EXPANDING AI SOVEREIGNTY TO AI AGENCY

JUNE 2026

Empowering leaders to measure and shape maturity, sovereignty and agency with the AI Agency Tool

TECH POLICY DESIGN INSTITUTE

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SOVEREIGNTY ENDURES

Sovereignty is an enduring principle, central to the AI Agency Tool.

The concept of AI agency put forward in this report does not signal a rejection, dilution or abandonment of the concept of sovereignty. On the contrary, the pursuit of AI agency is grounded in the very objectives that animate the pursuit of sovereignty.

The AI Agency Tool starts by producing a *maturity rating* for 103 defined AI capabilities. It then situates the traditional binary objective of *sovereign control* over those capabilities within an expanded spectrum that is fit for purpose in today's strategic landscape. The traditional control framing is expanded to also consider the management of international partnerships (*access*), the importance of resilience (*choice*) and pursuit of competitive advantage (*leverage*). We call this *the sovereignty spectrum*. An assessment of each element of the spectrum produces a *sovereignty rating*.

The maturity and sovereignty ratings, and an assessment of global scarcity, are then combined into a single view to produce an **AI agency score** – a measure of national competitive advantage for each AI capability.

AI agency thus offers a pragmatic pathway for advancing sovereignty: pursuing enduring principles of control and self-determination, while equipping leaders to navigate a world of international interdependence (including shared infrastructure and global supply chains) and geopolitical competition.

See page viii for a visualisation of how sovereignty is embedded as a core element of the AI Agency Tool.

Sovereignty was never ceded.

We acknowledge the Ngunnawal and Ngambri people who are the Traditional Owners of the land upon which this report was prepared in Canberra, Australia. We pay our respects to Elders past and present.

The authors affirm that sovereignty has never been ceded by First Nations peoples living on the continent now known as Australia. We recognise Indigenous Sovereignty as enduring and inherent, as well as fundamentally different to the new concept of 'AI sovereignty' (to which this report is responding).

Any national conversation about AI should reinforce, rather than distract from, the distinct and profoundly important conversations about Indigenous Sovereignty and governance. The AI Agency Tool emphasises the importance of pursuing both Indigenous Sovereignty and AI agency in parallel. Indeed, they can be understood as reinforcing policy goals.

The tool explicitly highlights the importance of Indigenous Sovereignty. First Nations interests and sensitivities are profound and intersecting across all 103 AI capabilities identified in the typology. A review of the typology through lenses of cultural priority, sovereignty beyond a nation-state framing, lived experience, and the risk of structural harm, revealed that at least 38 AI capabilities have particular implications for First Nations peoples. The tool frames inclusive, empowering and rights-respecting approaches to these capabilities as indicators of AI maturity.

The concept of AI agency will look different in practice for different stakeholders, including First Nations peoples compared to governments and organisations. The tool is intended to be adopted and applied by different groups, shaped by their distinct perspectives and priorities in implementation. In this way, it acts as both an assessment and a transparency tool.

This approach is intended to support the empowerment of Indigenous voices, leadership and agency in future-proofing communities and shaping Australia's future.

See page 38 for further discussion on these issues.

FOREWORD

Everyone, it seems, *wants* 'AI sovereignty'. But what most need is 'agency' to shape their future.

The term 'AI sovereignty' dominates policy discussions and drives investment decisions but is used to mean everything from strategic self-reliance to cultural preservation and individual autonomy. Its use as a binary – where AI is sovereign, or it is not – leaves most countries disempowered. There are also more practical confusions. AI is not one thing, so exactly what AI capabilities are we talking about? How do you measure them? What would sovereignty really mean in each case?

Since we published our discussion paper in November 2025, *From AI Sovereignty to AI Agency,*[1] the debate has gained momentum.[2] Binary notions of AI and sovereignty are increasingly seen as reductive in today's strategic landscape.[3] Indeed, it is increasingly accepted that, for most countries, pursuing absolute AI sovereignty is an unattainable, and frankly unhelpful, goal.[4]

TPDi's AI Agency Tool, presented here in its final form, offers a practical solution. Instead of asking if a country possesses sovereign control, the tool assesses whether a country has AI agency to steer outcomes, protect and promote national interests, and capture value in a globally connected system.

The tool was informed by consultation with more than 250 experts across government, industry, research and civil society. It breaks down 'AI' into 103 possible AI capabilities. It provides a structured method to assess the maturity of each capability, maps the capability on a sovereignty spectrum (that spans access, control, choice and leverage), and considers the global scarcity of each capability. These assessments are then combined into a single view to arrive at an AI agency score.

We applied the tool to produce ***Australia's 2025 AI Agency Assessment*: the first comprehensive, independent, evidence-based, expert-led assessment of Australia's AI capabilities at the national level.** We then mapped the government's 2025 National AI Plan against the assessment.

The assessment finds that Australia has emerging maturity across most AI capabilities, but high agency. Empirically, this means Australia has the power to shape the impact of AI on our future – if we make the right strategic decisions today. We are well-placed in physical AI infrastructure, data assets and applications. The most significant opportunities are in compute infrastructure; unlocking data assets through lifecycle capabilities; some models, including computer vision; and cross-cutting enablers such as skills, trust and inclusion.

The aim is not to control or excel in all 103 capabilities – but, rather, to understand our strengths, reduce critical dependencies, and build leverage where national advantages exist. **The AI Agency Tool provides an evidence-based framework to do this, grounded in data rather than instinct or spin.**

The tool is adaptable and scalable. The right mix of strategic capabilities will differ country to country. Like a music mixing deck, the tool brings together many different inputs into one frame, empowering the user to adjust the composition, and leverage the instruments at hand to shape the most impactful song.

