Description	Example criterion: 'minimises upfront and ongoing costs'
High		5	High positive support for meeting the criteria	Large reduction in the total costs from what would otherwise be spent
Low		4	Low positive support for meeting the criteria	Small, or potential, reduction in financial cost, compared to business as usual
No impact	3		No support for meeting the criteria (N/A)	No net change to financial cost, compared to business as usual
Low negative	2		Low negative support for meeting the criteria	Requires some further investment, above business as usual
High negative	1		High negative support for meeting the criteria	Requires substantially more financial resources than would otherwise be spent

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Evidence-based qualitative assessment

While the impact assessment scores are qualitative, they are evidence-based.

Our analysis is complemented by examining detailed studies, pilots and deployments of the proposed reforms domestically and in other jurisdictions. This evidence is set out in the forthcoming detailed plans for each sector and cross-sector, which will be released after the *2021 Plan* to provide further evidence to support our case for reform.

Evidence for long-term reforms is often qualitative or circumstantial, but we encourage and support change agents to undertake more detailed and quantitative assessments as part of implementing the reforms.

Table 3 shows how the scoring and use of evidence will be presented in the detailed plans.

Table 3: Criteria are supported by justifications and evidence

Impact criteria	Score	Justification	Evidence
'Minimises upfront and ongoing costs'	Qualitative scale, as per **Table 2**	Provides a qualitative justification for the impact assessment score that draws on relevant evidence where appropriate	References as evidence that supports the assessment of the criterion

Making impact assessment work for policymakers

To help inform policy decision-making, we have used multi-criteria analysis to be able to compare the reforms. We prioritised reforms in 13 different ways, in order to indicate how they deliver on the Australian community's priorities, align well with Australian Government policy priorities, and impact under potential future scenarios.

Identifying which reforms best deliver on community priorities

To understand how the Australian community prioritise costs, risks and benefits of infrastructure, we conducted a 2,000-member community survey conducted in June 2020.[10] We asked individuals and businesses to rank and rate the importance of four impact themes (service user impacts, community sustainability impacts, ease of implementation and risk), as well as a long list of impact criteria that were relevant to them (service user and community sustainability impacts). We used these results to inform which criteria were most important to the community, resulting in the 33 impact criteria shown in **Table 1**.

These survey results also helped us to understand the relative importance of each criterion relative to each other. We used the average of the importance ratings (out of 5) to produce weightings for each criterion, adding to a total of 100%. By using this to produce aggregate scores for each reform, we were able to determine which reforms have the greatest impact on the balance of community priorities.

We found that the community placed high importance on most criteria, which meant that most criteria contributed equally to the total. In summary, for assessing reforms against community priorities, we used these **community priorities weightings**:

- service user impacts: 25.6%
- community sustainability impacts: 25.6%
- ease of implementation: 23.8%
- risks to success: 25.0%

The 6 ease of implementation and 6 risk criteria were equally weighted within their impact theme, while we used the survey results to set the weightings of the 21 service user and community sustainability criteria.

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Reforms can align with different policy priorities

As the successful implementation of these recommendations depends on government action over a long time, recommendations have been assessed for their alignment to the explicit policy priorities of the Australian Government.

Infrastructure Australia's *Statement of Expectations* provides a useful reference point for understanding these priorities.[11]

As well as the community-weighted baseline assessment, we assessed recommendations against the stated Australian Government objectives that infrastructure:

- provides or underpins services that deliver economic and social benefits to Australians

- has an important role in shaping cities that are productive and liveable

- provides connectivity to regional and remote parts of Australia.

These have been translated into five policy priorities against which to assess the impact of recommendations, as shown in **Table 4**.

Table 4: How policy priorities translate from the *Statement of Expectations*

Policy priority	Description
Economic benefits	Recommendations most likely to provide economic benefits to Australians, including increased national employment or GDP
Social benefits	Recommendations most likely to increase quality of life to Australians, including improved access for disadvantaged groups, health outcomes, affordability, and opportunities for education and employment
Productive cities	Recommendations most likely to make cities more productive, through efficiency benefits, higher-quality workforce or greater services on demand Only recommendations relevant to Fast-growing Cities or Smaller Cities and Regional Centres are considered
Liveable cities	Recommendations most likely to make cities more liveable, through addressing social, environmental and governance outcomes Only recommendations relevant to Fast-growing Cities or Smaller Cities and Regional Centres are considered
Connected regions	Recommendations most likely to increase connectivity and equality of outcomes between regions Recommendations that only impact Fast-growing Cities are not considered

A multi-criteria analysis framework allows weighting adjustments to reflect different priorities. This has been applied to the five policy priorities. Adjusting weightings for priorities maintains the evidence-based impact assessments in the 33 criteria while increasing or decreasing the weighting of the impact according to what aligns with each policy priority.

We assessed the impact against each policy priority by re-weighting the 33 criteria to either:

- increase the weighting of criteria that support the priority (for example, 'improved access for disadvantaged groups' is strongly weighted under the 'social benefits' policy priority weighting profile); or

- de-weight or ignore criteria that are not relevant to it (for example, 'increases national employment or Gross Domestic Product' is ignored in the 'social benefits' policy priority weighting profile).

Changing the weightings still draws on the same evidence-based impact assessment scoring as the community-weighted baseline.

To determine performance against the policy priorities, the reforms were assessed against the same criteria with new weightings.

Table 5 explains how criteria have been re-weighted under each policy priority

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Table 5: Each policy priority emphasises specific criteria through weightings

Impact themes	Impact category	Impact criteria	Economic benefits	Social benefits	Productive cities	Liveable cities	Connected regions
Service users	Quality	1. Provides a fast service that is easy to use				High	Low
		2. Services available with minimal disruption and variance in quality				High	High
		3. Enhanced safety and security for users		Low		High	
	Access	4. Comparable services across all places		Low			Max
		5. Services on demand when users need them			High	High	Low
		6. Improved access for disadvantaged groups		Max			
	Affordability	7. Pricing reflects usage and costs to deliver the service	Low		High		
		8. Affordability for an average Australian household	Low	High		Low	
		9. Costs distributed fairly based on users' ability to pay		High			
Community sustainability	Economic	10. Improved efficiency	Low		Max		
		11. Improved access to a higher-quality workforce	Low		High		
		12. Increases national employment or GDP	Max		Low		
	Environmental	13. Supports waste reduction and circular economy				Low	
		14. Reduced harmful air and water pollution				High	
		15. Reduced greenhouse gas emissions				Low	
	Social	16. Opportunities for education and employment		High		High	
		17. Reduced anti-social behaviour and crime		Low		High	
		18. Improved health outcomes		High		High	
	Governance	19. Improved planning and decision-making			Low		
		20. Transparency of decision-making					
		21. Consideration of the needs of local communities and businesses		High		Low	High

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Impact themes	Impact category	Impact criteria	Economic benefits	Social benefits	Productive cities	Liveable cities	Connected regions
Ease of implementation	Costliness	22. Minimises upfront and ongoing costs	High				
		23. Minimises financial burden on the taxpayer	Low				
	Complexity	24. Minimises time to implement					
		25. Minimises complexity of implementation					
	Capacity	26. Capability of government to implement	Low				
		27. Capacity of industry to deliver	Low				
Risks to success	Acceptance	28. Community acceptance		Low			
	Confidence	29. Expected impacts are clear	Low				
		30. Confidence that benefits will be achieved	Low				
		31. Confidence that reform will be successful during COVID-19 recovery	High	High			
		32. Quality and availability of supporting evidence					
	Control	33. Extent of government control over success of reform					

Note: Only the criteria that are most relevant for addressing the policy priority retains a weighting. The relevant weightings are then redistributed from the **community priorities weightings**, according to a tiered hierarchy of their relevance. In order of importance, the tiers are Max, High and Low, and the weightings by policy priority sum to 100%.

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Some reforms may be easier to implement

The risks and ease of implementation impacts were included in the multi-criteria analysis to allow for consideration of the challenges and trade-offs of implementing the recommendations.

It is also useful to consider the deliverability of recommendations. This helps policy-makers consider which reforms are likely to face the lowest barriers to implementation, and those reforms that could be accelerated.

The reforms assessed through the multi-criteria analysis as having a relatively high-ease, low-risk implementation are identified as 'low-hanging fruit'.

This assessment only considers the 12 criteria within the impact themes of 'risks' and 'ease of implementation'.

Different future developments could affect these impacts

Infrastructure Australia's *Statement of Expectations* also asked Infrastructure Australia to consider a range of possible future developments.[12]

We developed five scenarios depicting possible futures to consider their potential effects on recommendation impacts (see **Table 6**).

In line with the qualitative nature of multi-criteria analysis, scenarios describe how the world could be qualitatively different to our current baseline assumptions.

The assumptions used in the baseline assessment were drawn from the Australian Government 2021–2022 Budget Paper No. 1.[13] The scenarios were qualitatively defined using the seven future trends identified in the *2019 Audit*, as well as COVID-19 recovery scenarios, as identified in *Infrastructure Beyond COVID-19* (see **Table 7**).

Table 6: Five future Australian scenarios that could affect the impacts of recommendations

Future state	Description
Baseline	***Budget 2021–22 Outlook***.[14] Recent record rates of economic growth are expected to moderate but remain higher than global averages, and COVID-19 vaccines are fully available by the end of 2021.
Bounce back to rapid recovery	**Faster global and local recovery from the COVID-19 pandemic**. Fast population growth, greater centralisation in cities, trend economic growth and greater return to cities and offices.
Slow recovery from a sustained pandemic	**Longer-lasting global pandemic and additional domestic outbreaks**. Slower population growth, below trend economic growth for the medium-term, significantly less international movement of people and some trade effects.
Regionalised Australia	**Faster population growth in regions**. Lower demand for inner city business and residential locations and significantly more working from home.
Digital Australia	**Faster adoption of digital technologies by consumers and society**. A higher rate of digital transformation, faster-closing digital divide, greater digital and technological literacy.
Destabilised world	**Increased risk and impacts of disaster**. Greater incidence of natural disasters, increased political instability, increased cyberwarfare and cybercrime.

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Table 7: The five future scenarios are qualitatively defined

Future trend	Baseline	Future scenario				
		Bounce back to rapid recovery	**Slow recovery from a sustained pandemic**	**Regionalised Australia**	**Digital Australia**	**Destabilised world**
Quality of life and equity	Household consumption returns to trend in 2022. Greater impacts on young and female Australians.[15]	Faster rising quality of life	Greater inequality; lower quality of life			Shocks reduce quality of life
Cost of living and incomes	Wage growth remains low until at least 2022. CPI moderate. Unemployment 5.5% 2021 to 4.5% 2024.[16]	Higher income growth	Lower income growth	Lower cost of living pressure in cities, but higher in regional areas		
Community preferences and expectations	Trust in government highest in 13 years at 55%.[17]	Higher trust in government due to successful response	Lower trust in government due to ongoing issues		Greater participation and transparency through technology	Lower trust in government due to ongoing crises
Economy and productivity	GDP expected to grow by 4.25% in 2021–22 then moderate to 2.5%. Slow productivity growth.[18]	Faster growth; higher productivity growth	Slower growth; lower productivity growth		Higher productivity growth due to technology adoption	Shocks reduce productivity and GDP growth
Population and participation	Population growth is expected to fall to 0.1% in 2020–21 and 0.2% in 2021–22, the slowest growth in over a century.[19]	Faster population growth and net overseas migration	Slower population growth and net overseas migration	Population growth centred in regions rather than cities		
Technology and data	No unexpected step changes in adoption. Technology changes with trends over time, with Australia behind global best practice.				Faster change and adoption; higher literacy	
Environment and resilience	Some increased recurrence of natural disasters, environmental degradation continuing.	Faster consumption growth increases degradation	Slower consumption growth reduces degradation	Greater exposure of population to natural disasters	Faster change and adoption of low-emissions technologies	Faster climate change; bigger disasters; more frequent shocks
COVID-19	Localised outbreaks occur but are largely contained. A population-wide Australian vaccination program fully in place by end 2021.[20]	Faster return to international mobility; faster global economic recovery	Slower return to international mobility; slower global economic recovery			

Different future developments may alter the assumptions that underpin scoring in a multi-criteria analysis, so have not been re-weighted in the baseline scorings to account for future developments. Our analysis therefore reconsiders individual scoring.

We indicatively scored each recommendation against the 33 criteria to determine whether its impact would be better, worse, or unchanged if each scenario eventuated.

Using the baseline weightings, the more criteria that were assessed as better or worse for a recommendation under a scenario, then the better or worse that recommendation ranked under the future scenario.

We undertook this process separately from re-weighting the evidence-based baseline assessment and based it on the judgement of sector specialists.

It would not be feasible to compile a full evidence base like the community-weighted baseline assessment for another five future scenarios, within the *2021 Plan*. It is therefore important that further evidence is gathered to guide final decision-making and implementation.

This analysis is only intended as an indicative exploration of how the evidence-based assessment could change under different potential future developments, and can be used to inform more detailed analysis during implementation.

Some reforms maintain their impact across all different versions of the future

These five scenarios represent different versions of the future, which may or may not come to fruition. In light of this uncertainty, recommendations that remain impactful regardless of what manifests have also been identified.

This 'no regrets' assessment has been made where a recommendation's impact is only better, or unchanged, across all five scenarios. The overall impact of the recommendation is considered for this assessment. This means that while a recommendation's impact may be reduced for one or two criteria, it can still be considered no regrets if this is outweighed by more improvements in impacts for other criteria.

III. Reform recommendations

Table 8: List of all recommendations

Rec	Theme	Chapter		Page
1.1	Rethinking our Fast-growing Cities	Place-based outcomes for communities		36
1.2	Strengthening Smaller Cities and Regional Centres	Place-based outcomes for communities		37
1.3	Lifting access in Small Towns, Rural Communities and Remote Areas	Place-based outcomes for communities		38
1.4	Unlocking opportunity in Northern Australia and Developing Regions	Place-based outcomes for communities		39
2.1	Infrastructure planning for an uncertain future	Sustainability and resilience		40
2.2	Technology-led sustainability	Sustainability and resilience		41
2.3	Transparency and collaboration build trust in decisions	Sustainability and resilience		42
3.1	Improving planning, portfolios and pipelines	Industry productivity and innovation		43
3.2a	Enhancing project outcomes	Industry productivity and innovation		44
3.2b	Enhancing project outcomes	Industry productivity and innovation		45
3.3	Digital by default	Industry productivity and innovation		46
3.4	Next generation infrastructure investment	Industry productivity and innovation		47
4.1	Getting the most out of our transport investments	Transport		48
4.2	Connecting regional and remote Australia	Transport		49
4.3	Mobility choice made possible	Transport		50

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Rec	Theme	Chapter		Page
4.4	A fairer price for every journey	Transport		51
5.1	Putting customers first	Energy		52
5.2	A smart, affordable, reliable grid	Energy		53
5.3	Powering a cheaper, cleaner future	Energy		54
6.1	Securing our water future	Water		55
6.2	Valuing water to create liveable communities	Water		56
7.1	Improving the resilience of Australia's telecommunications	Telecommunications and digital		57
7.2	Putting customers at the heart of digital infrastructure	Telecommunications and digital		58
7.3	Enabling Australia's digital future	Telecommunications and digital		59
8.1	Transforming social infrastructure to enhance quality of life	Social infrastructure		60
8.2	Partnerships to build communities	Social infrastructure		61
8.3	Social infrastructure is economic infrastructure too	Social infrastructure		62
9.1	Valuing resources to enable a circular economy	Waste		63
9.2	Waste data to drive innovation	Waste		64

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Community priorities

Policy priorities

Economic benefits

Social benefits

Productive cities

Liveable cities

Connected regions

Deliverability

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IV. Results and prioritisation

What the results mean

Infrastructure Australia has assessed the impact of each recommendation using multi-criteria analysis. We have used the theory of change methodology to ensure the recommended reforms are structured to deliver impact.

The multi-criteria analysis has been applied at the recommendation level, incorporating the recommendation alongside its supporting outcomes and activities.

The results of the multi-criteria analysis highlight which of the 29 recommendations proposed by the *2021 Plan* are most impactful under a range of future developments and against the infrastructure policy priorities of the Australian Government.

We expect the anticipated impact of each reform to vary in response to the changing infrastructure environment, so the resilience of reforms has been considered.

We have not attempted to identify the single strongest performing reform, but rather reforms aligning with the community's priorities and a series of scenarios that warrant further planning.

The results highlight the reform recommendations that do well under certain criteria and scenarios. However, while these assessments highlight relative performance, every reform included in the *2021 Plan* is critical to a particular sector or issue.

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Reforms that deliver on the community's priorities

Community priorities

Recommendations with the most beneficial impact on community priorities.

In the Australian Government *2021–2022 Budget Outlook*,[21] recent record rates of economic growth are expected to moderate but remain higher than global averages, and COVID-19 vaccines should become fully available by the end of 2021. Under this outlook, the five recommendations that have the strongest impact against the balance of community priorities share commonalities in meeting the needs of the next generation through infrastructure planning that keeps them in mind (see **Table 9**).

- The COVID-19 pandemic provides an opportunity to **rethink the role of our Fast-growing Cities**, to embed the positive behaviour changes associated with COVID-19 and to reshape the planning of cities for the future. Collaborative governance aligns investment priorities to improve economic development and support future employment patterns.

- The infrastructure industry is large and globally it does not have endless capacity. **Improved planning, portfolios and pipelines** enable Australia to remain an attractive market for investment. Investing in governance will improve affordability, unlock significant economic productivity gains and lift industry capacity.

- Governments should strive to act as a model client providing a clear and consistent long-term direction on **next generation infrastructure investment**. This reform supports the increased alignment of the various levels of Australian Government to ensure increased capability, alignment and collaboration. This will involve the identification of a common vision for infrastructure and the sector that supports it.