We invite you to apply the tool so that your country, region, sector, community or organisation to identify your agency and help to proactively shape a technology that is already shaping our world.

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OVERVIEW: AI AGENCY TOOL

AI is reshaping global power, prosperity and security but debates about AI sovereignty are often binary, conflated, lacking evidence, and disconnected from the complex trade-offs leaders face.

What is it?

The AI Agency Tool is a structured and repeatable method to assess a nation's AI maturity, sovereignty and agency across 103 AI capabilities, producing prioritised recommended actions.

Why does it matters?

The tool equips decision-makers to pursue AI agency: the capacity to steer outcomes, protect and promote national interests, and capture value in a globally connected system. Used well, the tool enables nuanced strategies, better-targeted investment, and deeper understandings of trade-offs. The tool equips leaders to identify their leverage in high agency capabilities and harness it to offset their vulnerabilities.

Who is it for?

- **Policymakers** of countries of all sizes and stages of AI maturity, particularly where strategic dependence is high, and choices are constrained (Australia's application from page 12).
- **Business leaders** navigating geopolitical risk, supply chains and long-term investment decisions (uses for enterprise assessments on page 32).
- **Researchers** conducting national assessments, tracking progress over time and holding governments accountable (tool guide from page 19 and methodology from page 42).

How does it work?

The tool presents a step-by-step process to gather evidence and make assessments to both inform and analyse strategy. Part 2 of the companion report describes in detail how to use the tool. Table 1 summarises its 3 steps and 6 outcomes. Figure 1 explains the concepts in the tool.

In what contexts can the tool be applied?

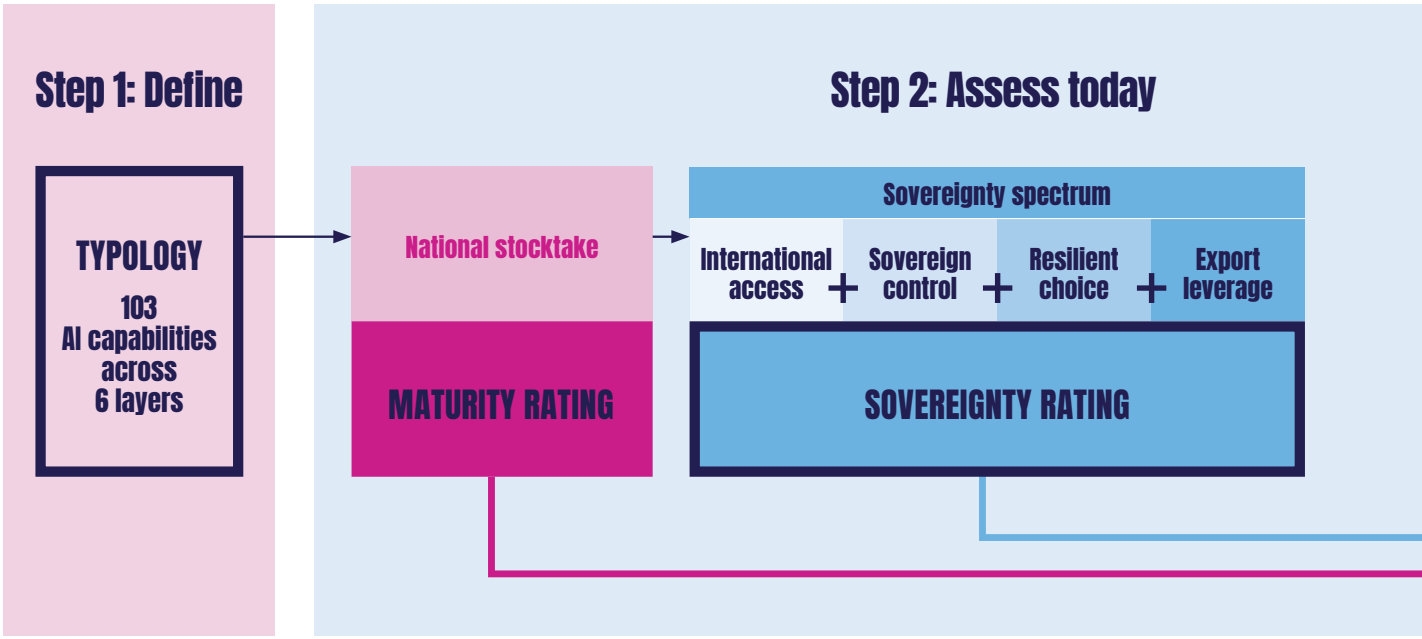
The AI Agency Tool offers utility across a range of contexts, including to:

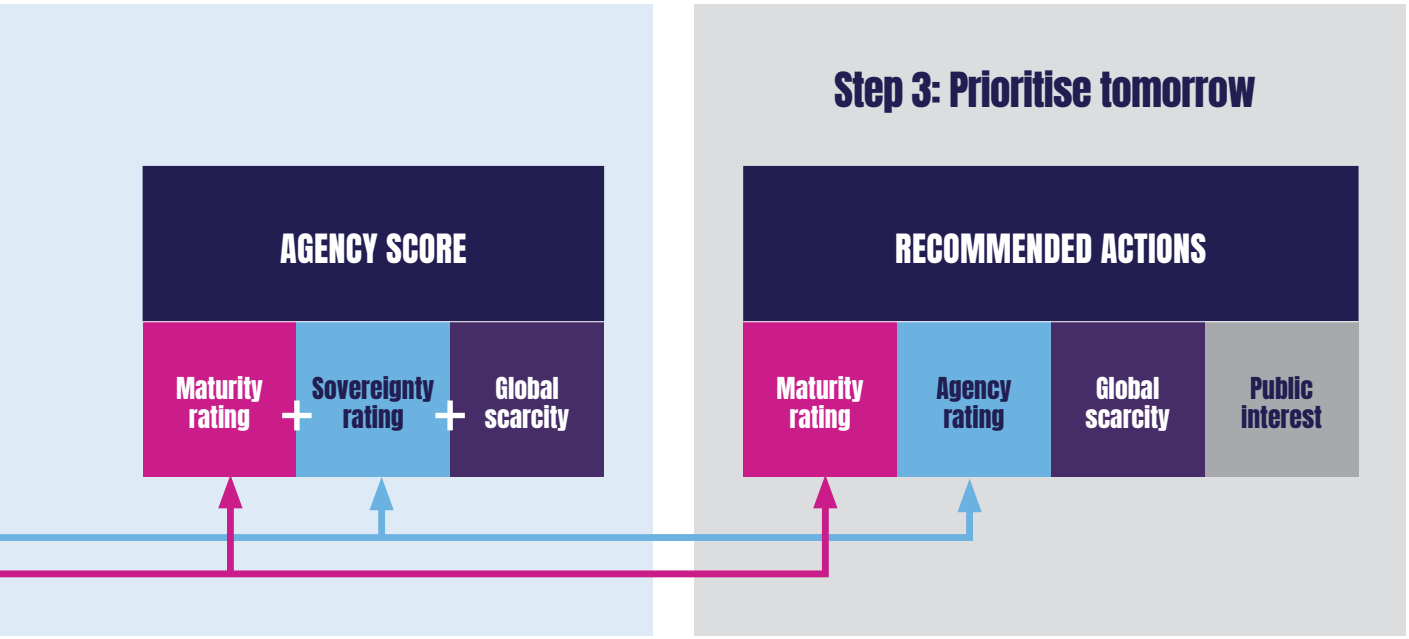
- measure national AI agency over time via an updated, interactive AI Agency Tool
- develop national strategies that leverage high agency capabilities (which represent national competitive advantages) to offset international dependency in other capabilities
- compare AI maturity, sovereignty, agency and recommended actions across countries, for international benchmarking
- conduct regional AI agency assessments and strategy development (for example, at the European Union level)
- conduct organisational AI agency assessments and strategy development (for example, large enterprises)
- undertake market concentration analysis for regulatory bodies.

Table 1: Uses of the AI Agency Tool

Step	Use	Function	Outcome
1 **Define**	**A common language**	Defines 103 AI capabilities across 6 layers: **the typology**	**Shared language** that brings precision and comparability to national debates
2 **Assess today**	**Assess maturity**	**Stocktakes** current capability across the 6 layers and 103 capabilities	**Maturity ratings** that produce a curated snapshot of existing national strengths, areas for development and missing information
	Assess sovereignty	Maps international access, sovereign control, resilient choice and export leverage over AI capabilities through the **sovereignty spectrum**	**Sovereignty ratings** that move from a binary notion of sovereignty to a nuanced spectrum of sovereignty, delivering greater optionality for decision-makers
	Identify agency	Integrates maturity and sovereignty ratings, and global scarcity, into a single view in the **agency score**	Areas of **competitive advantage** that can be leveraged to compensate for areas of greater dependency
3 **Prioritise tomorrow**	**Plan next steps**	Combines maturity, sovereignty, agency, scarcity and public interest considerations to identify **recommended actions**	**Transparent disclosure** of analysis that underpins identification of most important areas for future attention
	Inform and analyse strategy	Connects all components into one **coherent policy design and assessment** method	**Grounds decisions in evidence.** Comprehensive national strategies. Strengthens accountability, and trust

Figure 1: Concepts and steps of the AI Agency Tool, including the AI typology, maturity rating, sovereignty rating, agency score and recommended actions




Step 3: Prioritise tomorrow
AGENCY SCORE
Maturity rating
Sovereignty rating
Global scarcity
RECOMMENDED ACTIONS
Maturity rating
Agency rating
Global scarcity
Public interest

OVERVIEW: AUSTRALIA'S AI AGENCY ASSESSMENT & NATIONAL AI PLAN

Australia's 2025 AI Agency Assessment is the first application of the AI Agency Tool. It assesses Australia's AI maturity, sovereignty, agency (as at December 2025), and produces recommended actions across 103 capabilities. We then mapped the Australian Government's 2025 National AI Plan against the assessment.

Australia's assessment

> **Australia has emerging AI maturity but high AI sovereignty and high AI agency.**

The assessment reveals:

- **Australia predominantly has emerging maturity in AI capability** with 51 of 103 AI capabilities found to be emerging, 33 are established, with only 11 advanced and 2 with no maturity at all (6 not enough data)
- **Australia's AI sovereignty is predominantly high**, with 85 capabilities assessed as high sovereignty and 15 as medium, with only 2 at low (1 not enough data)
- When also factoring in how globally scarce capabilities are, **Australia's agency is high**: 58 are high, 29 moderate, and 8 very high agency, with only 2 scoring low (6 not enough data).

> **Australia has the baseline AI maturity and sovereignty required to increase our AI agency – provided that we strategically prioritise.**

Australia is well placed to build and leverage our areas of competitive advantage in our national interests. The assessment provides the independent, expert-led, evidence base to inform such prioritisation. We have the power to shape our AI trajectory, we just need to use it.