- Driven by water-literate communities, Australia must enter a new phase of water efficiency to adapt to an unpredictable future and to ensure urban, rural, environmental and cultural users have **secure, long-term water supply**. A consistent approach to measuring water security risk enables stronger planning to support better health and environmental outcomes, with reduced frequency and intensity of water shortages.

- In addition to being critical to the health of people, the environment and communities, water is a key driver of economic prosperity. It transforms urban environments into desirable places to live, work and visit. All Australians have a right to **high-quality water for healthy communities**. This is essential to strengthen outcomes for health, wellbeing, economic prosperity and sustainable development.

Table 9: Community priority reforms

Rec.	Theme	Chapter	Page
1.1	Rethinking our Fast-growing Cities	Place-based outcomes for communities	36
3.1	Improving planning, portfolios and pipelines	Industry productivity and innovation	43
3.4	Next generation infrastructure investment	Industry productivity and innovation	47
6.1	Securing our water future	Water	55
6.2	Valuing water to create liveable communities	Water	56

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Reforms aligning with the Australian Government's infrastructure priorities

Infrastructure Australia has assessed reforms against the Australian Government's three objectives for infrastructure, as defined in our *Statement of Expectations.*[22] Namely, that infrastructure:

- provides or underpins services that deliver economic and social benefits to Australians

- has an important role in shaping cities that are productive and liveable

- provides connectivity to regional and remote parts of Australia.

We translated these objectives into five policy priorities then assessed the impact of recommendations against them.

Economic benefits

Recommendations most likely to provide economic benefits to Australians, including increased national employment or GDP.

Under the conditions detailed in the Australian Government *2021–2022 Budget Outlook*, reforms the reforms most likely to strongly increase Australia's economic performance are reforms to the functioning of the infrastructure sector, as well as the energy and water sectors (see **Table 10**). The strong focus on productivity and innovation in the infrastructure sector recognises the strong focus on the sector to supporting recovery and continuing to operate during potential COVID-19 outbreaks. Access to water and clean, affordable and reliable energy is also critical to Australian businesses and households.

Table 10: Reforms to deliver economic benefits

Rec.	Theme	Chapter	Page
3.2b	Enhancing project outcomes	Industry productivity and innovation	45
3.3	Digital by default	Industry productivity and innovation	46
3.4	Next generation infrastructure investment	Industry productivity and innovation	47
5.3	Powering a cheaper, cleaner future	Energy	54
6.1	Securing our water future	Water	55

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Social benefits

Recommendations most likely to increase quality of life for Australians, including improved access for disadvantaged groups, health outcomes, affordability, and opportunities for education and employment.

Reforms to support the quality of life of Australians are fundamental to the *2021 Plan*. Reforms in many sectors are impactful against this vision, however hold a common thread of supporting community choice and flexibility in access to infrastructure (see **Table 11**). Enhanced customer-centricity, both business and household, in telecommunications and digital, water and transport are seen as central. So too, enhancements to infrastructure resilience and supporting growth in Northern Australia and Developing Regions are priorities. This assessment assumes economic conditions consistent with those detailed in the Australian Government *2021–2022 Budget Outlook*.

Table 11: Reforms to deliver social benefits

Rec.	Theme	Chapter	Page
1.4	Unlocking opportunity in Northern Australia and Developing Regions	Place-based outcomes for communities	39
2.1	Infrastructure planning for an uncertain future	Sustainability and resilience	40
4.3	Mobility choice made possible	Transport	50
6.2	Valuing water to create liveable communities	Water	56
7.2	Putting customers at the heart of digital infrastructure	Telecommunications and digital	58

Productive cities

Recommendations most likely to make cities more productive, through efficiency benefits, higher-quality workforce, or greater services on demand.

Only recommendations relevant to Fast-growing Cities or Smaller Cities and Regional Centres are considered.

The Australian Government has prioritised supporting the productivity of Australia's cities. The reforms to support the productivity of cities, is closely aligned to enhancing the economic performance of the country as a whole (see **Table 12**). However, added emphasis should be given to managing the pipeline of large infrastructure projects, electricity transmission rule changes and supporting the electricity distribution grid to cope with rapid electricity system decentralisation if city productivity is to be prioritised.

Table 12: Productive cities reforms

Rec.	Theme	Chapter	Page
3.1	Improving planning, portfolios and pipelines	Industry productivity and innovation	43
3.3	Digital by default	Industry productivity and innovation	46
3.4	Next generation infrastructure investment	Industry productivity and innovation	47
5.2	A smart, affordable, reliable grid	Energy	53
6.1	Securing our water future	Water	55

Liveable cities

Recommendations most likely to make cities more liveable, through addressing social, environmental and governance outcomes.

Only recommendations relevant to Fast-growing Cities or Smaller Cities and Regional Centres are considered.

In addition to productivity, the Australian Government has asked Infrastructure Australia to emphasise the liveability of cities (see **Table 13**). Water security is the only reform to perform strongly under both priorities, and is joined by better valuing water. The shift to cleaner and cheaper energy is prioritised for liveability over reforms to support the functioning of the grid. Building

from the experience during the COVID-19 pandemic, supporting the resilience of the community to future shocks and stresses is highly central to urban liveability. The impacts of COVID-19 have also emphasized urban Australia's incumbent congestion challenge so enabling mobility choice will remain critical.

Table 13: Liveable cities reforms

Rec.	Theme	Chapter	Page
2.1	Infrastructure planning for an uncertain future	Sustainability and resilience	40
4.3	Mobility choice made possible	Transport	50
5.3	Powering a cheaper, cleaner future	Energy	54
6.1	Securing our water future	Water	55
6.2	Valuing water to create liveable communities	Water	56

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Connected regions

Recommendations most likely to increase connectivity and equality of outcomes between regions.

Recommendations that only impact Fast-growing Cities are not considered.

Reforms to support greater equity in access to infrastructure services for people and businesses in regional Australia are critical (see **Table 14**). In an increasingly digitalised world, this will include increasing the user centricity of telecommunications and digital services, and supporting digital adoption in the infrastructure sector. Defining minimum service levels for communities, supporting their resilience and particularly securing water supply will be important.

Table 14: Connected regions reforms

Rec.	Theme	Chapter	Page
1.3	Lifting access in Small Towns, Rural Communities and Remote Areas	Place-based outcomes for communities	38
2.1	Infrastructure planning for an uncertain future	Sustainability and resilience	40
3.3	Digital by default	Industry productivity and innovation	46
6.2	Valuing water to create liveable communities	Water	56
7.2	Putting customers at the heart of digital infrastructure	Telecommunications and digital	58

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Reforms that have the lowest barriers to implementation

Low-hanging fruit

Recommendations that are assessed as being the most deliverable, having considered their implementation challenges and risks.

The prioritisation of the *2021 Plan's* proposed reforms varies based on the emphasis given to differing types of benefits. However, it is critical to note all reforms in the *2021 Plan* are critical to their respective sector or cross-sector. The focus on Low-hanging fruit allows governments to identify quick-wins, or areas of reform that are likely to experience relatively lower barriers to change (see **Table 15**). Prioritising the growth of Smaller Cities and Regional Centres, reform to the infrastructure sector to enhance productivity and support innovation as well as building trust in the sector have the lowest barriers to reform.

Table 15: Low-hanging fruit reforms

Rec.	Theme	Chapter	Page
1.2	Strengthening Smaller Cities and Regional Centres	Place-based outcomes for communities	37
2.3	Transparency and collaboration build trust in decisions	Sustainability and resilience	42
3.1	Improving planning, portfolios and pipelines	Industry productivity and innovation	43
3.2a	Enhancing project outcomes	Industry productivity and innovation	44
3.4	Next generation infrastructure investment	Industry productivity and innovation	47

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Reforms that strengthen under future outlook scenarios

⌾ Bounce back to rapid recovery

Faster global and local recovery from the COVID-19 pandemic. Fast population growth, greater centralisation in cities, trend economic growth and greater return to cities and offices.

A more rapid recovery from the COVID-19 pandemic than anticipated in the Australian Government's *2021–2022 Budget Outlook* is likely to require increased focus on supporting the adjustments in Australia's cities that were catalysed during the COVID-19 pandemic (see **Table 16**). This will require a greater accommodation of the rapid digitalisation of workplaces and working from home. Improvements in the recognition of the value of social infrastructure, the cost of transport infrastructure and the benefits of sustainable infrastructure should guide future investment.

Table 16: Bounce back to rapid recovery reforms

Rec.	Theme	Chapter	Page
1.1	Rethinking our Fast-growing Cities	Place-based outcomes for communities	36
2.2	Technology-led sustainability	Sustainability and resilience	41
4.4	A fairer price for every journey	Transport	51
7.3	Enabling Australia's digital future	Telecommunications and digital	59
8.3	Social infrastructure is economic infrastructure too	Social infrastructure	62

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Slow recovery from a sustained pandemic

Longer-lasting global pandemic and additional domestic outbreaks. Slower population growth, below trend economic growth for the medium-term, significantly less international movement of people and some trade effects.

A slower recovery from the COVID-19 pandemic than anticipated in the Australian Government's *2021–2022 Budget Outlook* will require the efficient functioning of our supply chains and transport infrastructure. Both the efficient operation of existing transport networks and investment in enhancements to the network will have additional emphasis (see **Table 17**).

Table 17: Slow recovery from a sustained pandemic reforms

Rec.	Theme	Chapter	Page
4.1	Getting the most out of our transport investments	Transport	48
4.2	Connecting regional and remote Australia	Transport	49

Regionalised Australia

Faster population growth in regions. Lower demand for inner city business and residential locations and significantly more working from home.

The COVID-19 pandemic has seen a strengthening of regional growth as people extend existing connections with regional Australia or decide to call it home for the first time. If this growth outpaces the expectations of the Australian Government's *2021–2022 Budget Outlook* the introduction of place-based planning strategies to support population and jobs growth will be critical (see **Table 18**). Access to secure, quality water must be understood and supported, alongside improved transport connections to link to Fast-growing Cities.

Table 18: Regionalised Australia reforms

Rec.	Theme	Chapter	Page
1.2	Strengthening Smaller Cities and Regional Centres	Place-based outcomes for communities	37
1.3	Lifting access in Small Towns, Rural Communities and Remote Areas	Place-based outcomes for communities	38
4.2	Connecting regional and remote Australia	Transport	49
6.1	Securing our water future	Water	55
6.2	Valuing water to create liveable communities	Water	56

Digital Australia

Faster adoption of digital technologies by consumers and society. A higher rate of digital transformation, faster-closing digital divide and greater digital and technological literacy.

The pace of digital and technological change is occurring increasingly rapidly, with increasing processing capability, big data, machine learning, automation and connectivity (see **Table 19**). Under this technology-led model, smart enablement by the telecommunications and digital sectors will be critical. These reforms will allow step changes in transport services for urban, regional and remote communities to be unlocked. The availability of better data and customer information in energy and waste sectors unlocks behaviour change.

Table 19: Digital Australia reforms

Rec.	Theme	Chapter	Page
4.2	Connecting regional and remote Australia	Transport	49
4.3	Mobility choice made possible	Transport	50
5.2	A smart, affordable, reliable grid	Energy	53
7.3	Enabling Australia's digital future	Telecommunications and digital	59
9.2	Waste data to drive innovation	Waste	64

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Destabilised world

Increased risk and impacts of disaster. Greater incidence of natural disasters, increased political instability, increased cyberwarfare and cybercrime.

An increasingly destablised world will place added importance on the need to enhance resilience and sustainability. All three sustainability and resilience reforms perform well under this scenario (see **Table 20**). Increasing the resilience of the telecommunications sector, which has proven vital in both the COVID-19 pandemic and the 2019–2020 bushfire season will also be critical. Finally, improving the independence of our waste system through a circular economy will enhance supply chain sovereignty and reduce exposure to foreign disruption.

Table 20: Destabilised world reforms

Rec.	Theme	Chapter	Page
2.1	Infrastructure planning for an uncertain future	Sustainability and resilience	40
2.2	Technology-led sustainability	Sustainability and resilience	41
2.3	Transparency and collaboration builds trust in decisions	Sustainability and resilience	42
7.1	Improving the resilience of Australia's telecommunications	Telecommunications and digital	57
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Reforms that are resilient to all of our future scenarios

No regrets

Recommendations that maintain their impact under all five possible future scenarios.

In order to ensure reforms are robust against a rapidly changing and uncertain future, we have examined the *2021 Plan* reforms to understand which are most robust to a changing and uncertain future (see **Table 21**). Our No regrets reforms perform strongly in all futures, including pursuing reforms to support the transformational change in the energy sector, enhancements to social infrastructure and improvements to data and digital capability in the infrastructure sector, including particularly waste.

Table 21: No regrets reforms

| Rec.	Theme	Chapter	Page
3.3	Digital by default	Industry productivity and innovation	46
5.1	Putting customers first	Energy	52
5.2	A smart, affordable, reliable grid	Energy	53
5.3	Powering a cheaper, cleaner future	Energy	54
8.1	Transforming social infrastructure to enhance quality of life	Social infrastructure	60
8.2	Partnerships to build communities	Social infrastructure	61
8.3	Social infrastructure is economic infrastructure too	Social infrastructure	62
9.2	Waste data to drive innovation	Waste	64

V. Reform impact summaries

How to read the reform impact summaries

Each reform impact summary contains these sections (as shown in **Figure 2**):

Figure 2: Sections of the reform impact summaries
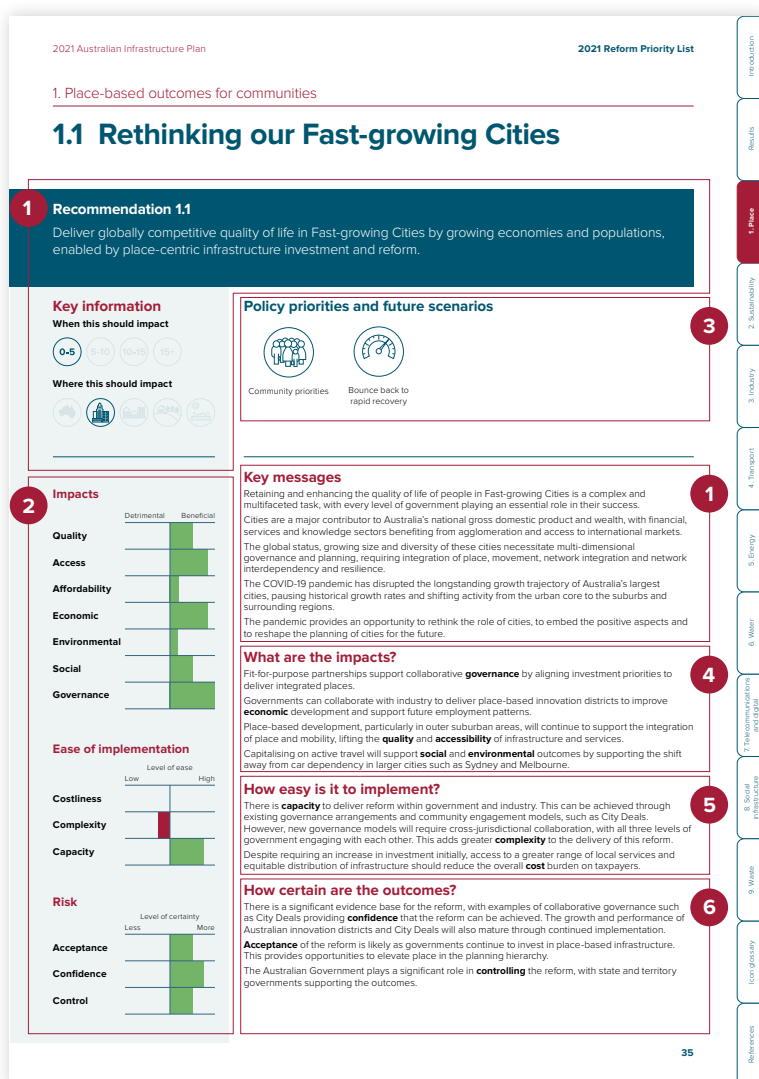
1. Recommendation, key information and key messages

These sections present information about the recommendation and are drawn from the *2021 Plan*. See **page 65** for an overview of icons in this section and their definitions.

2. Impacts, risk and ease of implementation

This section summarises the impacts of the recommendation on 13 impact categories across costs, risks and benefits. Most of the categories are built up from two or three criteria, and the performance against these categories is shown as bars. These bars show the weighted average impact score against the criteria within each category. The full table of scores against all 33 criteria will be published in each detailed plan.

3. Policy priorities and future scenarios

This section shows icons for recommendations that do well under certain policy priorities or future scenarios. See **page 65** for an overview of these icons and their definitions.

4. What are the impacts?

This section provides a concise summary of the impacts for service users and the community if the activities in this recommendation are implemented. For users, this covers quality, access and affordability of infrastructure services. For the community, this is modelled on quadruple-bottom-line sustainability: economic, social, environmental and governance impacts.

5. How easy is it to implement?

This section provides a concise assessment of how easy the recommendation is to implement, taking into account criteria across costliness, complexity and capability to deliver the activities.

6. How certain are the outcomes?

This section provides a concise outline of risk factors that could impact whether or not the reform is successful in delivering its intended impacts. It factors in community acceptance, confidence the benefits will be achieved, and the extent of government control over achieving these outcomes.

1. Place-based outcomes for communities

1.1 Rethinking our Fast-growing Cities

Recommendation 1.1

Deliver globally competitive quality of life in Fast-growing Cities by growing economies and populations, enabled by place-centric infrastructure investment and reform.

Key information

When this should impact

0-5   5-10   10-15   15+

Where this should impact

Policy priorities and future scenarios

Community priorities

Bounce back to rapid recovery

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

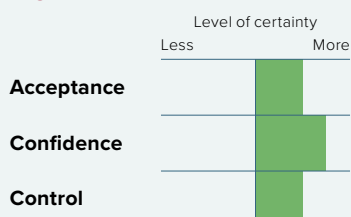|	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		
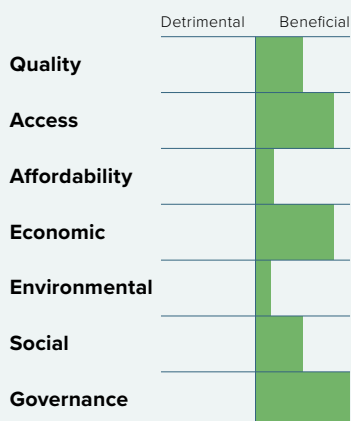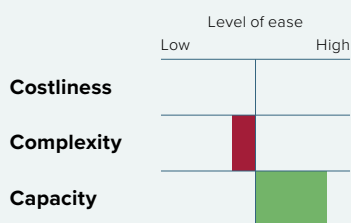
Key messages

Retaining and enhancing the quality of life of people in Fast-growing Cities is a complex and multifaceted task, with every level of government playing an essential role in their success.

Cities are a major contributor to Australia's national gross domestic product and wealth, with financial, services and knowledge sectors benefiting from agglomeration and access to international markets.

The global status, growing size and diversity of these cities necessitate multi-dimensional governance and planning, requiring integration of place, movement, network integration and network interdependency and resilience.

The COVID-19 pandemic has disrupted the longstanding growth trajectory of Australia's largest cities, pausing historical growth rates and shifting activity from the urban core to the suburbs and surrounding regions.

The pandemic provides an opportunity to rethink the role of cities, to embed the positive aspects and to reshape the planning of cities for the future.

What are the impacts?

Fit-for-purpose partnerships support collaborative **governance** by aligning investment priorities to deliver integrated places.

Governments can collaborate with industry to deliver place-based innovation districts to improve **economic** development and support future employment patterns.

Place-based development, particularly in outer suburban areas, will continue to support the integration of place and mobility, lifting the **quality** and **accessibility** of infrastructure and services.

Capitalising on active travel will support **social** and **environmental** outcomes by supporting the shift away from car dependency in larger cities such as Sydney and Melbourne.

How easy is it to implement?

There is **capacity** to deliver reform within government and industry. This can be achieved through existing governance arrangements and community engagement models, such as City Deals. However, new governance models will require cross-jurisdictional collaboration, with all three levels of government engaging with each other. This adds greater **complexity** to the delivery of this reform.

Despite requiring an increase in investment initially, access to a greater range of local services and equitable distribution of infrastructure should reduce the overall **cost** burden on taxpayers.

How certain are the outcomes?

There is a significant evidence base for the reform, with examples of collaborative governance such as City Deals providing **confidence** that the reform can be achieved. The growth and performance of Australian innovation districts and City Deals will also mature through continued implementation.

Acceptance of the reform is likely as governments continue to invest in place-based infrastructure. This provides opportunities to elevate place in the planning hierarchy.

The Australian Government plays a significant role in **controlling** the reform, with state and territory governments supporting the outcomes.

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1. Place-based outcomes for communities

1.2 Strengthening Smaller Cities and Regional Centres

Recommendation 1.2

Attract growth to Smaller Cities and Regional Centres while maintaining quality of life by enhancing local identity, leveraging social infrastructure and improving digital and economic connectivity to Fast-growing Cities and neighbouring regions.

Key information

When this should impact

| 0-5 | **5-10** | 10-15 | 15+ |

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

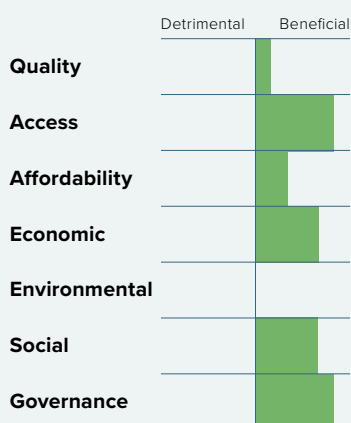|	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Low-hanging fruit
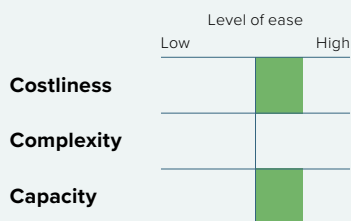
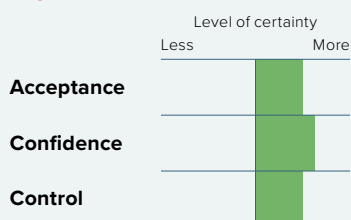Regionalised Australia

Key messages

Strong and vibrant Smaller Cities and Regional Centres will enable national economic growth objectives by relieving the pressure of population growth on Fast-growing Cities and developing key industries.

Improved infrastructure services and their associated amenity are critical for accelerating regionalisation and driving sustainable development of Smaller Cities and Regional Centres.

Smaller Cities and Regional Centres must be highly accessible to communities within the catchment of the services they host, and better connected to Fast-growing Cities.

Place-based coordination and governance of the planning and delivery of major infrastructure will unlock the compounding multiplier benefits from infrastructure investment for these communities.

Future infrastructure planning and delivery should be supported by an updated evidence base in relation to population flows, particularly those driven by the COVID-19 pandemic.

What are the impacts?

The reform increases the capacity of digital and transport connectivity improving **access** to education and essential services.

Regional Deals and regional economic development strategies improve **governance** and support sustainable population and **economic** growth. Regional partnerships will also improve health and **social** outcomes by increasing investment and productivity gains to drive employment.

Improvements to social infrastructure builds cohesion in the community, enhances productivity and **quality** of life.

How easy is it to implement?

The **cost** of accommodating growth in established Smaller Cities and Regional Centres may be lower than accommodating growth in Fast-growing Cities and the necessary brownfield infrastructure development. Specialisation strategies will reduce the cost of growing regional centres, inviting collaboration between government and industry.

Supporting growth in Smaller Cities and Regional Centres will require greater coordination between jurisdictions. It should leverage existing mature practices, but not add additional **complexity**.

Improved partnership between all levels of government and industry will increase the **capacity** to involve the private sector to potentially hypothecate funding for faster rail and improving digital inclusion.

How certain are the outcomes?

There is already a significant population shift to Smaller Cities and Regional Centres. While cross-jurisdictional cooperation is required, government is in **control** of the reform.

Existing City and Regional Deals support greater collaboration between governments and community stakeholders to give business and community **confidence** in the improvement of place-based outcomes.

Reforms targeted to improve travel times and connectivity are anticipated to receive broad community **acceptance**.

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1. Place-based outcomes for communities

1.3 Lifting access in Small Towns, Rural Communities and Remote Areas

Recommendation 1.3

Support a better quality of life by aligning funding and minimum standards with principles for sustainable infrastructure delivery in Small Towns, Rural Communities and Remote Areas.

Key information

When this should impact

(0-5) **(5-10)** (10-15) (15+)

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios
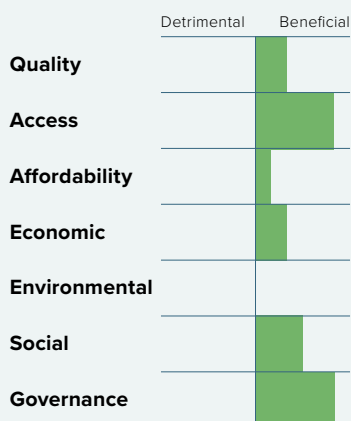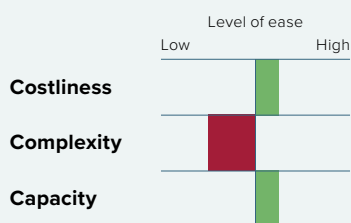
Connected regions

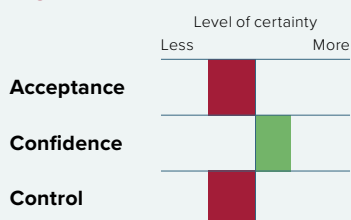Regionalised Australia

Key messages

Infrastructure is more expensive to provide on a per-person basis in low population areas, but these communities are also more reliant on available infrastructure for their productivity and wellbeing.

Meeting the infrastructure needs of smaller communities is often difficult, and some Small Towns and Rural Communities face significant infrastructure deficits.

Infrastructure investments for Small Towns, Rural Communities and Remote Areas should plan for, and respond to, population change in these communities and be underpinned by a shared vision for their long-term future.

There are opportunities to share resources, skills and facilities between communities, and between smaller communities and larger metropolitan centres, to reduce costs, improve access and better coordinate infrastructure delivery.

What are the impacts?

Defining and adopting minimum standards to guide infrastructure investment decisions will improve road **access** and communications services to small towns, rural communities and remote areas.

Regional Deals and regional economic development strategies improve **governance** and support sustainable population and **economic** growth. Regional partnerships will also improve health and **social** outcomes by increasing investment and productivity gains to drive employment.

Ensuring Community Service Obligations (CSOs) deliver the promised benefits supports a higher **quality** of life and addresses social disadvantage.

How easy is it to implement?

Improved design of CSOs may reduce the **cost** of delivering services, however overall the reform should be cost-neutral. However, the scale and breadth of reform will increase implementation **complexity**. Changes to CSOs to improve minimum standards may also require legislative change.

Aboriginal and Torres Strait Islander arts organisations have demonstrated a strong demand for visual arts but not always the infrastructure to capitalise on the opportunity. Collaboration with industry and place-based organisations may increase **capacity** of service provision.

How certain are the outcomes?

The pandemic has accelerated decentralisation, placing greater demand on small towns. Improving reporting against minimum standards would building community **confidence** that ongoing basic infrastructure needs are supported.

Community **acceptance** of changes to CSO agreements may depend on their scale and the extent to which competition exists in their delivery.

Government has limited **control** over implementing the reform. While government would initiate and set the terms of reference, there is uncertainty around realising the benefits due to reliance on private operators to deliver the projects.

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1. Place-based outcomes for communities

1.4 Unlocking opportunity in Northern Australia and Developing Regions

Recommendation 1.4

Ensure Northern Australia and Developing Regions fulfil their economic role, attract and retain skilled workers and enable participation of Aboriginal and Torres Strait Islander people through greater collaboration between governments on infrastructure needs across the region.
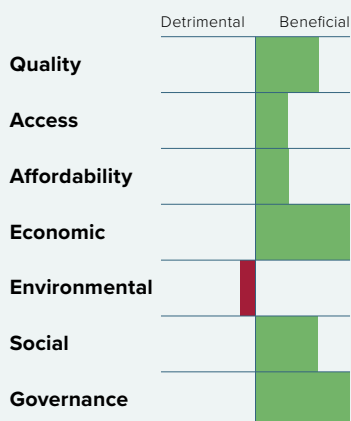
Key information

When this should impact

(0-5) (5-10) **(10-15)** (15+)

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Low	Level of ease	High
Costliness			
Complexity			
Capacity			

Risk

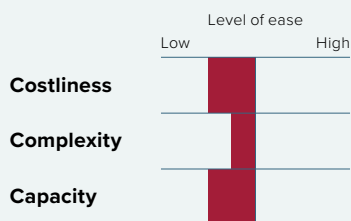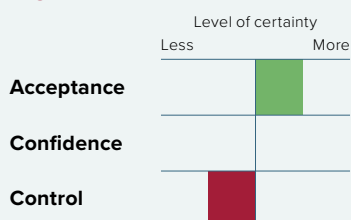|	Less	Level of certainty	More
Acceptance			
Confidence			
Control			

Policy priorities and future scenarios

Social benefits

Key messages

Targeted reform and investment to develop Northern Australia can boost national economic growth, industry productivity and energy security and reinforce national security.

Infrastructure investment in Northern Australia presents specific challenges, including extreme climate, diverse environments and economies and low population density.

There needs to be better data to inform decision-making, including on population, the environment, natural resources and infrastructure requirements.

Aboriginal and Torres Strait Islander communities' participation is central to northern economic development, and infrastructure investment is needed to enable economic participation and wellbeing.

Enhancing connectivity and liveability is necessary for Northern Australia to be able to attract and retain skilled workers and their families, and to provide adequate services to remote communities.

What are the impacts?

Improving transport, energy and telecommunications infrastructure will enhance the **economic** potential of Northern Australia, a key exporter.

Governance efficiencies will be achieved through better planning and decision-making within each level of government, to improve livability and workforce development.

Improving telecommunications and transport connectivity enhances job accessibility, supporting **social** and economic advancement for Aboriginal and Torres Strait Islander peoples.

Improving the **quality** of telecommunications infrastructure will improve community resilience and provide more **accessible** delivery of health services, particularly during natural disasters.

Building infrastructure and unlocking opportunities such as natural resources will have some **environmental** impact, including emissions, in the near term.

How easy is it to implement?

The high relative **cost** of delivering infrastructure in Northern Australia is a key challenge when the service uptake rate is unknown.

With the exception of large-scale resources projects, Northern Australia has limited **capacity** in the private sector to deliver infrastructure projects. Government will need to develop policies to attract and retain skilled workers to enhance local business capacity.

The reform will be reasonably **complex** to implement as it requires long-term commitment and cooperation between governments, agencies and the private sector.

How certain are the outcomes?

Involving local communities in investment, employment creation and business opportunities will increase community **acceptance** of the reform.

While there is insufficient data in general on resource development and endowments in Northern Australia, the reform should improve knowledge and capacity to deliver industry **confidence**.

However, the *Aboriginal Land Rights Act and Native Title Act* provide for informed consent of traditional owners and can extend infrastructure delivery timelines. Governments have limited **control** to intervene, potentially increasing the risks for new infrastructure investment.

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2. Sustainability and resilience

2.1 Infrastructure planning for an uncertain future

Recommendation 2.1

Build community resilience to all hazards by considering systemic risks, interdependencies and vulnerabilities in infrastructure planning and decision-making.
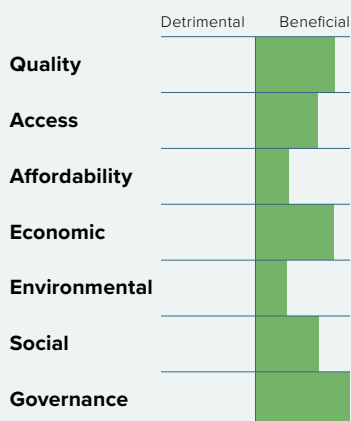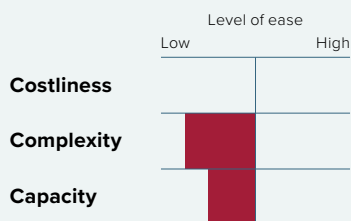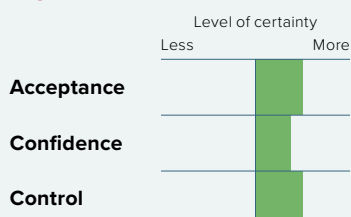
Key information

When this should impact

(0-5) 5-10 10-15 15+

Where this should impact

Policy priorities and future scenarios

Social benefits   Liveable cities   Connected regions   Destabilised world

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Key messages

A nationally consistent, all-hazards, systemic approach to understanding and quantifying risk will ensure Australia's assets, networks, systems, communities and places are resilient.

Identifying and communicating interconnections and interdependencies before, during and after shocks or stresses is critical to managing systematic vulnerability.

Effective decision-making needs diverse and inclusive collaboration and data.

Quantifying the potential impact of disasters and the benefits of strengthening associated systems will build the economic case for investing in resilience.

Frameworks and feedback mechanisms are required to gauge compliance and the success of sustainability and resilience policy and investment.

What are the impacts?

The reform will improve the **quality** of services through safer settlement patterns and less exposure to shocks and stresses. Asset owners' and operators' understanding of systemic risk will improve planning and mitigate service disruption.

Decision-makers across all sectors, communities, industries and governments will have more accountability and make better decisions that consider systemic risk. This will enable positive **economic**, **social** and **environmental** outcomes. In particular, more resilient communities and assets will have material gross domestic product, efficiency and productivity benefits (reduction in rectification costs, safer communities).

New tools and guidance, better decision-making frameworks, increased transparency and higher-quality data will improve **governance**. In a complex and interconnected environment, geographically constraining analysis to a place will support effective decision-making and allow a systemic consideration of risk.

How easy is it to implement?

The reform requires national coordination across all sectors, levels of government and assurance processes. This introduces a high degree of **complexity**. While skills and resources are generally available, governments and industry may experience **capacity** constraints requiring large upskilling of staff to ensure consistency and better application of new scenarios.

The reform will require minor new government processes. However, investing in resilient design can minimise losses and repair **costs** for infrastructure owners, users and taxpayers.

How certain are the outcomes?

The reform has a small level of anticipated risk. More robust considerations of resilience and infrastructure adaption will improve community **acceptance**.

Governments at all levels have a large degree of **control** over this reform, which primarily stems from government action.

The reform has a strong, reliable and credible evidence base. However, there needs to be improvements in data standardisation and sharing arrangements to increase community **confidence**.