Australia's highest and lowest areas of agency

The assessment found Australia has 8 capabilities that fall within the highest band: very high agency. This includes:

- our rich endowment in strategic and critical minerals
- 5 domain specific datasets (medical, geospatial, environment and resources, demographic and infrastructure)
- our expertise in developing computer vision models
- our proven impact in international engagement (influence and norm shaping).

The assessment found only 2 capabilities in which Australia has the lowest level of agency, these being manufacturing and packaging of accelerators (AI chips).

AI Plan analysis

TPDi's analysis compares recommended actions in the assessment against the government's commitments in the National AI Plan. Across the 103 AI capabilities, the analysis shows:

- 44 government commitments align with recommended actions in the assessment
- 20 misalign where there is agency to be built and leveraged
- 28 misalign where there is a critical gap to close
- 5 require greater coordination to better harness agency
- 6 require more evidence to make a proper assessment.

> **Every significant commitment in the National AI Plan aligns with the assessment's recommendations.**

Governments have finite resources and must make tough decisions about what to prioritise. **It is noteworthy that the plan is strongly aligned with the assessment's findings on where Australia should leverage, build or maintain agency.** The plan's major commitments focus on areas where Australia already possesses meaningful maturity and agency. This includes:

- data centres and supporting infrastructure
- public cloud
- general AI applications
- government and small to medium enterprise (SME) adoption
- international engagement.

Leaning into these capabilities harnesses existing strengths while also offering enabling benefits across the whole ecosystem.

> **Strategic silences in the National AI Plan align with areas of low national agency.**

Not all omissions from the plan should be viewed as gaps. For many capabilities the assessment's recommended action is 'maintain and monitor'. Many of the areas receiving limited attention in the plan fall into this category. They are capabilities where Australia currently has low maturity and low agency, or where government intervention is less necessary. This includes:

- accelerator manufacturing
- frontier model development
- most forms of private-sector AI capability.

The government has reasonably adopted a targeted approach in the plan, focusing public investment on what the government has assessed to be foundational capabilities while allowing the private sector to lead where appropriate.

There is untapped potential in Australia's highest agency capabilities.

While the plan establishes strong foundations, it does not fully capitalise on all of Australia's areas of highest agency – the capabilities in which Australia has competitive advantage. The assessment identifies opportunities to better leverage Australia's strengths in critical minerals, strategic data assets and model development in computer vision. These are areas where Australia already possesses very high agency and which could be used more deliberately to strengthen national capability, address weaknesses and close critical gaps elsewhere in the AI ecosystem, while increasing Australia's international leverage.

There are critical gaps to close.

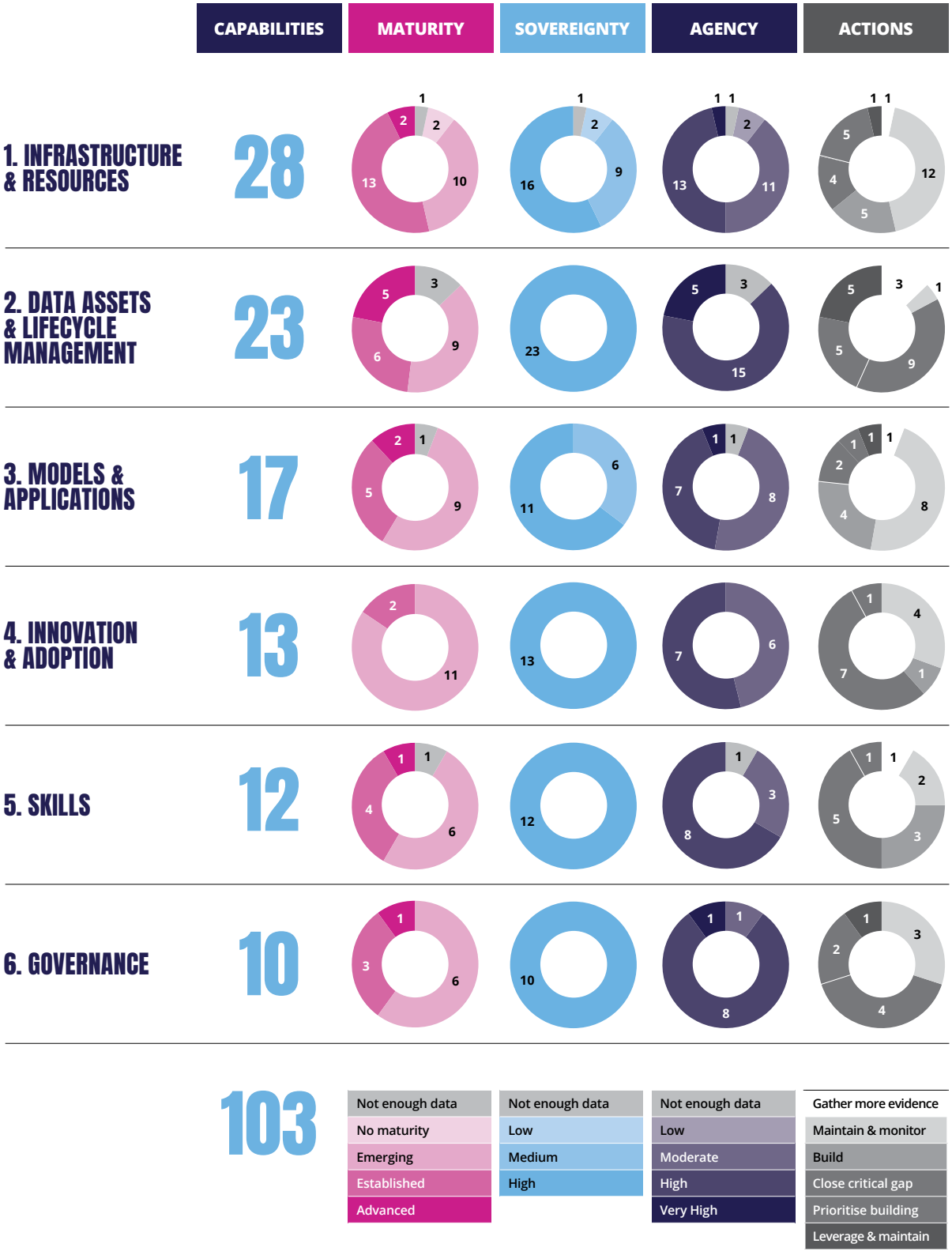
The assessment also identifies several globally scarce capabilities that are important to the public interest but remain underdeveloped in Australia – these capabilities should be the focus of the next wave of government prioritisation. This includes:

- public sector and public interest compute infrastructure
- key data lifecycle management capabilities (such as copyright, sourcing, validation and annotation)
- culturally and national inclusive models
- discerning, inclusive, and trusted AI adoption
- general AI literacy
- several specialised AI skills
- regulatory and oversight capability.

Addressing these gaps would strengthen Australia's ability to support innovation, research, public services and national resilience, while ensuring AI systems reflect Australian values, cultures and identities and, perhaps most importantly, ensure that the benefits of AI are widely distributed.

Part 3 contains a summary of *Australia's 2025 AI Agency Assessment*. View or download the assessment in full at https://www.techpolicy.au/aiagency.

Figure 2: Australia's 2025 AI Agency Assessment findings across 6 ecosystem layers



1.

PART 1: SOVEREIGNTY TO AGENCY

The constraints of AI sovereignty

In an era shaped by a fragmenting world order and the rise of AI as a general-purpose technology, 'AI sovereignty' has become a central ambition for many.[5] Governments are investing billions to secure it,[6] technology firms invoke it to promote expansion,[7] and civil society advocates see it as a means to safeguard rights and values.[8]

It is a loaded term in the context of digital technologies – historically having been used by authoritarian governments such as Russia and China to justify and advocate for state control of the internet (Appendix 2: origins of AI sovereignty). The term also carries significant cultural significance in Australia, where sovereignty was never ceded by First Nations peoples (pages iii and 38 of this report).

The term 'AI sovereignty' is contested, poorly defined and framed as a binary (Appendix 2). This conceptual ambiguity dilutes strategy, blurs priorities, leads to unproductive comparisons, and disempowers most countries.

The catch-all term of 'artificial intelligence' (AI)[9] also obscures the mix of capabilities that make it work, from compute and data infrastructure to AI models, skills, and governance frameworks that must be understood together for effective policy (Appendix 3: defining AI).

TPDi set out to bring clarity to the debate, to define what 'AI sovereignty' means in practice, explore how it can be measured, and consider what genuine agency looks like in our interconnected world. Details of the research method, including consultation with more than 250 experts is in Appendix 4: methodology.

Expanding 'sovereign control' to a 'spectrum of sovereignty'

We propose expanding from **traditional** notions of **'sovereign control'** to a '**spectrum of sovereignty**'. AI sovereignty debates generally focus on a nation's capacity to *control* AI capabilities within its jurisdiction and achieve self-reliance. This report identifies 103 possible AI capabilities. Few, if any, countries could successfully attain sovereign control across all 103 capabilities. Thus, sovereign control alone is a limiting policy lens, exclusionary to all countries except, arguably, the United States and China. But this does not mean other countries are without options.

TPDi's **sovereignty spectrum** situates the traditional binary objective of *sovereign control* within an expanded spectrum that is fit for purpose in today's strategic landscape. The traditional *control* framing is expanded to also consider the management of international partnerships (*access*), the importance of resilience (*choice*), and pursuit of competitive advantage (*leverage*). An assessment of each element of the spectrum produces a *sovereignty rating*.

The sovereignty spectrum brings together multiple strategic schools of thought into one frame. In doing so, it expands policy goals from defending assets and building national capability to also strengthening the national capacity to access, choose, adapt and exert international influence for national advantage. This expansion gives decision-makers many more levers to pull in pursuit of national interests. Table 2 explains the sovereignty spectrum in more detail.

Table 2: The AI sovereignty spectrum

	International access	Sovereign control	Resilient choice	Export leverage
Meaning	Ability to utilise and benefit from international capabilities (e.g. foreign models, cloud, chips) made available within own jurisdiction	Domestic ownership and authority over key capabilities within own jurisdiction	Ability to manage unavoidable dependencies on others' capabilities through a mix of international and sovereign capability	Excess capability domestically and/or foreign jurisdictions depend on AI capabilities in one's own jurisdictions
Implication	Ability to **participate** in and benefit from AI capabilities, but possible dependence on others and limited ability to shape others' behaviour	Onshore capabilities and ability to directly **compel** actors within own jurisdiction to act a certain way	Diversity in access to capabilities, and ability to **maintain resilience** and continuity of capability under disruption	Ability to **shape outcomes** and what others do, with or without direct coercion, by leveraging dependencies across different AI capabilities in own national interest
Relevant theory	Complex interdependence[10] Digital dependence[11]	Sovereignty as supreme authority within a territory[12]	Resource dependence theory[13]	Weaponised interdependence[14] Structural power[15]

Strategic balance will look different for each country. In practice, this means:

- **Maximising options** – maintaining access to resilient and diversified supply chains.
- **Reducing dependency where it matters most** – securing control and ownership over particular capabilities and use cases of national significance and public interest.
- **Building leverage** – strengthening maturity in scarce capabilities on which others depend.
- **Activating bargaining power** – leveraging areas of high agency to fill domestic capability gaps elsewhere across the full AI stack.