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References

2. Sustainability and resilience

2.2 Technology-led sustainability

Recommendation 2.2

Meet Australia's present and future needs by establishing the quadruple bottom line as a goal for all infrastructure policy and investment.
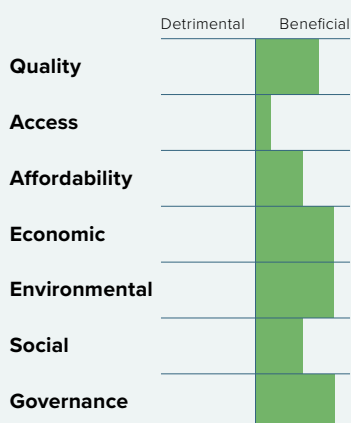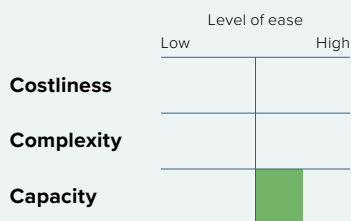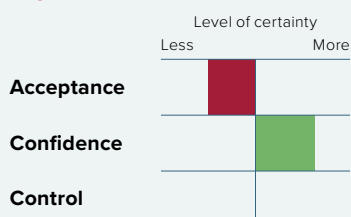

Key information

When this should impact

(0-5) (5-10) (10-15) (15+)

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Bounce back to rapid recovery

Destabilised world

Key messages

Infrastructure is sustainable when it is planned, designed, procured, constructed and operated to optimise economic, environmental, social and governance outcomes over the life of the asset.

Infrastructure assets, networks, services and communities will be critical in meeting government and industry commitments to sustainability, including reducing emissions.

Certainty, confidence and adequacy of policy settings help investors to manage risk.

Policy reforms need to acknowledge they do not occur independently of the infrastructure that is in place and investment in the future, so they increase value for money outcomes and contribute to emissions reduction while maintaining a strong economy and high quality of life and affordability for all Australians.

What are the impacts?

The increased prevalence of energy efficiency assistance will empower consumers to adapt their energy usage, increase demand response, reduce disruption and decrease variance in service **quality**. This will also result in improvements to household **affordability**. Enhanced and more efficient social infrastructure assets will increase **access** to services for communities, particularly disadvantaged and vulnerable members of society.

Climate mitigation could result in significant **economic**, gross domestic product and productivity benefits. New sustainability standards and procurement mandates will drive the creation of new industries and increase employment. They will also provide a competitive advantage and new export opportunities for manufacturing and services businesses.

Enhanced consideration of the quadruple-bottom-line will result in **environmental**, **social** and **governance** outcomes. The private sector and governments will have better guidance and tools to seize opportunities to embed sustainability into projects and services. As a result, there are likely to be increased opportunities for education and employment, better health outcomes, and a reduction in emissions.

How easy is it to implement?

Reform is likely to incur additional **costs**. However, there is high potential for the costs to be balanced against increased efficiency and cost saving measures.

This specific reform is not **complex** and is capable of implementation within a 5-year timeframe. It will largely build on current frameworks. However, new standards will necessitate new regulation, guidelines and legislation.

Industry and governments have **capacity** and are well-positioned to play a role in both social infrastructure upgrades and the rollout of electric vehicles at the right scale and time.

How certain are the outcomes?

The reform has a high degree of **confidence**. It relies on a credible and robust domestic and international evidence base, the benefits are clear, and it is independent of the impacts of the COVID-19 pandemic.

Australian communities have mixed **acceptance** for climate change, sustainability and emissions reduction methods. However, there is good community support for quadruple-bottom-line consideration in infrastructure investment and decision-making.

Governments have some **control** but are also heavily reliant on a broad cross-sectoral coalition of actors to ensure success.

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References

2. Sustainability and resilience

2.3 Transparency and collaboration build trust in decisions

Recommendation 2.3

Build community trust in infrastructure decision-making and institutions by ensuring infrastructure decisions are transparent, and reflect place-based community needs and preferences.
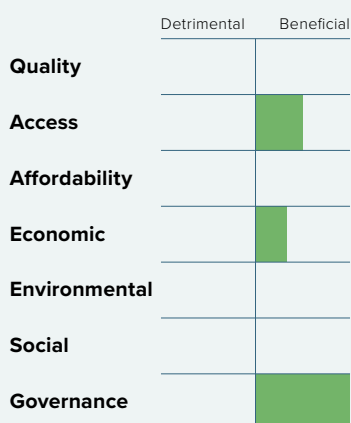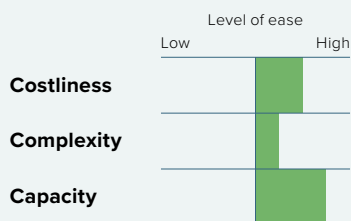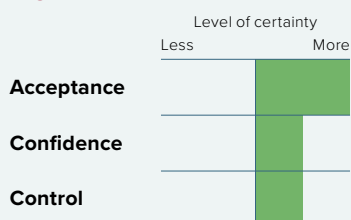
Key information

When this should impact

(0-5) (5-10) (10-15) (15+)

Where this should impact

Policy priorities and future scenarios

Low-hanging fruit   Destabilised world

Key messages

In an environment of rapid change, uncertainty and risk, it is critical to embed new practices to ensure infrastructure delivers affordable, quality, accessible and cost-effective services.

Inclusive decision-making harnesses government, academic, industry, business and community knowledge about places and the infrastructure and services people need to support quality of life and productivity. Collective knowledge supports value-for-money investments in infrastructure that build community trust.

Increasing transparency around how infrastructure decisions are made will inform communities, build trust and allow feedback at a time, and in a way, that can be most useful. Long-term, coordinated planning processes that connect sectors, governments, businesses and communities will ensure infrastructure delivers against a clear vision that benefits all Australians.

Impacts

	Detrimental	Beneficial
Quality		
Access		▮
Affordability		
Economic		▮
Environmental		
Social		
Governance		▮

What are the impacts?

The reform will improve **governance** by tailoring infrastructure and services to localised and place-based community needs. Increased transparency will provide more information on decision-making. Post-completion reviews and publicly released information about infrastructure decisions will increase trust in institutions and improve social licence.

A consistent approach to sharing and gathering community data, improving engagement and transparency will likely result in increased consideration of communities' needs and improved **access** for users, as well as place-based outcomes. The impacts of inclusive community consultation will vary, depending on the place. However, it is likely communities will use their knowledge to ensure infrastructure is efficiently built and operated for the unique needs of their area.

Better cross-sectoral collaboration to identify needs, improved funding mechanisms and clear methods of acquiring land and sequencing delivery to meet long-term community needs will facilitate **economic** benefits. These include cost savings for users and taxpayers, and benefits derived from capturing land's highest-value use.

Ease of implementation

	Level of ease	
	Low	High
Costliness		▮
Complexity		▮
Capacity		▮

How easy is it to implement?

While new processes are likely to be required, there are existing mechanisms and best-practice frameworks to draw from, reducing the **complexity** and time required to implement.

These processes are likely to incur some new **costs**, however these should be offset when fewer projects are delayed by community opposition. Greater transparency should mean better value-for-money infrastructure projects.

All levels of government have the expertise and **capacity** to implement the reform. However, community consultation and data-gathering, standardisation and coordination will take time, resourcing and training.

Risk

	Level of certainty	
	Less	More
Acceptance		▮
Confidence		▮
Control		▮

How certain are the outcomes?

The reform has very little risk and attracts high community and government **acceptance**. It champions community-centred, localised decision-making and more transparent infrastructure decisions.

The evidence base that informs these reforms is recent and reputable, which provides a high level of **confidence**, even though the expected impacts of community engagement are not immediately clear. Place-based, inclusive engagement will result in unknown impacts, depending on a community's preferences. The evidence base that informs this reform is reliable, recent and reputable. Governments have **control** but the reform relies on coordination between all levels of government.

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3. Industry productivity and innovation

3.1 Improving planning, portfolios and pipelines

Recommendation 3.1

Improve industry productivity and value for money by having a coordinated project pipeline with a mature approach to procurement and risk management.
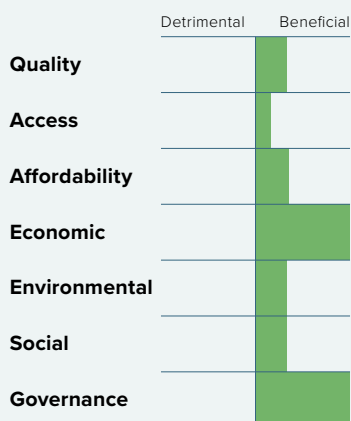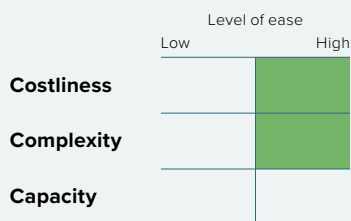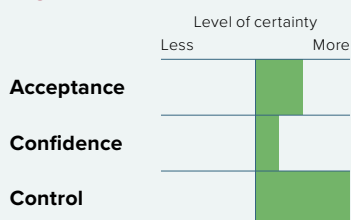
Key information

When this should impact

0-5 **5-10** 10-15 15+

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Community priorities   Productive cities   Low-hanging fruit

Key messages

Investment in Australia's public infrastructure is volatile and increasingly targeted towards megaprojects. Both these trends are challenging as they impact the affordability, deliverability and productivity of infrastructure.

Governments can reverse declining productivity by reducing investment volatility to create an efficient, cost-effective, sustainable and attractive market.

By adopting portfolio planning and management best practices to create a more stable infrastructure sector, governments will ensure industry can better respond to government's needs by providing the materials, skills and capacity to deliver tomorrow's infrastructure.

Having a stable pipeline will allow the transformation of industry productivity through the adoption of production and manufacturing approaches to reduce cost volatility, lower overall prices and create a more sustainable industry.

What are the impacts?

A portfolio approach to infrastructure pipeline and delivery ensures more effective alignment between industry and government that will improve efficiencies across the sector. Investing in **governance** framework improvements will improve **affordability**, unlock significant **economic** productivity gains and lift industry capacity.

Governments can support industry to reduce risk and uncertainty by using evidence-based decision-making. Moving from a project-based to a system-based approach will lead to higher-**quality** infrastructure outcomes that ensure the industry is a sector of choice. It delivers a positive **social** impact through equitable employment and procurement, particularly in the area of gender diversity.

How easy is it to implement?

The development of an industry roadmap will improve project pipeline certainty resulting in significant **cost** reductions.

Implementation **complexity** is reduced through the availability of existing frameworks such as the NSW Government's 'Ten point commitment to the construction sector'.

How certain are the outcomes?

There are low expected risks.

Government has high **control** over developing a coordinated project pipeline.

Improvements to project and pipeline transparency will increase community and industry **acceptance** of the reform.

Industry and governments have jointly acknowledged the need to improve the culture of the infrastructure sector. Strengthening engagement will improve **confidence** in the community and industry that higher productivity and value can be achieved.

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3. Industry productivity and innovation

3.2a Enhancing project outcomes

Recommendation 3.2a

Improve value for money and reduce risk by consistently adopting appropriate best-practice front-end due diligence for projects.
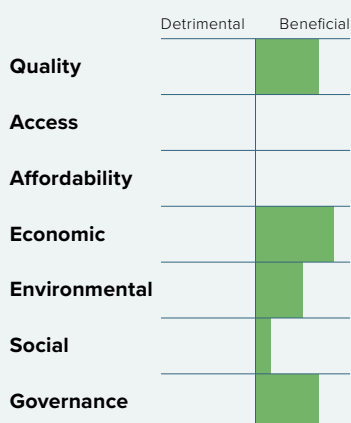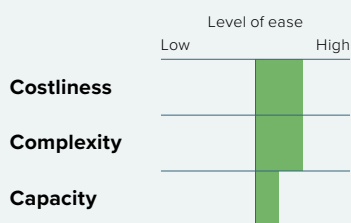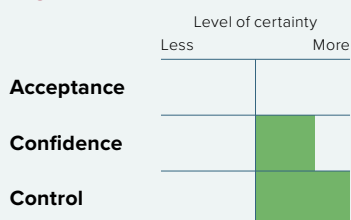
Key information

When this should impact

(0-5) (5-10) (10-15) (15+)

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Low-hanging fruit

Key messages

The greatest opportunities to ensure the best solution is identified, and the right infrastructure is built, happen at the earliest stages of the project during problem identification, project origination and design. This is when the due diligence that informs a more detailed understanding of scope, cost and timeframes can remove challenges that might otherwise appear in later stages.

Australia's governments have an important role to play in advocating for and driving best practice in due diligence through Front-End Engineering and Design (FEED) and a 'go slow to go fast' mentality.

If prioritised by all levels of government, due diligence can enhance project outcomes and improve the operating environment for all stakeholders. Due diligence also reduces project risks by making them less likely to incur a financial loss, miss delivery deadlines or fail to deliver the right operational outcomes.

What are the impacts?

Effective due diligence delivers better project outcomes by reducing risk and improving **economic** benefits over the life of the infrastructure asset. This reform supports safeguarding the sustainability of Australian infrastructure to improve the **quality** of infrastructure assets.

Implementing FEED can improve assurance and **governance** innovation through engaging with industry to deliver high-performing infrastructure assets.

How easy is it to implement?

Improving front-end processes will have significant positive flow on effects across projects' delivery and operations, reducing **costs** to industry and the taxpayer.

Pivotal activities may be conducted in current business case development, reducing the **complexity** of implementation.

Governments can support due diligence processes by committing to a 'go slow to go fast' approach. Both government and industry have the **capacity** to implement and deliver this change.

How certain are the outcomes?

As regulators, clients and benefactors of infrastructure investment, governments have significant **control** of the reform.

Implementing FEED reduces project risk, improving **confidence** for industry. There is significant evidence that improved due diligence improves project outcomes.

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3. Industry productivity and innovation

3.2b Enhancing project outcomes

Recommendation 3.2b

Reduce uncertainty for industry and improve value for money by improving engagement with industry and the supply chain.

Key information

When this should impact

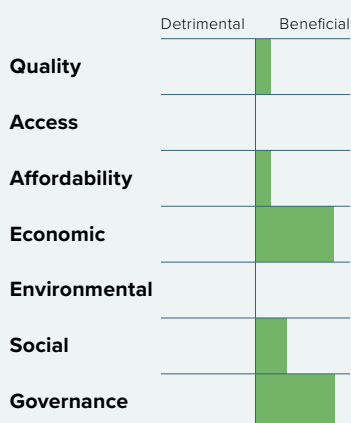(0-5) (5-10) (10-15) (15+)

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

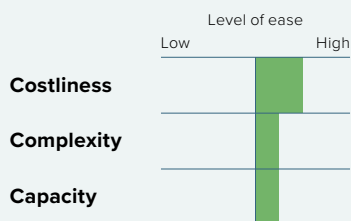|	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

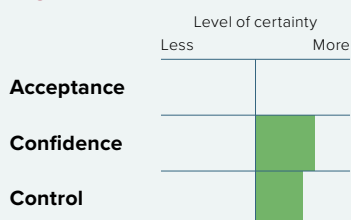Economic benefits

Key messages

Governments can deliver better project outcomes through procurement that recognises long-term collaboration as an inseparable component of a sustainable industry. Governments should collaboratively partner with industry to mitigate risks when defining and delivering infrastructure.

Consistently using standard form contracts that support more collaborative behaviours and allocate risk to those able to manage it are immediate opportunities for reform.

Governments should seek out and address other industry pinch points, such as payment certainty, access to insurance, contract complexity and market deliverability.

Governments should see infrastructure design and delivery as both a long-term endeavour and one of continuous improvement. Areas of opportunity include embracing focused innovation, increasing transparency and improving long-term estimating.

What are the impacts?

Early market engagement to discuss project risk with potential delivery partners can reduce the likelihood of market failure and increase competition, improving **economic** outcomes.

Early and frequent collaboration between government and industry improves **governance**, reduces risk and establishes a clear direction for innovation. Early and open engagement also supports improved transparency and improves **social** acceptance.

A more collaborative infrastructure sector will likely attract more businesses to the industry, potentially from the global market, and can help to create a higher-**quality** workforce through a more attractive working environment.

How easy is it to implement?

Improved collaboration with industry will facilitate value for money, reducing **costs** for industry and taxpayers.

With the recent prevalence of megaprojects and megacontracts, governments have experience to draw from that enables this reform to be readily implemented, thereby minimising **complexity**. Earlier market engagement should also improve the industries' **capacity** to deliver the reform.

How certain are the outcomes?

Improving market capacity effectively requires collaboration with governments and industry, placing them in **control** of the reform.

Should governments apply innovative contract models such as the UK Institute of Civil Engineers, New Engineering and Construction (NEC) Contracts, there should be a high degree of **confidence** in reform success and **acceptance** by industry stakeholders.

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2021 Australian Infrastructure Plan

2021 Reform Priority List

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3. Industry productivity and innovation

3.3 Digital by default

Recommendation 3.3

Increase productivity and embed a culture of innovation in the infrastructure sector by adopting an evidence-based digital by default approach to infrastructure planning, delivery and operations.
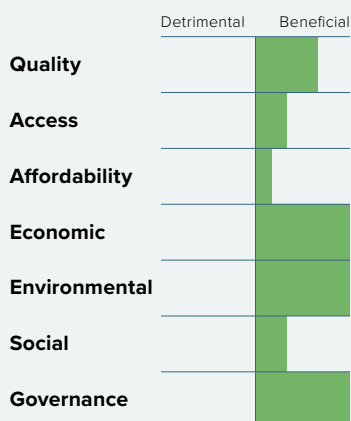
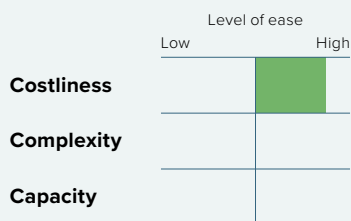## Key information

When this should impact

0-5   **5-10**   10-15   15+
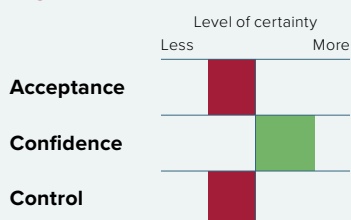
Where this should impact

Policy priorities and future scenarios

Economic benefits   Productive cities   Connected regions   No regrets

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Low — Level of ease — High
Costliness	
Complexity	
Capacity	

Risk

	Less — Level of certainty — More
Acceptance	
Confidence	
Control	

Key messages

Digital and data tools and practices are key to unlocking substantial productivity gains and efficiencies across infrastructure planning, delivery and operations. The infrastructure and construction sector has one of the slowest adoption rates of technology, innovation and digitally supported ways of working.

Innovation supported by new technologies and digital transformation requires collaborative leadership between government and industry. Government, as regulators, owners, funders and benefactors of public infrastructure, can play a lead role in the transition away from 'digital by exception' towards 'digital by default'.

There should be an initial focus on policies, developing digital skills to complement core professional competencies, and driving common standards and approaches. Single-purpose creation and procurement of information and data must transition towards an environment where it is shared, reused, structured, open and valued.

With these changes, future infrastructure will be better designed for end users, governments will unlock significant productivity gains, and infrastructure will cost less to design, deliver, operate and maintain.

What are the impacts?

A digital by default approach will enable the infrastructure sector to become more **economically** productive and effective.

Harnessing the power of real-time data unlocks innovative **governance** frameworks. This can be utilised to enable greater uptake of ePlanning, higher **quality** spatial information and establishing seamless cross-stakeholder data-sharing, storage and access.

As demonstrated by the New South Wales and Victorian Governments, there is potential for digital twin models to improve decision-making by integrating large amounts of spatial data to improve **environmental** outcomes.

Providing open source datasets will improve transparency across governments, industry and the community, improving **societal** benefits and supporting better-performing and more valued assets.

How easy is it to implement?

Implementing best technology practices could result in significant productivity improvements, modest **cost** efficiencies and improved data-driven investment decisions.

While governments have some **capacity** and capabilities to deliver the reform, new agencies will need to be established.

How certain are the outcomes?

While there is a strong appetite for innovation and digital tools in Australia, many actions such as digital twins are at the pilot level. Given the success of projects such as the level crossing removal in Victoria, there should be a high degree of **confidence** in the reform.

To a large extent, the reform will depend on industry's ability to implement it, reducing government **control**.

Trust in data management, which is essential for this reform, will depend on public trust in how governments handle their data. This is often flagged as a challenge, reducing **acceptance** of the reform.

3. Industry productivity and innovation

3.4 Next generation infrastructure investment

Recommendation 3.4

Deliver a greater return on investment by ensuring governments act as model clients and custodians of industry health and productivity.
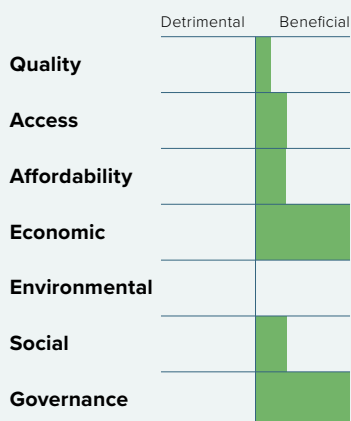
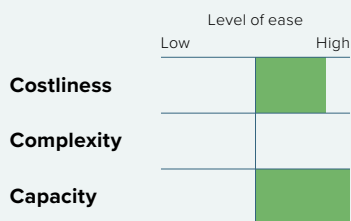## Key information

When this should impact

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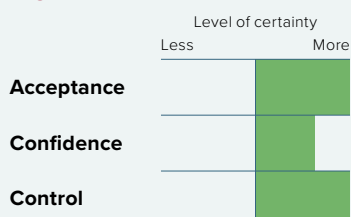
Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Community priorities   Economic benefits   Productive cities   Low-hanging fruit

Key messages

All levels of governments play an ongoing role in improving infrastructure project investment decisions and deliverability, supporting sector productivity and ensuring value for money. The infrastructure sector needs a clear and consistent long-term direction, focused on improvements to productivity, investment and project outcomes over the next 15 years. This vision should be evidence-based, developed collaboratively by the Australian Government with jurisdictions and industry.

Before governments identify infrastructure projects as shovel-ready, proposals should first be developed and assessed as investment-worthy.

It is critical to invest in capabilities so the Australian Government can understand, execute and oversee more mature commercial and financial arrangements with states, territories and the private sector.

The Australian Government should continue efforts to become a more proactive investor by building capabilities and processes that help identify and initiate nationally significant projects, attract investment, upscale gateway reviews and assurances, and develop infrastructure delivery capabilities.

What are the impacts?

This reform supports the development of a national vision for infrastructure productivity, enabling the Australian Government as an active investor. It involves significant actions to safeguard **economic** and **social** value for taxpayers, ensuring scrutiny, assurance and transparency remain a key part of all infrastructure decision-making.

Strengthening the *Infrastructure Australia Assessment Framework* and enhancing gateway reviews with state and territory governments will improve collaborative **governance**.

Creating an equitable funding and financing environment will help governments to pursue the right projects in the right locations, improving the **affordability** and **quality** of infrastructure project outcomes.

How easy is it to implement?

This reform provides government with a range of non-build solutions to improve the efficiency of current infrastructure assets. This supports the Australian Government's role as an infrastructure investor and benefactor, improving government and industry **capacity** to deliver the reform.

Significant upfront and ongoing **cost** reductions from the reform should deliver future infrastructure investments for less, although the actions will require developing new capabilities, which will involve a moderate degree of **complexity**.

How certain are the outcomes?

Broad **acceptance** of the reform is likely as it aims to increase clarity and confidence for industry, governments and the community.

As the success of the reform depends on the Australian Government and state and territory governments implementing it, there is significant **control**.

Although it may create short-term priority changes, there is a high level of **confidence** of achieving reform success.

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4.1 Getting the most out of our transport investments

Recommendation 4.1

Maximise the overall benefits of transport investments by aligning transport programs with place-based objectives.
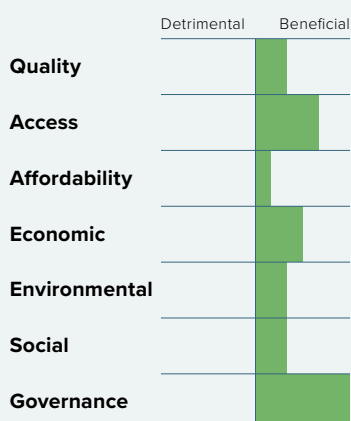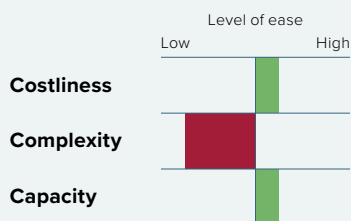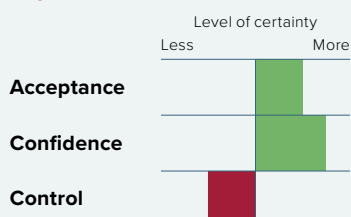
Key information

When this should impact

0-5 | **5-10** | 10-15 | 15+

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Slow recovery from a sustained pandemic

Key messages

Transport infrastructure and operations must be managed under long-term plans. A planning horizon of at least 40 years is how long it can take for major population flows to respond to significant changes in access.

Plans should align transport investment with an overarching vision for settlement and activity, be based on a nationally consistent movement and place framework, address how the links in a multimodal network hierarchy will provide specified mobility and access outcomes, and be explicitly linked to budgets that integrate capital and operating costs with revenue forecasts.

Delivering major mass transit in increments will ensure transport investment keeps pace with changing user needs, while combining multiple maintenance projects into programs will provide more certainty for transport asset maintenance and bring forward associated economic benefits.

What are the impacts?

Sharing a single vision between planning, funding and delivery agencies will maximise **governance** and decision-making outcomes for transport infrastructure investment. This will enable optimal generational outcomes tailored to population, settlement and land use.

This reform aims to improve service and mobility gaps for users in Fast-growing Cities, Smaller Cities and Regional Centres. By having consistent performance standards across all regions, it will be easier to match investment that supports equitable **access** and **quality** outcomes.

Considering the interaction between transport operations and adjacent land uses will generate place-based **economic** value.

How easy is it to implement?

Across state and territory governments and industry, there is **capacity** to integrate transport and land use activities. The established movement and place decision-making framework and mature investment assurance regimes are existing examples.

However, changing established funding programs where government and industry stakeholders need to be aligned adds a layer of **complexity**. This can be mitigated through newer projects and programs, where the Australian Government has the opportunity to revise funding rules within the next five years.

The **cost** of implementing such reform has a net neutral effect for transport costs due to the increased efficiency and effectiveness of future decisions. The proportional cost to taxpayers will also be reduced by the greater opportunity to leverage developer contributions.

How certain are the outcomes?

Confidence that the reform will be successful during the COVID-19 pandemic recovery is high due to the strategic importance of the transport sector in enabling broader economic recovery.

Whether it be maintenance or incremental delivery of major corridors, the tangible outcomes for users are likely to generate favourable levels of community **acceptance**.

Reaching agreement on funding outcomes is unpredictable because stakeholders present competing visions. This hinders the level of government **control**. However, stakeholders can be unified through a single vision in the years to come.

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4.2 Connecting regional and remote Australia

Recommendation 4.2

Improve the liveability and economic sustainability of regional, rural and remote areas by developing, maintaining and operating integrated freight and passenger transport networks that meet end-to-end access needs.
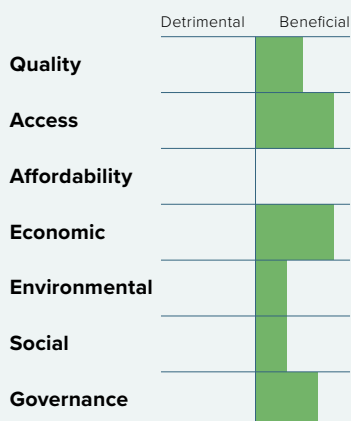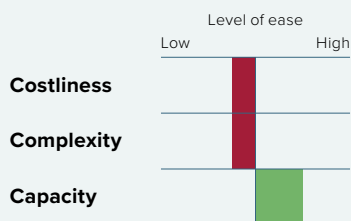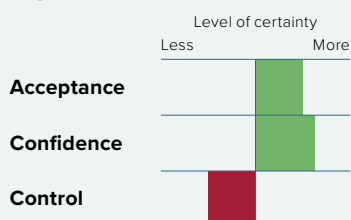
Key information

When this should impact

0-5 **5-10** 10-15 15+

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Low	Level of ease	High
Costliness			
Complexity			
Capacity			

Risk

	Less	Level of certainty	More
Acceptance			
Confidence			
Control			

Policy priorities and future scenarios

Slow recovery from a sustained pandemic

Regionalised Australia

Digital Australia

Key messages

Smaller Cities and Regional Centres, as well as Small Towns, Rural Communities and Remote Areas, that are better connected (to each other, and to Fast-growing Cities and to domestic and overseas markets) will realise their social and economic potential.

Action plans to improve supply chains should address technological innovations, regulatory changes, place-based agreements for major port precincts and targeted infrastructure upgrades.

Improving the local accessibility of Smaller Cities and Regional Centres will complement the staging of faster rail upgrades for regional links. Longer-term national priorities for high-speed rail must align with a clear national vision for population change. Faster and high-speed rail services should be interoperable across borders.

To improve access from Small Towns, Rural Communities and Remote Areas to essential services, governments must manage road, rail and aviation links as an integrated hub-and-spoke network, with end-to-end journeys meeting a specified time-based performance standard.

What are the impacts?

Coordinated passenger transport resources will deliver significant **access** benefits for users from smaller communities. This includes connectivity to Fast-growing Cities and equitable same-day access to essential services under nationally consistent performance standards.

Similarly, improvements in freight transport will support businesses and **economic** growth of communities by removing or easing the points of friction in key supply chains. The greatest potential **social** gains will be where supply chains come into conflict with dense urban land uses around major ports. Investing in intermodal projects that enable targeted commodities to be moved by rail instead of road will support long-term **environmental** outcomes.

Going forward, separating passenger and freight movements will also impact the overall **quality** of services through speed, reliability and comfort. While productivity of existing assets and services will increase, **affordability** will largely remain the same in the short to medium term.

How easy is it to implement?

Planning and operating regional services under a hub-and-spoke model will draw on established transit network management **capacity**.

Using the CSIRO TraNSIT tool, and evidence available through the National Freight Data Hub, supply chain improvement plans will minimise **costliness**. However, the level of ease is hindered through an initial upfront expense.

Delivering faster rail services, especially high-speed rail, will present **complex** economic and technological challenges that are new to Australia. However, there should be enough lead time for the growing domestic rail industry to pivot from urban to regional priorities.

How certain are the outcomes?

Control over faster rail outcomes (including interoperability of projects in different jurisdictions) is dependent on a clear national plan and approach. This can be achieved through agreeing on objectives for population change and committing funds over multiple electoral cycles. If this alignment is achieved, governments at all levels can be **confident** that connectivity investments will help sustain a post-COVID-19 trend in favour of regional settlement.

Achieving maximum benefits from reorienting regional and remote area passenger transport requires consolidation of scheduled air services at regional and remote hub airports. This could create challenges for community **acceptance**, however this should be outweighed by improved land transport connections, efficiency improvements to critical supply chains and reduced passenger travel times.

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4.3 Mobility choice made possible

Recommendation 4.3

Free people from relying on driving for door-to-door mobility by ensuring urban transport services are managed as an integrated, inclusive, user-responsive and smart transport system.
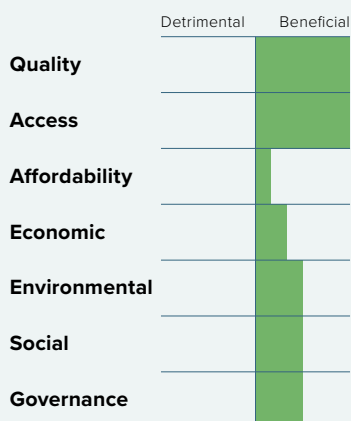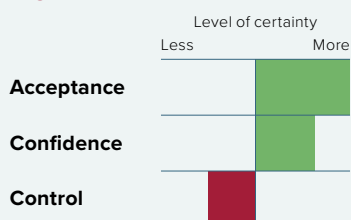

Key information

When this should impact

(0-5) **(5-10)** (10-15) (15+)

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Social benefits   Liveable cities   Digital Australia

Key messages

Transport services must deliver door-to-door mobility that meets all needs in all urban settings, allowing people to choose a lifestyle with less dependence on motor vehicles for passenger and freight movement.

Prioritising the early delivery of active travel and public transport options leads to more sustainable transport patterns and strengthens the longer-term justification for, and role of, new mass transit links.

The public transport system must be inclusive and welcoming for all users. Accessible public transport standards should cover demand-responsive services. The transport experience of people with disability must be consistently reported across all jurisdictions.

Slower speed limits, pop-up infrastructure and road user education will help to address the growing demand for enjoyable walking and bike-riding. Transport subscription packages should combine demand-responsive services with traditional public transport and new micromobility products.

The electrification and connectivity of the Australian vehicle fleet will be accelerated by integrating new technologies into the urban form – from two-way charging facilities to digital communications systems.

What are the impacts?

Improving the integration, speed, reliability and ease-of-use of active, public and demand-responsive transport services will deliver better **quality** and **access** outcomes for all urban Australians.

Social benefits will be experienced by people with disability and user groups that have not been at the centre of transport service provision, including women, older Australians, children and people who speak or read a language other than English.

Making it easier for a growing number of Australians to choose an electric vehicle or to walk, cycle or use a micromobility device will deliver a range of **environmental**, **social** and **affordability** outcomes that increase liveability. Users will also have more opportunity to opt out of car ownership.

When accessible transport outcomes are consistently reported in a form that is comparable across different jurisdictions, service providers will be more accountable and the trust of users in the **governance** of transport services enhanced.

How easy is it to implement?

The Australian transport sector has the proven **capacity** to deploy new technologies and non-traditional business models to deliver better personal mobility outcomes in urban areas at relatively low **cost**. However, this will need to be supported by investments in government capability, which could marginally increase cost to taxpayers.

While delivering the infrastructure for autonomous and connected vehicle operations will be technically **complex**, the required governance frameworks are being shaped to enable users to experience the benefits of these innovations.

In some cases, the COVID-19 pandemic has accelerated the demonstration of successful and affordable solutions like pop-up cycleways.

How certain are the outcomes?

Governments and operators responded to the COVID-19 pandemic by making quick changes to active, public and demand-responsive services. This generates **confidence** in the likely speed, effectiveness and **acceptance** of future changes.

The array of private sector service providers delivering innovative transport products, and the responsibility of states and territories for managing their local mobility outcomes, could reduce governments' collective **control** over outcomes for users. However, the Australian Government's defined authority over disability access, and potential leadership in relation to electric vehicles, offer opportunities to drive reform.

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4.4 A fairer price for every journey

Recommendation 4.4

Ensure the price paid for mobility supports the efficient movement of people and goods by leading the transition to a nationally coordinated and multimodal transport network pricing regime.
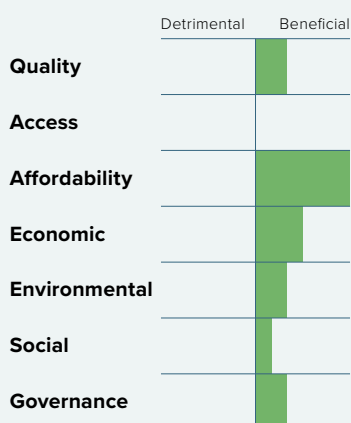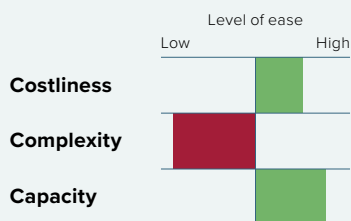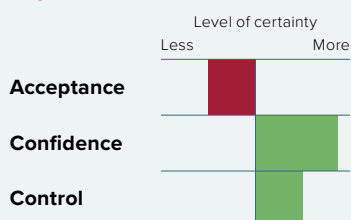
Key information

When this should impact

(0-5) (5-10) **(10-15)** (15+)

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Bounce back to
rapid recovery

Key messages

Reforms to how governments plan, manage and invest in transport networks will bring forward innovative solutions and lead to new infrastructure investment in integrated and multimodal programs that better matches predicted mobility needs.