AI agency

National agency in a connected world flows from the ability to manage relationships, not retreat from them.[16] Technological capability as a source of national power is well established.[17] The interconnected nature of our world means most countries are exposed to 'weaponised interdependence' – asymmetrical power relationships with AI superpowers due to reliance on their global networks – and must confront hard strategic choices.[18] Competition for AI capabilities is most usefully seen 'within the engagement and vulnerability of a specific web of relationships'.[19]

Building on this approach, agency is not absolute but relational. No nation exists in a vacuum. Measuring not just AI sovereignty, but AI *agency*, contextualises a nation's capability against the backdrop of how rare or valuable that capability is in the global system.

'AI agency' is a nation's power to shape its AI future. It is the capacity to steer outcomes, protect and promote national interests, and capture value in a globally connected technological system. It is determined by the strength of its AI capabilities (*maturity*), its capacity to access, control, choose and leverage the capabilities (*sovereignty spectrum*), and the scarcity of those capabilities worldwide. It shows not just what a nation can do, but how independently it can act, and the leverage it gains when others depend on its strengths.

AI agency offers a pragmatic path – one that recognises that most countries cannot, and need not, lead and control across every AI capability. AI agency involves a strategic combination of domestic capability (control) with resilient international access (access and choice). It also emphasises building leverage where others depend on national strengths, instead of attempting to be self-sufficient in all areas. This strategic balance will look different for each country.

Expanding the debate toward agency helps decision-makers focus on what capability matters most in their unique circumstances.

Analogy: gas is Australia's leverage in the context of a global petrol shortage

When petrol (*capability 1*) supply chains were disrupted by conflict in the Middle East (*scarcity*), countries depending on global petrol supply chains (*international access*) were put under pressure. Some countries have domestic production (*sovereign control*) or alternate supply partnerships that can hold up supply during the disruption (*resilient choice*). When domestic supply has not been enough, Australia's comparative strength in gas (*capability 2*) has boosted its bargaining power on the world stage (*leverage*) and helped secure favourable access to petrol from international partners (*agency*).

The task then is to understand where a nation's comparatives strengths lie across the AI stack and where those strengths can be used now or into the future as strategic leverage to fill other capability gaps.

TPDi's AI Agency Tool provides the framework to do just that.

2.

PART 2: HOW TO USE THE TOOL

Translating concepts into action: the AI Agency Tool

The AI Agency Tool translates the concepts discussed in this report into a practical method for strategic decision-making.

It establishes shared terms and a structured assessment of national maturity, sovereignty, agency, producing recommended actions across 103 distinct areas of AI capability. The tool enables government, researchers and organisations to map existing capability, identify where agency can be strengthened, and anticipate future dependencies or opportunities.

Steps

1. **Define** AI capability elements and systems with the typology
2. **Assess today**
   - Conduct a structured stocktake to produce a **maturity rating**
   - Apply the sovereignty spectrum to produce a **sovereignty rating**
   - Analyse maturity, sovereignty and relative global positioning to produce an **AI agency score**
3. **Prioritise tomorrow** through the tool's **recommended actions**

Together, these steps form a repeatable, evidence-based method that translates into clear actionable insights for decision-makers.

Notes on the tool

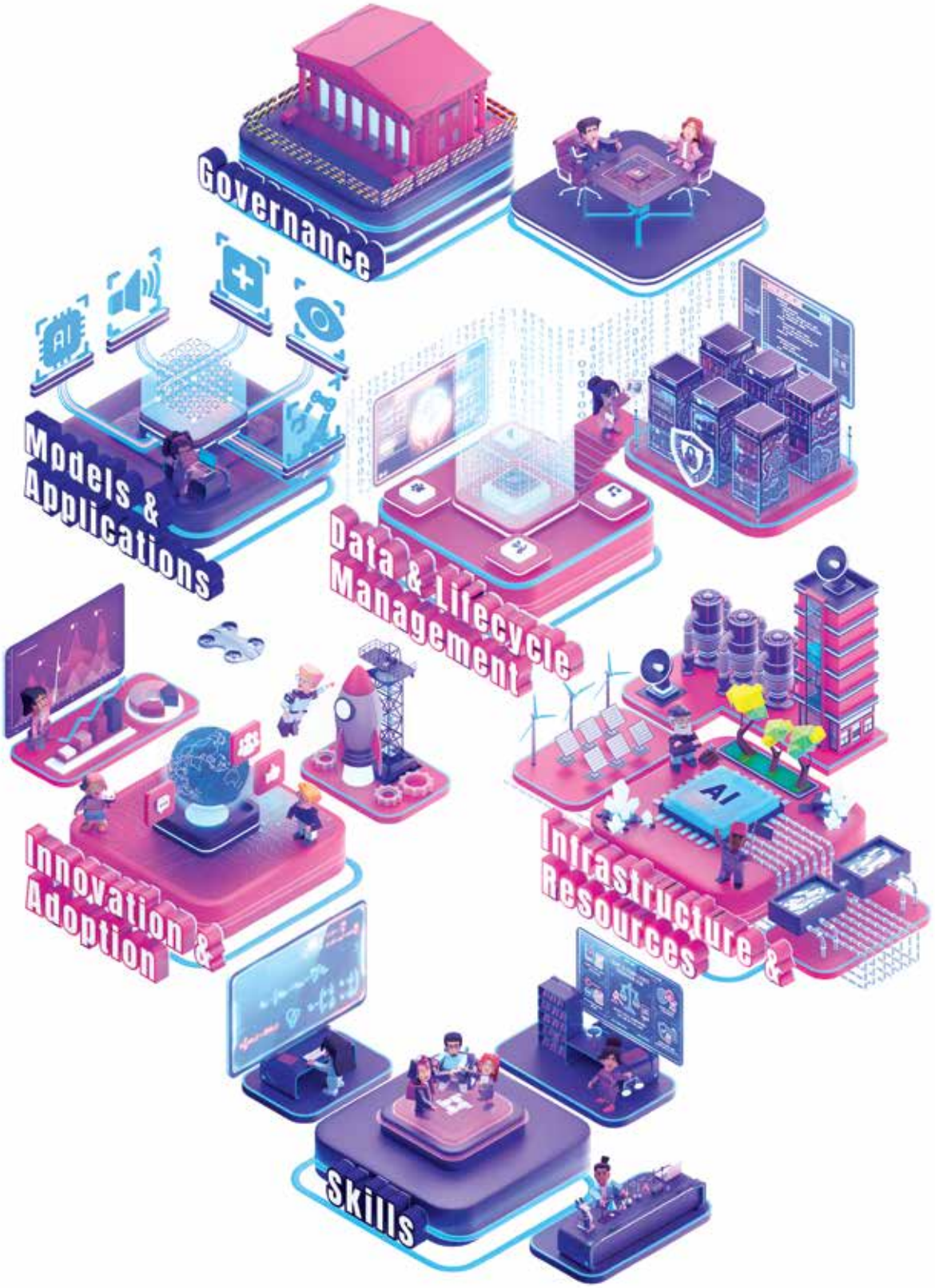
A technical evidence base: capability alone does not determine outcomes. Policy, market dynamics and social values all shape how technology unfolds. This tool supports proactive sociotechnical shaping. Further context on TPDi's AI policy research is available in *Tetris for Australia's Future: Aligning our National AI Priorities* at https://techpolicy.au/ai-tetris.

A moment in time: the tool captures a snapshot in time and is intended to be applied iteratively, creating benchmarks and tracking changes over time.

Assessments are based on available analysis: maturity assessments are made based on credible, publicly available research on each capability area and validated via public consultation. For transparency, the credibility of these sources refers to their methodological rigour, not their funding source. TPDi recognises the current gap in independent, publicly funded research, and notes that many publicly available reports are funded by industry or multinational organisations.

Descriptive not prescriptive: except for the recommended actions, the tool describes current levels of capability, maturity, sovereignty and agency, rather than indicating what they *should* or *could* be. The recommended actions are next steps that should be taken to seize opportunities and manage risks.

Interdependencies matter: strengths create flywheels; weaknesses create bottlenecks. While the tool doesn't map every linkage, it enables comparisons and analysis across the entire ecosystem, allowing strengths to become leverage to offset weaknesses.


Governance
Models & Applications
Data & Lifecycle Management
Innovation & Adoption
Infrastructure & Resources
Skills
AI
AI

STEP 1: DEFINE

The AI typology: 103 capabilities across 6 layers

Before you can assess national AI capabilities, you need to define them.

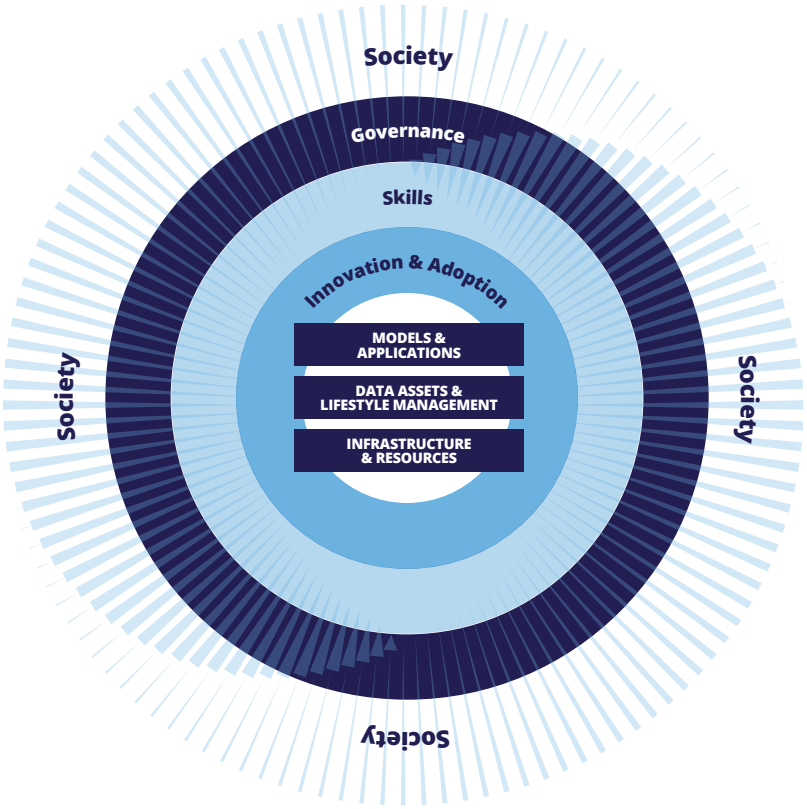
In AI policy, stakeholders often talk past one another, using the same terms to mean very different things. Without specific shared language, policymakers risk undervaluing entire segments. By distinguishing between fields, such as computer vision, forecasting, optimisation and generative AI, it becomes easier to see where strengths and emerging capabilities lie.