The primary aim of any transport pricing reform should be to support transport operations by balancing the efficient use of the transport network. A reasonable price for passenger and freight users would capture all travel costs, starting with the direct costs of building and maintaining assets and operating services. What people pay must also reflect the impact that individual choices have on others. A successfully reformed transport network pricing regime will make these considerations clear to all users.

A national distance-based road use charge for heavy and light vehicles must ultimately replace the petroleum fuel excise that will disappear as Australia's vehicle fleet electrifies. Charges should reflect the external impacts of road use in different settings, progressively extend across vehicle classes and be complemented by reductions in fixed vehicle ownership costs. In Fast-growing Cities, supplementary parking and road user charges can target congestion, while rebalanced public transport fares deliver value for money and more efficient network operations.

What are the impacts?

The reform ensures all users will have affordable public and active travel options for reaching jobs and services within an acceptable travel time. Establishing and implementing a nationally consistent governance framework for transport network pricing reform will deliver significant **economic** benefits and increase **affordability** by only charging users for what they need.

The reform also encourages behavioural change and a mode shift away from motor vehicle use for some journeys, reducing congestion and improving **environmental** outcomes.

Moving towards a distance-based pricing regime potentially risks disadvantaging users, including people living in rural and remote areas, who spend a high share of their income on transport. These **social** impacts can and should be managed by introducing nationally consistent protections, monitored by independent agencies at arm's length from governments. This, along with the transparent hypothecation of transport revenues to mobility programs, will enhance community trust in **governance** reform.

How easy is it to implement?

The proposed mechanisms to price efficient transport use are **complex** and challenging to implement, therefore administrative **costs** should correspondingly increase, however existing revenue-collecting mechanisms can be repurposed, with this process already underway through Heavy Vehicle Road Reform. The pandemic provides a positive example of governments' **capacity** to deliver pricing reform, ensuring both passengers and freight users pay a reasonable price. This coordination, exercised over the next 10-15 years, will be equal to the job of leveraging broad progress from the distance-based pricing reforms that are already being initiated by 'first mover' jurisdictions.

How certain are the outcomes?

Implementing transport pricing reform requires a significant overhaul of transport policy. A staged approach is needed, with incremental change. The approach needs to be transparent to improve **confidence** in the reform.

Risks to the reform will come from community resistance to changing pricing mechanisms, therefore engagement with community will be needed to improve **acceptance**.

This, along with government-**controlled** measures to hypothecate revenues and mitigate impacts on at-risk users, should enhance **confidence** in the likely success and benefits of reforms.

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5.1 Putting customers first

Recommendation 5.1

Help households and businesses reduce electricity bills by making sure they have the right information and incentives.
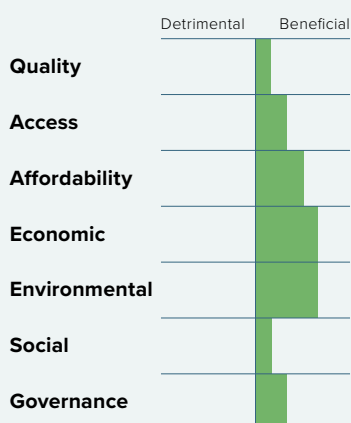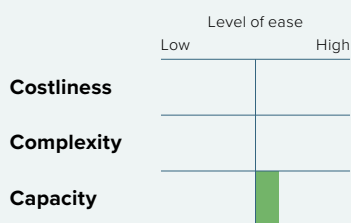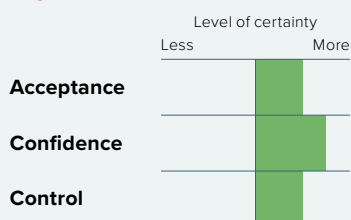
Key information

When this should impact

0-5 | **5-10** | 10-15 | 15+

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Low	Level of ease	High
Costliness			
Complexity			
Capacity			

Risk

	Less	Level of certainty	More
Acceptance			
Confidence			
Control			

Policy priorities and future scenarios

No regrets

Key messages

Business and residential customers can use current technologies – such as smart meters, rooftop solar, batteries, electric vehicles, energy management systems and energy-efficient buildings, appliances and equipment – to reduce bills and drive transformation in the energy sector. While uptake of these technologies is increasing, with targeted communications and information, more customers will invest and realise the benefits of increased energy efficiency and productivity more quickly.

Closing the information gap for home owners, investors, buyers and renters so they better understand domestic energy performance will drive investments and improvements over time.

Vulnerable communities will benefit from these investments through higher minimum standards for rental accommodation and investments in social housing, supporting a higher standard of living and lower bills.

Business productivity will be enhanced when small to medium businesses, manufacturing and high-energy-intensity businesses realise new opportunities to upgrade plant and equipment and modernise processes to realise greater energy productivity.

A more efficient energy system reduces costs for everyone. Learning from, and building on, the best programs available and harmonising incentives and information nationally will help Australia move from lagging to leading in energy efficiency.

What are the impacts?

A national approach to supporting customers to unlock savings will improve energy **affordability** across Australia.

Providing consistent **access** to information, tools and incentives will empower customers to manage their own energy outcomes and improve their experience as service users, including vulnerable customers and small to medium businesses.

In particular, a nationally harmonised approach to energy efficiency will improve **economic** productivity. Energy efficiency upgrades will stimulate growth in Australia's gross domestic product.

Improving efficiency would also improve **environmental** sustainability by reducing energy consumption, energy losses and emissions.

A harmonised national approach would also improve **governance**, with more coherent and transparent decision-making and reduced administration costs.

How easy is it to implement?

Information, tools, and incentives to empower customers can be implemented within five years to provide the support customers need to unlock savings.

This would incur some **costs**, predominantly to taxpayers, as incentives and customer education campaigns would be funded by the Australian Government. However, costs would likely reduce in the long-run through efficiency gains.

Cross-jurisdictional coordination and potentially new legislation could make national coordination **complex**. However, most of this reform's activities could be implemented within 5 years, and all levels of government have most of the **capacity** needed to build on existing successful programs.

How certain are the outcomes?

Supporting customers to unlock energy affordability is expected to be **accepted** by the community. Customers have been dissatisfied with rising energy costs and the expected benefits of these changes are clear.

Harmonising energy efficiency schemes and strengthening tools and information for customers build on existing successful programs, which provide a high degree of **confidence** in the outcome.

The implementation of these reforms is wholly within governments' **control**. However, realising the bill savings relies on customers' actions, which may be galvanised due to the COVID-19 pandemic's impacts on energy affordability.

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5.2 A smart, affordable, reliable grid

Recommendation 5.2

Transition to a smart, affordable, reliable future grid by implementing regulatory reforms, introducing incentives for customer participation in energy system management and planning cross-sector integration.
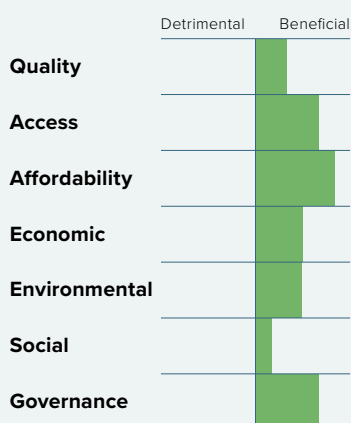
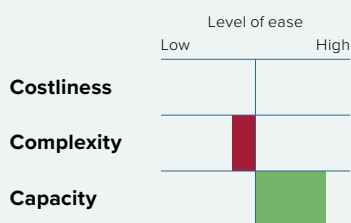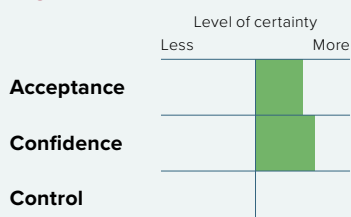---

Key information

When this should impact

(**0-5**) (5-10) (10-15) (15+)

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Low — Level of ease — High
Costliness	
Complexity	
Capacity	

Risk

	Less — Level of certainty — More
Acceptance	
Confidence	
Control	

Policy priorities and future scenarios

Productive cities   Digital Australia   No regrets

Key messages

Energy, particularly electricity, underpins the Australian way of life. The grid is an essential infrastructure backbone that will only become more vital as more services, such as transport, start to rely on electricity. At the same time, the grid is transforming from a centralised one-way service to a decentralised two-way system.

Getting this transformation right is a major opportunity to shape a smarter, more affordable and more reliable energy system, but it will take national coordination and consumer participation.

State and territory energy departments and the energy industry can help improve affordability by demonstrating the value of smart meters to customers. The industry should incentivise smart meter installation, accompanied by customer education; user-friendly digital and mobile tools displaying electricity consumption; and a default time-of-use tariff with an opt-out option and exceptions for vulnerable customers.

Enabling zero-emission vehicle (ZEV) uptake by customers at scale is complex, requiring close cross-sector planning and coordination between the electricity and transport industries.

Smart regulation will deliver the future grid sooner and cheaper. Electricity transmission reforms should be pursued so low-emission generation can be connected efficiently to the grid.

What are the impacts?

Accelerating **access** to smart meters and efficient pricing incentives alongside protections for vulnerable customers will unlock opportunities for users to reduce their electricity bills.

Enabling efficient connection of renewable generation and reducing the regulatory burden to enable faster project delivery by network businesses will make electricity more **affordable** by giving investors the confidence to invest in new supply.

Enabling ZEV uptake will reduce greenhouse gas emissions and **environmental** pollution. National coordination to integrate ZEVs at scale without adversely impacting the grid will avoid unnecessary additional electricity costs, allow efficient use of the grid and improve planning, collaboration and consistency in **governance** across jurisdictions and the transport and electricity sectors. Public consultation throughout these processes will add to the transparency of decision-making.

How easy is it to implement?

Implementing the reforms is not expected to significantly change overall **costs**, with long-term savings offsetting initial upfront costs.

However, **complex** cross-governmental, cross-jurisdictional, cross-sector coordination and potential regulatory changes are required.

Governments have the **capacity** in skills and expertise needed to build on concurrent coordination and reform programs – particularly by the market bodies – but additional resources may be needed to fully implement this smarter grid.

How certain are the outcomes?

A smarter, more affordable and more reliable grid is expected to reduce bills and environmental harm. However, pre-existing concerns regarding electricity costs will need to be overcome through mature and honest debate, and strong leadership.

Existing regulatory work programs have developed pathways to change and an evidence base for reform which provide **confidence** that the reforms can be achieved.

Some of the benefits of a smart grid will be realised through regulatory changes. However, customers will need to access new smart tools and, in some cases, alter their behaviours to take advantage of smart meters and participate in an efficient market. Government can drive the uptake of ZEVs, including fleet vehicles and electric buses, but this also depends on the actions of customers, as well as transport agencies. Some outcomes are therefore outside the direct **control** of government.

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5.3 Powering a cheaper, cleaner future

Recommendation 5.3

Transition Australia's exports and domestic energy demand to high-tech, low-cost, low-emission energy sources by coordinating national strategy.
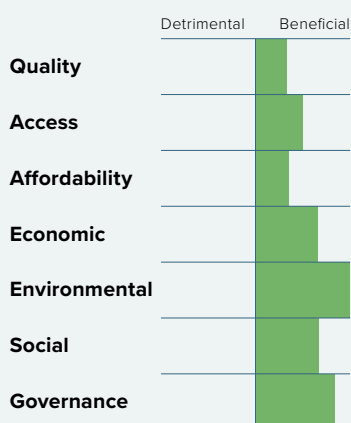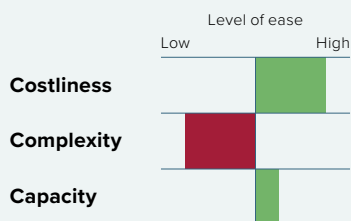
Key information

When this should impact

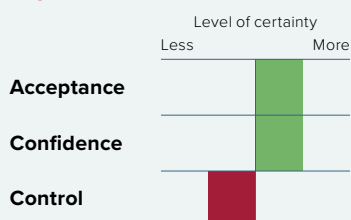(**0-5**) (5-10) (10-15) (15+)

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

Level of ease

	Low	High
Costliness		
Complexity		
Capacity		

Risk

Level of certainty

	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Economic benefits   Liveable cities   No regrets

Key messages

The global shift from fossil fuels to low-cost, low-emissions renewable energy is rapidly underway and a big opportunity for Australia, which relies on fossil fuels for domestic electricity production and exports. The associated jobs and assets could become stranded as the shift accelerates. To make the energy transition work for, rather than against Australia, there needs to be a clear approach to change and accelerated renewable energy development.

Australia has world-leading renewable resources, such as solar and wind, that can service both the economy and trading partners. It can remain a global energy supplier of choice by pivoting from fossil fuels to low-emissions supply chains.

Australia's energy export industries must be redefined through national planning and coordination that identifies and nurtures a diversified portfolio of low-emission energy industries across energy commodities, services and value-added products.

The existing national energy policy and planning framework will need to be enhanced to increase investor confidence and ensure Australian homes and businesses benefit from affordable and reliable energy.

Rural and remote communities should have access to low-emission standalone power systems, which will reduce their energy costs and improve power reliability.

What are the impacts?

Transitioning Australia's energy system to low-cost, low-emissions renewable energy will have significant **environmental** benefits, particularly by reducing greenhouse gas emissions in line with policy commitments. Lower-cost renewables, alongside required firming capacity, can also increase energy **affordability**.

Harnessing Australia's renewable export potential through national planning and investment in new technologies and emerging industries will create **economic** opportunities such as jobs, particularly in regional areas.

Both the **economic** outcomes and reduced **environmental** harm support **social** benefits and protect quality of life for Australians. Micro-grids and other new technologies can provide better energy **access** and enhance the **quality** of services through greater reliability, making remote communities more resilient.

Collaboration, knowledge-sharing and consistent regulation and legislation will enhance the efficiency of infrastructure planning and **governance**. Coordinated planning will be critical to unlocking these opportunities.

How easy is it to implement?

Some **costs** will be borne by taxpayers in the short-term, such as the burden of national planning and investments in low-emissions technologies and emerging industries. However, the long-term benefits of low-cost renewables are expected to be significantly larger, both in terms of cost reductions and economic output.

National coordination across governments and jurisdictions and changes to regulations and legislation will be **complex**.

However, Australia is building world-leading **capacity** to harness this transformation and can implement this future with the right investments in emerging industries, skills, and systems.

How certain are the outcomes?

Community **acceptance** of investment in renewable energy is generally high. A number of significant work programs, such as the *Integrated System Plan* and *National Hydrogen Strategy*, have highlighted the clear impacts that harnessing this transition could have for Australia, and create **confidence** that the benefits could be achieved.

However, much of the required investment and collaboration must come from the private sector, which leaves some of the outcomes outside governments' **control**.

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6.1 Securing our water future

Recommendation 6.1

Secure long-term water supply for urban, rural, environmental and cultural users by developing a national approach to water security, including independent national ownership.
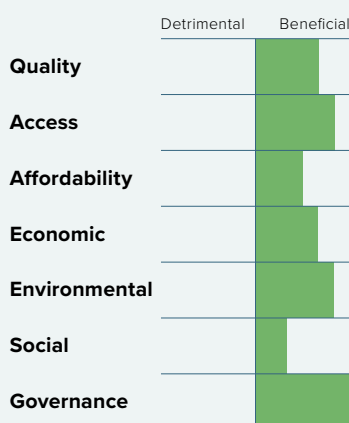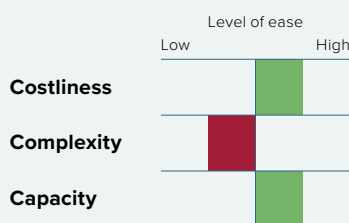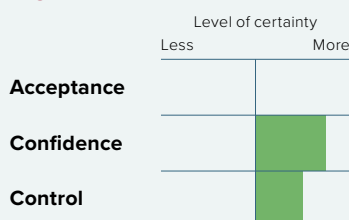
Key information

When this should impact

0-5 | 5-10 | **10-15** | 15+

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

Level of ease

	Low	High
Costliness		
Complexity		
Capacity		

Risk

Level of certainty

	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Community priorities | Economic benefits | Liveable cities | Productive cities | Regionalised Australia

Key messages

A national water security framework will provide a single, authoritative definition of what water security is and how to assess Australia's position. The national water security framework should form the basis of national, regional, state and territory infrastructure planning and growth strategies.

To adapt to an unpredictable future, Australia must now enter a new phase of water efficiency driven by water-literate communities. With climate change likely to shift rainfall patterns, relying so heavily on water sources that depend on climate no longer makes sense.

Australia cannot afford to limit access to alternative sources that will allow a diversified water supply portfolio. Governments must remove outdated barriers that prevent the use of all water supply options. This should be supported by greater collaboration and resource sharing to improve asset management across the sector.

What are the impacts?

A consistent approach to measuring water security risk will significantly improve **governance** of Australia's water resources. It will support transparent and reliable decision-making that addresses the needs of local communities.

Stronger planning processes enabled by water security information will support better health and **environmental** outcomes, with reduced frequency and intensity of water shortages enhancing community sustainability and unlocking **social** benefits.

Implementing a consistent approach to assessing water needs and measuring water security risk will help ensure regional, remote and rural communities have comparable levels of **quality** and **access** to services.

Prioritising water investments based on more accurate assessment of water security risk will help to improve the reliability of services that support **economic** productivity for both communities and businesses. In the long-term, this can improve **affordability** by reducing expenditure on reactive activities and improving efficiency.

How easy is it to implement?

Although the benefits are significant, complete implementation of a consistent water security approach may take up to 15 years. Government and industry are already starting to work towards this and will continue to improve **capacity** through collaboration.

Data collection, legislative amendment and policy reform will be **complex** and time-consuming. In the medium-term, these activities will increase regulatory **costs**, but they will lead to more efficient management of water resources and better investment in infrastructure, which will reduce costs to water users over the long-term.

How certain are the outcomes?

Community **acceptance** of alternative drinking water sources such as recycled water has not been well-managed in the past. Governments have been reluctant to re-engage communities in that discussion. However, the benefits of engaging the community in this reform are clear, with improved community acceptance from public education initiatives.

There is robust evidence of improved water security outcomes from this reform, which gives **confidence** that the benefits can be delivered.

Explaining the need for change to the community will therefore be critical, and will give governments more **control** over managing these risks and improving water security for all users.

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6.2 Valuing water to create liveable communities

Recommendation 6.2

Value water in communities by prioritising a whole-of-water-cycle management approach and applying fit-for-purpose, fit-for-place and fit-for-people approaches.
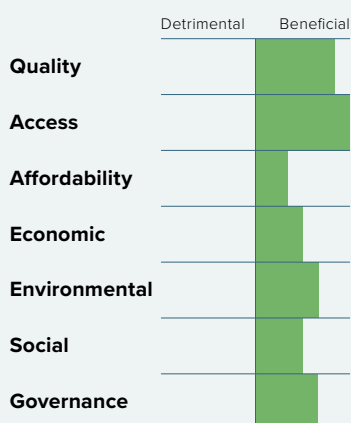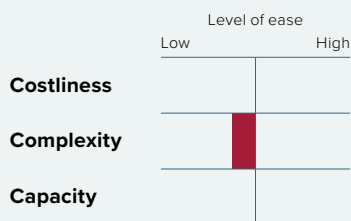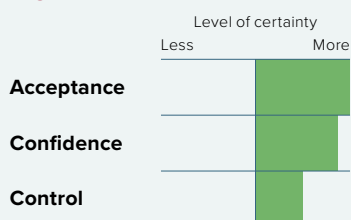
Key information

When this should impact

0-5 5-10 **10-15** 15+

Where this should impact

Policy priorities and future scenarios

Community priorities   Social benefits   Liveable cities   Connected regions   Regionalised Australia

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Key messages

The water sector is central to ensuring the liveability and resilience of Australia's urban environments. Australians value water-dependent urban features, including parks, sporting fields and urban waterways. Integrating management of water infrastructure and incorporating water managers into urban planning helps ensure the benefits of water in urban environments can be maximised.

Quality water is essential to meet basic human needs, and is critical for strengthening Australians' health and wellbeing, ensuring economic prosperity and supporting sustainable development.

All Australians have a right to safe, quality reliable water and wastewater services. The Australian Government recognises this right and the commitment in the 2020 National Agreement on Closing the Gap and in its pledge to the United Nations' Sustainable Development Goals.

What are the impacts?

Water management that incorporates the whole water cycle and considers a fit-for-purpose, fit-for-place and fit-for-people approach delivers many benefits to service users. The most significant is improved **access** to services. Whole-of-water-cycle management will improve access to water and wastewater services in remote communities, improve Closing the Gap targets and help meet United Nations Sustainability Development Goals.

It will also improve service **quality**, enhance health outcomes related to water quality, and strengthen the resilience and liveability of urban areas. In addition, the **environmental** sustainability of water services will be enhanced through whole-of-water-cycle management. Delivery of services that are fit for purpose, place and people is key to community sustainability.

How easy is it to implement?

Complete implementation of the reform will take up to 15 years. There will be short-term **complexities** in incorporating water planning into land-use planning and with creating a cost recovery mechanism for liveability projects.

The **capacity** of governments to integrate water management must be further improved. State and territory planning bodies can ease implementation challenges by clarifying the roles and responsibilities of utility providers and local government, as well as increasing the focus for industry involved in property development and urban renewal. Industry is well placed to deliver, as evidenced by delivering clean water to remote communities.

This reform will increase short-term **costs**. Delivering improved services to remote communities and delivering water-related liveability improvements requires investment. However, cost savings over the medium- to long-term, through efficiency improvements and better allocation of resources across the water cycle, will counter upfront investment.

How certain are the outcomes?

Unlike energy and transport services infrastructure, where affordability is the leading priority, communities prioritise water quality over affordability, so they are likely to **accept** this change.

There is also a high degree of **confidence** that benefits will be achieved. Small-scale projects that incorporate whole-of-water-cycle approaches have proved this approach, including South Creek in Western Sydney and project 'Gilghi' in the Northern Territory.

While state and territory governments **control** most of the resources to achieve this reform, the Australian Government has a greater role in articulating outcomes, delivering infrastructure and allocating resources.

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7.1 Improving the resilience of Australia's telecommunications

Recommendation 7.1

Ensure every Australian can rely on digital services by ensuring transparency and resilience for Australia's telecommunications infrastructure.
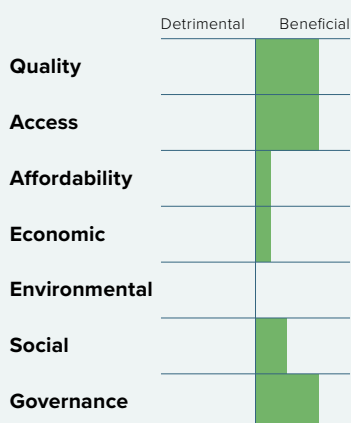
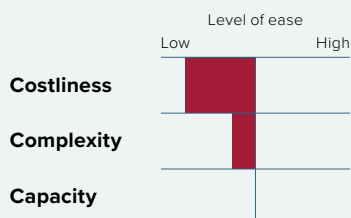## Key information

When this should impact

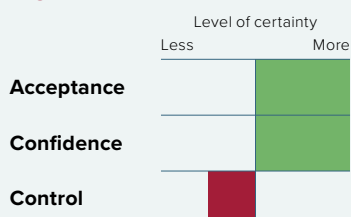(0-5) **(5-10)** (10-15) (15+)

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Destabilised world

Key messages

Australia has recently encountered many catastrophic events, including a pandemic, bushfire and floods. These crises and disasters often affect telecommunications networks, placing additional demands on them and, in some cases, disrupting their operations.

With digital services so essential for Australians' everyday lives and the economy, governments and industry should work together to identify, treat and mitigate network reliability risks.

Most fixed and mobile network operators reacted quickly to the COVID-19 pandemic. They prevented service disruption by scaling up network capacity, optimising network traffic and activating emergency response plans. As a result, Australia's digital infrastructure passed a monumental test. However, we must not rest on our laurels.

The frequency, complexity and severity of natural disasters is growing. In a disaster, people rely on essential telecommunications to stay safe and connected, but fires and floods can bring down power and transmission lines, causing mass outages.

While it is important to note there is no way of making infrastructure 100% resistant to disruption, it is imperative to improve the resilience of networks that serve at-risk communities.

What are the impacts?

Consistent policies for emergency management between telecommunications operators and state emergency services will ensure better **quality** and **access** to public safety networks, consistent support, improved network reliability and faster restoration of services.

Investing in a resilience and recovery roadmap will improve **governance** frameworks for providing additional emergency coverage to high-risk areas, evacuation routes and evacuation centres. Continuing to prioritise community safety during emergencies delivers **social** benefits through improved health outcomes.

Classifying telecommunications as an essential service strengthens the case for introducing network standards to help raise overall industry performance, delivering significant **economic** performance.

How easy is it to implement?

Government and industry responses to the pandemic demonstrated a high **capacity** to deliver the reform. However, there will be a **cost** to providing more funding for redundancy options to respond to natural disasters.

Navigating multiple governments, regulators and industry stakeholders increases the **complexity** of implementing the reform. However, the outcomes will deliver significant improvements to telecommunications infrastructure capacity.

How certain are the outcomes?

The *Royal Commission into National Natural Disaster Arrangements* highlighted the urgent importance for all telecommunications network operators to share key asset information with governments, emergency services and utility providers. An intergovernmental data-sharing agreement and responses to the Royal Commission demonstrate **confidence** in government to successfully implement the reform.

Very high **acceptance** of the reform is anticipated due to increased bushfire resilience and improved telecommunications performance. However, government lacks full **control** of the reform, relying on industry to play a major part in delivering improved services.

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7.2 Putting customers at the heart of digital infrastructure

Recommendation 7.2

Give Australians improved telecommunications coverage, quality and inclusivity by taking strategic actions to improve digital inclusion, regional telecommunications and broadband quality levels.
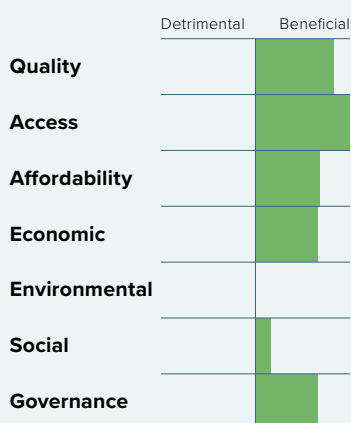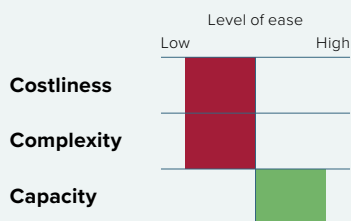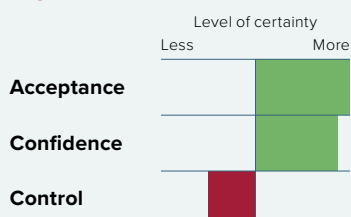
Key information

When this should impact

0-5   5-10   **10-15**   15+

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Social benefits

Connected regions

Key messages

The National Broadband Network (NBN) is Australia's largest ever telecommunications infrastructure project. By every measure, the network has improved greatly since its launch, and it has achieved its major milestones. The latest NBN strategic plan commits to major further investment over the coming years. This includes improving data speeds for people with slow or inconsistent service on Fibre to the Node and Fixed Wireless technologies.

The regional Mobile Black Spot Program has improved mobile coverage to many hundreds of communities across Australia, but there are areas in regional and remote Australia where the coverage, quality and reliability of mobile telecommunications services still need to improve. This issue requires a strategic approach by governments and industry to identify key communities, transport corridors and businesses that require the improvement of existing terrestrial mobile services or new terrestrial mobile coverage.

Despite progress, a digital divide continues to split Australia. Affordability, digital literacy, accessibility, digital device availability and other obstacles are preventing older Australians, Aboriginal and Torres Strait Islander peoples, people with disability, regional Australians and lower-income families from enjoying the same digital benefits as the rest of society.

What are the impacts?

Closing the gap in digital inclusion by improving satellite and fixed wireless services improves the **quality** of telecommunications **access** in regional areas. Implementing the Digital Inclusion Roadmap ensures **affordable** broadband access for those on low incomes, in particular groups receiving government assistance.

The Mobile Blackspot Program has improved mobile coverage to communities across regional and remote Australia, connecting remote communities and stimulating key regional **economic** sectors.

An outcome of innovative **governance** approaches to telecommunications infrastructure investment includes the delivery of the regional tech hub to assist people in regional, rural and remote Australia to realise the benefits of being digitally connected.

A clearly-owned digital inclusion roadmap will improve **social** inclusion, bring a strategic focus to closing the digital divide, enhance centralised funding and drive investment in larger, more impactful projects.

How easy is it to implement?

Regional Australia presents inevitable geographic challenges for traditional mobile coverage. Involving more partners across more levels of government and more network operators will progressively lower investment costs.

The Universal Service Guarantee provides access to baseline services across Australia. A multi-year upgrade program has delivered significant improvements to fixed wireless **capacity**, supported by co-investment with NBN Co.

A national upgrade program to many thousands of premises will be straightforward for many, but highly **complex** and potentially **costly** for a smaller number of properties that are heritage, complex or particularly difficult to connect to the NBN.

How certain are the outcomes?

Eight out of ten Australians believe comprehensive digital connectivity is now essential for their work and home lives. This suggests a high level of community **acceptance** for raising the basic quality, inclusiveness and regional coverage of NBN. The risks lie in achieving a delicate balance between shareholder return, network quality and end user affordability.

Confidence that the benefits of the reform will be realised through continual improvement is evident through existing progress and strong research that supports addressing the digital divide for vulnerable groups.

Government **control** within newer investment areas of regional Australia is limited. The prevalence of industry co-investment needs to be addressed through localised, community-led investment that can achieve sustainable coverage.

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7.3 Enabling Australia's digital future

Recommendation 7.3

Fully realise the digital economic dividend by better enabling emerging technologies such as 5G, the Internet of Things and smart cities across Australia through regulation, investment and coordination.
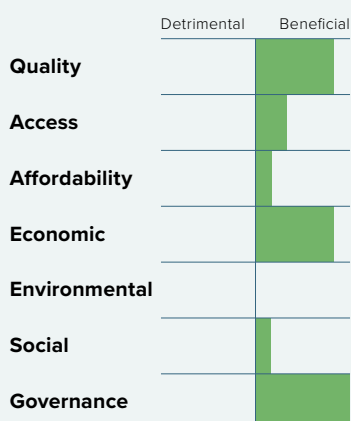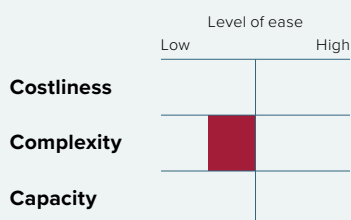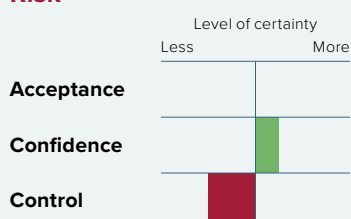
Key information

When this should impact

(0-5) (5-10) ((10-15)) (15+)

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Bounce back to rapid recovery

Digital Australia

Key messages

5G will power new industries and enable many new features. These include faster speed, a greater number of devices in any given area, ultra-low latency (the time it takes for data to travel between user and the target destination) and ultra-high reliability.

To create a comprehensive and competitive 5G landscape, the cost of building new telecommunications base stations needs to be sustainable. The most significant costs are hardware, site rental (frequently on public land) and spectrum licenses.

The increasing collection and processing of a growing amount of personal data present multiple risks. To protect consumers, there should be industry codes that encourage responsible application of solutions and regular updates to privacy legislation.

Digital innovation can support the better maintenance, optimised productivity and lower-cost operation of Australian infrastructure across all sectors. Digital technology is not yet the default application for every new Australian infrastructure project. To maximise its benefits, there must be clearer ownership, adoption of standards, industry alignment and effective governance for infrastructure data.

What are the impacts?

Better enablement of 5G networks will deliver high-**quality** 5G **access** to more places on a basis that is economically sustainable for mobile network operators and businesses and **affordable** for end users.

5G can significantly improve **economic** productivity in industries where there is movement, production, data or distance. The proposed reform creates opportunity for effective **governance** in emerging areas of risk such as privacy and cybersecurity.

Social and **environmental** benefits are reliant on market participants providing contiguous 5G coverage.

How easy is it to implement?

This reform will remain **complex** to implement until there is an evolved mindset across all levels of government around fully enabling the benefits of 5G.

New telecommunications sites are typically associated with high **costs** for operators, which is offset by the significant revenues for governments gathered from spectrum licences and site rentals.

How certain are the outcomes?

Government **control** is hindered by existing strategic risks in delivering national networks that depend on industry organisations for success.

Demonstrating the potential of 5G can improve **confidence** in supporting innovation, IoT and smart cities reform. Realising that this is a utility for the community good rather than a private revenue source will allow the benefits to be achieved.

Greater government involvement and public dialogue to address the perceived health and safety risks of 5G and cybercrime will increase community **acceptance** in the long-term.

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8.1 Transforming social infrastructure to enhance quality of life

Recommendation 8.1

Support Australians in enjoying a healthier, safer, more connected and fulfilled quality of life by leading targeted investment in the right physical and digital social infrastructure.
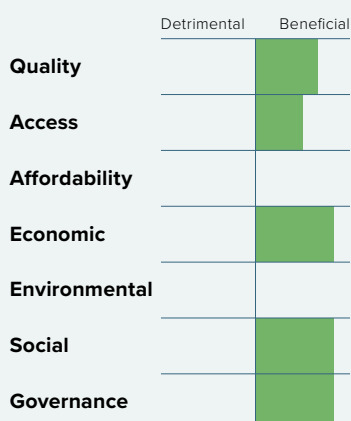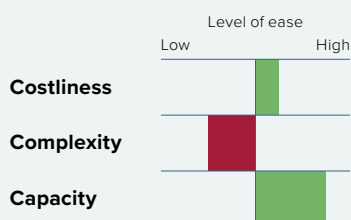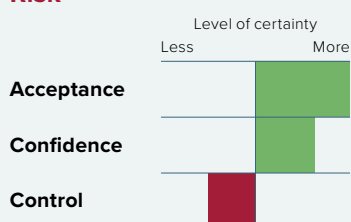
Key information

When this should impact

0-5   5-10   **10-15**   15+

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

No regrets

Key messages

During the COVID-19 pandemic, Australia's social infrastructure adapted quickly to meet Australians' needs. This transformation must continue, using technology and innovative delivery models to improve the accessibility, quality and efficiency of services.

New models, such as virtual health, are improving choice and access, providing health care closer to home and alleviating pressure on health facilities. Governments can continue transforming the health system and building the digital capacity of citizens and the health workforce through sustained investment and planning.

Education infrastructure must continue to adapt to contemporary needs, through embracing technology and digital learning. Training and higher education infrastructure should be strategically located to maximise learning and job creation opportunities.

To address the growing shortfall of social housing, government agencies should work with the sector to harness new investment options and provide high-quality social and affordable rental housing.

To create more liveable local areas, people should have increased access to high-quality green and blue public infrastructure and spaces.

Better alignment across arts, cultural and recreational planning will create new avenues for innovation, investment and growth, and build resilience in the face of future challenges.

What are the impacts?

Targeted investment in physical and digital social infrastructure assets will provide **social** benefits to Australians by enabling a healthier, safer, more connected and fulfilled quality of life.

Reorienting Vocational Education and Training (VET) facilities with student and industry needs will play a vital role in strengthening the **economy** after the pandemic.

Integrated **governance** across all relevant sectors and levels of government will improve **access** to arts and cultural spaces to make cities and regions more attractive. Improving the standing of these assets will enhance a sense of place and improve access.

While **affordability** will remain the same, delivering high-**quality**, well-functioning and adaptable social infrastructure is beneficial as it responds to the changing service needs of communities efficiently and equitably.

How easy is it to implement?

Governments have the **capacity** to use smart infrastructure to improve wellness and prevention, as demonstrated through the Australian Digital Health Agency. Enhancing digital health delivery will require initial upfront and ongoing investment but will reduce ongoing health **costs**.

While new agencies or processes are not required to implement the reform, there may be increased **complexity**. For example, state and local governments working together on increasing access to public spaces or the Australian Government and state health and education agencies aligning changes to national partnership agreements.

How certain are the outcomes?

Communities are likely to have high **acceptance** for place-based social infrastructure investments.

Governments can increase **confidence** in decision-making around contentious decisions by engaging with communities to identify gaps for investing in social infrastructure.

Governments don't have **control** over community behaviour in response to improved infrastructure quality, however they can build awareness of whole-of-community benefits, using targeted engagement and education approaches.

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8.2 Partnerships to build communities

Recommendation 8.2

Maximise social and economic community benefits by supporting shared use of social infrastructure through future agreements and capital funding programs prioritising shared use of facilities.
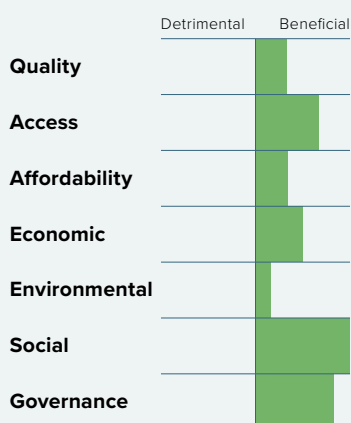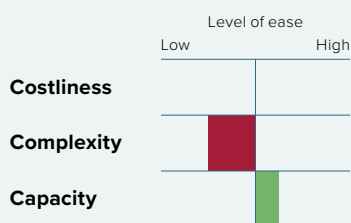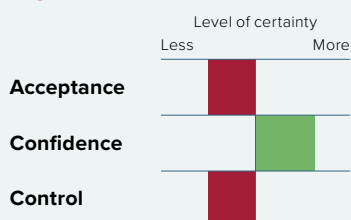
Key information

When this should impact

| 0-5 | 5-10 | **10-15** | 15+ |

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

No regrets

Key messages

Productive partnerships are vital for providing effective social infrastructure and enabling more equitable access to services.

Effective cross-government systems help to maximise social, economic and environmental outcomes for communities.

New consistent governance models are required to lead social infrastructure partnerships across jurisdictions.

The benefits of collaborative strategic planning and the shared use of social infrastructure include more connected and healthier communities, better use of assets and optimised government investment.

Co-locating facilities in health and education innovation precincts will lead to more integrated, accessible and higher-quality services and unlock economic benefits.

Cost-effective social infrastructure and services that communities value can be delivered through new models and operating processes that create efficiencies and drive innovation.

What are the impacts?

Forming collaborative partnerships to deliver effective **social** infrastructure will improve service **quality** and **access** for communities.

A coordinated approach to planning and delivering social infrastructure can improve **affordability** and deliver significant cost savings through shared-use community facilities.

Integrated and early strategic planning supports strong cross-sector **governance** to deliver the right services in the right places, enabling effective service delivery and **economic** efficiencies and attracting investment through innovation precincts.

Making effective use of dedicated infrastructure agencies will improve transparency in the system and optimise asset use, enhancing **social** outcomes.

How easy is it to implement?

Governments recognise a customer service approach improves collaboration. Governments and industry have the **capacity** to deliver place-based partnerships though harmonisation across jurisdictions. However, this will increase **complexity**.

Integrating an initial business case and procurement planning may increase initial **costs**. However, the reform will improve capital outcomes.

Streamlined payment systems and insurance/security arrangements are needed to enable more third-party access to assets. This will involve implementation costs for governments, but will open up new revenue streams for agencies and improve affordability for communities.

How certain are the outcomes?

Connecting infrastructure pipelines with place-based outcomes will improve community **confidence** in government and industry to deliver the reform.

There must be government **control** and close engagement to reduce risk, embed higher levels of collaboration and implement effective governance structures that enable new models of delivery and operation.

Changes to service delivery models may reduce the level of trust and lead to some contention in the community. Clear and transparent engagement will improve **acceptance** of the reform.

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8.3 Social infrastructure is economic infrastructure too

Recommendation 8.3

Support economic development by recognising the value of investment in social infrastructure.
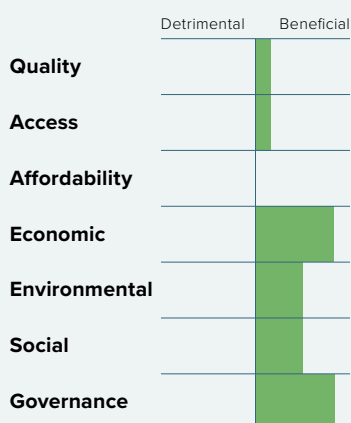
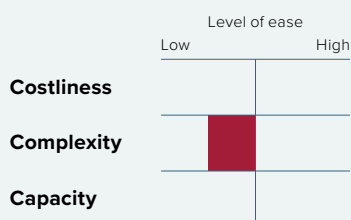## Key information

When this should impact

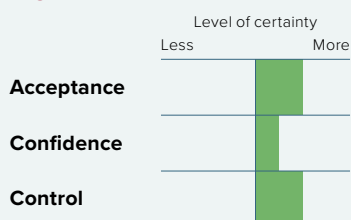0-5 | **5-10** | 10-15 | 15+

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		

Policy priorities and future scenarios

Bounce back to rapid recovery

No regrets

Key messages

Social infrastructure, and the services it supports, not only enables Australians to live better lives, it delivers substantial direct and indirect benefits to the nation's economy. Australia needs a nationally consistent approach to identifying and evaluating the quadruple-bottom-line value of all social infrastructure investments.

Education leads to higher levels of wages and employment, while lifelong learning produces a skilled workforce. Both require high-quality, cost-effective, digitally enabled educational infrastructure that is well located and fit for purpose.

Investment in safe and adequate social housing generates positive wellbeing, health and productivity outcomes for individuals and contributes to the effective functioning of society. To support more informed investment decisions, there need to be more fully developed business cases that capture and assess the wider societal and economic benefits of social and affordable rental housing programs.

Active recreation and sport and Australia's world-class natural assets generate a wealth of health, social and economic benefits. Governments should drive economic growth by coordinating arts, cultural and recreational infrastructure strategies that capitalise on the unique strengths of Australia's regions.

What are the impacts?

Social infrastructure delivers substantial direct and indirect benefits to the nation's **economy**.

Harmonising investment decisions to deliver a national valuation framework to capture, measure and assess the quadruple-bottom-line benefits of social infrastructure will improve **access** for communities and drive **governance** improvements.

In Fast-growing Cities, significant performance and productivity gains can be harnessed by co-locating major infrastructure to improve the **quality** of assets.

In Smaller Cities and Regional Centres, investment in social infrastructure must plan ahead and respond to changes in population, improving **social** outcomes for communities.

How easy is it to implement?

While governments will need to increase its **capacity** to deliver this reform, it can leverage the experience of international case studies and partner with industry. A coordinated approach can draw on the expertise of government, industry, environmental, community and Aboriginal and Torres Strait Islander leaders.

Better reflecting the economic benefits of social infrastructure will offset some **costs** for health services.

While these activities will build on existing frameworks, the significant cross-government and cross-sector coordination involved will increase the **complexity** of the reform.

How certain are the outcomes?

Establishing a social infrastructure valuation framework will improve **confidence** for the industry and communities.

Providing communities with more transparent information, including cost–benefit analysis, will enhance community **acceptance** of the reform.

Government has significant **control** over developing a nationally consistent assessment tool that will provide social infrastructure agencies with a better platform for developing business cases.

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9.1 Valuing resources to enable a circular economy

Recommendation 9.1

Avoid waste, improve resource recovery and build demand and markets for recycled products by integrating the circular economy in national waste policy and infrastructure projects.

Key information
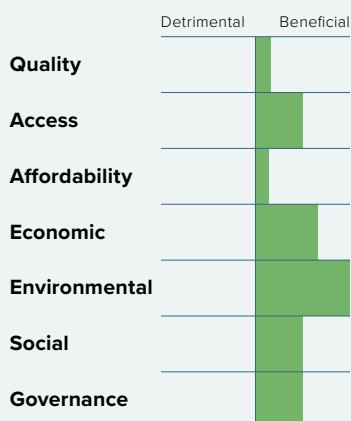
When this should impact

0-5   5-10   10-15   **15+**

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

	Level of ease	
	Low	High
Costliness		
Complexity		
Capacity		

Risk

	Level of certainty	
	Less	More
Acceptance		
Confidence		
Control		
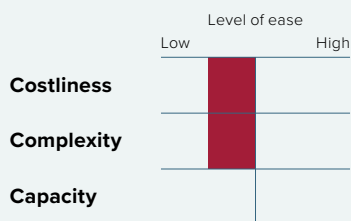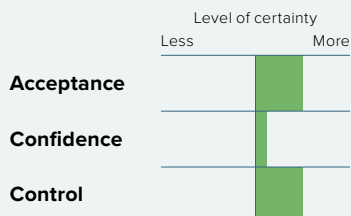
Policy priorities and future scenarios

Destabilised world

Key messages

Prioritising the delivery of a circular economy through relevant standards, guidelines and procurement can reduce costs for business, support new industries and jobs and enable the efficient use of natural resources.

The transition to a circular economy means everyone who imports, produces, designs, constructs, sells and disposes of a product will share responsibility over its lifecycle.

Transitioning also involves developing the necessary resource recovery infrastructure to re-circulate recovered resources.

A consistent national approach to sustainable waste policies that encompasses all aspects of the waste value chain would accelerate Australia's transition to a circular economy.

Product development and innovation for using recycled materials as an industry resource is a significant opportunity for Australia, domestically and globally.

What are the impacts?

A circular economy based on the principal of designing out waste and pollution will inherently reduce **environmental** impacts by keeping products and materials in use and to regenerating natural systems.

For instance, in South Australia, a circular economy could reduce greenhouse gas emissions by 27%, creating 25,700 more full-time equivalent jobs compared to business as usual in the state. Overall, recent modelling of the value of circular economy activities includes potential **economic** benefits of $23 billion in GDP (in present values) by 2025.

Opportunities for education and employment presented by the shift towards a circular economy have the potential to support **social** outcomes by creating new industries and jobs.

Tracking and monitoring resource streams could increase regulatory burden on local governments and industry, but will enhance transparent and consistent **governance**.

How easy is it to implement?

Progress towards a circular economy depends on a fundamental shift in consumer, commercial and industrial behaviour, as well as the development of domestic resource recovery infrastructure. This change will be **complex**, and much of the upfront **cost** of implementing new infrastructure and network logistics to support these services is likely to fall on local governments and be passed on to users.

Many states and territories now have, or are developing, circular economy strategies. A circular economy also forms a central part of the *National Waste Policy.* There are also procurement and public funding policies.

However, harmonising inconsistent policies across all levels of government will require high levels of interjurisdictional **capacity**. Constraints with end-use market demand and resource recovery infrastructure must be addressed to manage Australia's waste volumes domestically.

How certain are the outcomes?

Community **acceptance** for the reforms is likely but may require building awareness of all the changes and outcomes. The concept of waste as a resource and the role of various actors in the circular economy is not yet widely understood, but there is growing public awareness and support for a more sustainable approach to waste.

Confidence that the reforms will be achieved depends on a systems-level change, through procurement, governance and financial and delivery incentives and mechanisms. A piecemeal approach will not create a circular economy.

With waste management being shared across all levels of government, the extent of **control** will be determined by the decisions, policies and regulations enacted at each level, including industry cooperation.

9. Waste

9.2 Waste data to drive innovation

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Recommendation 9.2

Encourage market development through government and industry partnerships to accelerate and extend the implementation of the *National Waste Policy*'s data actions and bring national consistency to the household waste collection and landfill levy system.

Key information

When this should impact

0-5 | **5-10** | 10-15 | 15+

Where this should impact

Impacts

	Detrimental	Beneficial
Quality		
Access		
Affordability		
Economic		
Environmental		
Social		
Governance		

Ease of implementation

Level of ease

Low — High

Costliness	
Complexity	
Capacity	

Risk

Level of certainty

Less — More

Acceptance	
Confidence	
Control	
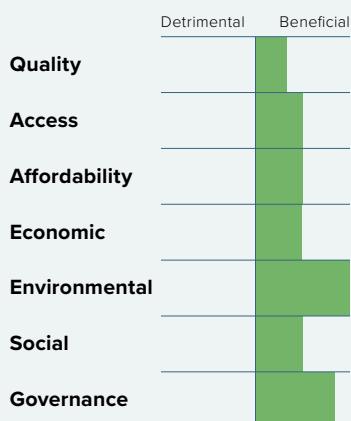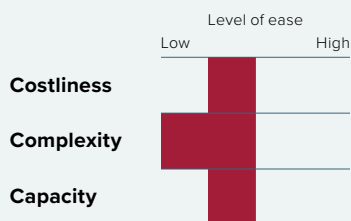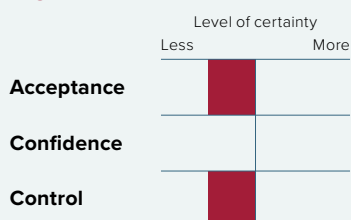
Policy priorities and future scenarios

Digital Australia

No regrets

Key messages

Successful policy and regulatory decision-making, community and industry behaviour change and private-sector participation and investment all rely on meaningful, transparent data.

Waste and recycling data collection is currently insufficient and inconsistent because it is delivered through a variety of legislative and regulatory initiatives — both voluntary and mandatory.

A comprehensive and coordinated national waste data strategy is needed to outline the roles and responsibilities of all stakeholders.

Interstate inconsistencies in landfill levies are causing negative waste disposal behaviours instead of supporting resource recovery and environmental protection. Landfill levies are a powerful regulatory tool that can divert more waste away from landfill by shaping community and commercial behaviours.

What are the impacts?

Consistent and reliable data will support stronger **governance** policy and regulatory decision-making around waste and recycling infrastructure and reform, more accurate assessments of compliance and more efficient monitoring and management of a range of **social**, **economic** and **environmental** impacts.

Harmonising data standards would enable waste data to be more quickly and accurately collected and released to consumers, industry, regulators and government. This improves **governance** and coordination, to enable sector growth and industry efficiency.

A clearer understanding of volume and flows of materials through the system will provide better problem identification and support investment in **quality** waste infrastructure. It will result in more informed end markets, identify the areas in need of research and development and support **accessible**, targeted waste collection and processing services.

How easy is it to implement?

There are existing waste data collection and storage methodologies in each jurisdiction, but a national approach will be **complex** to implement. The Australian Government has only recently become involved in waste policy and there are significant inconsistencies in approach between states and territories and at a local government level that will need to be harmonised.

Industry lacks the knowledge, **capacity** and data to make informed decisions. However, recent joint initiatives such as the response to the national waste export ban show coordination is achievable in the long-term.

The introduction of a consistent levy pricing strategy and protocols will similarly rely on cross-jurisdictional collaboration. New systems will increase **cost** in the short-term.

How certain are the outcomes?

Community **accepts** improving environmental management in principle. However, cost implications may raise some concern, and key concepts such as waste being a resource, Australia's over-reliance on landfill and how data supports policy/investment decisions are not widely understood and could require active management.

This reform is heavily dependent on interjurisdictional collaboration and coordination, with no single government able to **control** all the outcomes.

Gaps in data availability are acknowledged by governments at all levels, including in the Australian Government's *National Waste Action Plan*. This affects the level of **confidence** in decision-making, but can be overcome by implementing the reforms and equipping government to track sectoral performance and enable the private sector to make informed investment decisions.

Icon glossary

When this should impact

0-5 0-5 years

5-10 5–10 years

10-15 10–15 years

15+ 15+ years

Where this should impact

National

Fast-growing Cities

Smaller Cities and Regional Centres

Small Towns, Rural Communities and Remote Areas

Northern Australia and Developing Regions

Community weighted baseline

Community priorities

Policy priorities

Economic benefits

Social benefits

Productive cities

Liveable cities

Connected regions

Deliverability

Low-hanging fruit

Future scenarios

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Slow recovery from a sustained pandemic

Regionalised Australia

Digital Australia

Destabilised world

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Infrastructure Australia is an independent statutory body that is the key source of research and advice for governments, industry and the community on nationally significant infrastructure needs.

It leads reform on key issues including the means of financing, delivering and operating infrastructure and how to better plan and utilise infrastructure networks. Infrastructure Australia has responsibility to strategically audit Australia's nationally significant infrastructure, and develop 15-year rolling infrastructure plans that specify national and state-level priorities.

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