The AI Typology brings clarity by defining national AI capability, giving policymakers and practitioners a shared language. It also provides the definitional foundations of the AI Agency Tool. Developed in consultation with over 250 experts, the typology defines the AI ecosystem as a system of 103 capabilities across 6 layers:

- 3 technical layers that form the AI stack (infrastructure and resources; data assets and lifecycle management; and models and applications)
- 3 enabling layers that encircle it (innovation and adoption; skills; and governance) (Figure 3).

These layers work as a complex system. Data powers models, governance shapes adoption, and skills determine how safely AI is used. Each layer is deeply intertwined with the others and with society itself. When aligned, they amplify progress; when disconnected, they slow it down.

Figure 3: The 6 layers of the AI Typology



The AI typology at a glance

Table 3 provides a high-level view of the typology, across all 6 layers and 103 capabilities.

Importantly, the expanded version of the typology in the AI Agency Tool (available online) includes **definitions, examples and indicators** for all 103 capabilities.

Table 3: Typology at a glance

1. Infrastructure & resources: The physical foundations of AI power (compute, data centres, supply chains and natural resources)			
Category I	**Category II**	**Category III**	**Category IV**
1.1 Compute & Data Infrastructure	**1.1.1 Data Centres**		
	1.1.2 Training Compute	**1.1.2.1 Private Sector Training Compute**	**1.1.2.1.1 Cloud Training Compute Infrastructure as a Service** (public cloud)
			1.1.2.1.2 Private Training Compute Clusters
		1.1.2.2 Public Sector & Public Interest Training Compute	**1.1.2.2.1 Public Sector & Public Interest AI Training Infrastructure**
			1.1.2.2.2 General-purpose Public Sector & Public Interest High-Performance Compute Infrastructure
			1.1.2.2.3 International Agreements for Cross-border Access to Training Compute
	1.1.3 Inferencing Compute	**1.1.3.1 Private Sector Inferencing Compute**	**1.1.3.1.1 Cloud Inferencing Compute Infrastructure as a Service** (public cloud)
			1.1.3.1.2 Commercial Edge Inferencing Compute Deployments
			1.1.3.1.3 Private Inferencing Compute Deployments
		1.1.3.2 Public Sector & Public Interest Inferencing Compute	**1.1.3.2.1 Public Sector & Public Interest Inferencing Compute Clusters**
			1.1.3.2.2 Public Sector & Public Interest Edge Inferencing Compute Deployments
		1.1.3.3 Consumer or Personal AI Inferencing Devices	
	1.1.4 Data Storage Infrastructure		
1.2 Hardware Supply Chain	**1.2.1 Strategic & Critical Minerals**	**1.2.1.1 Natural Resources**	
		1.2.1.2 Extraction	
		1.2.1.3 Refinement & Processing	
	1.2.2 Producing Accelerators (AI Chips)	**1.2.2.1 Designing Accelerators** (Fabless)	
		1.2.2.2 Manufacturing Accelerators	
		1.2.2.3 Packaging Accelerators	
	1.2.3 International Agreements for Accelerator Supply		
	1.2.4 Other Critical Data Centre Hardware & Construction Inputs		
1.3 Supporting Infrastructure & Resources	**1.3.1 Electricity**	**1.3.1.1 Clean Electricity Generation**	
		1.3.1.2 Electricity Transmission & Distribution	
	1.3.2 Network & Connectivity	**1.3.2.1 Broadband Capacity**	
		1.3.2.2 Subsea Cables	
	1.3.3 Water Supply		
	1.3.4 Suitable Land		
	1.3.5 Permitting & Approvals Process		

2. Data assets & lifecycle management: Data capabilities required to support AI development and use (availability and quality of data, access arrangements and data sovereignty practices)		
Category I	**Category II**	**Category III**
2.1 Commitment to Indigenous Data Sovereignty		
2.2 Domain Specific Datasets	**2.2.1 Language, Arts, Culture & History**	
	2.2.2 Medical	
	2.2.3 Geospatial	
	2.2.4 Environment & Resources	
	2.2.5 Economic	
	2.2.6 Enterprise & Business	
	2.2.7 Scientific, Synthetic & Simulated Research	
	2.2.8 Community & Citizen Science	
	2.2.9 Demographic	
	2.2.10 Infrastructure	
	2.2.11 Public Administration	
2.3 Data Lifecycle Management	**2.3.1 Data Creation & Sourcing**	**2.3.1.1 Standards & Provenance**
		2.3.1.2 Responsible Data Sourcing
	2.3.2 Data Preparation & Curation	**2.3.2.1 Data Quality & Validation**
		2.3.2.2 Annotation & Curation (for reusability)
	2.3.3 Data Access & Use	**2.3.3.1 General Use Access**
		2.3.3.2 Availability of Government Data
		2.3.3.3 Restricted Access – Copyright/IP
		2.3.3.4 Offshore Data Access (trusted transfers)
		2.3.3.5 Operational Data Access & Interfaces ('In-Life')
	2.3.4 Data Stewardship & Assurance	**2.3.4.1 Data Retention & Archiving**
		2.3.4.2 Data Deletion & Oversight
3. Models & applications: The development and adaptation of models from computer vision to optimisation, and the applications that build on top of them		
Category I	**Category II**	**Category III**
3.1 Models	**3.1.1 Model Development**	**3.1.1.1 Computer Vision**
		3.1.1.2 Computer Audition
		3.1.1.3 Computer Linguistics
		3.1.1.4 Robotics & Physical AI
		3.1.1.5 Forecasting
		3.1.1.6 Discovery
		3.1.1.7 Planning / Optimisation
		3.1.1.8 Creation / Generative
		3.1.1.9 Culturally & Nationally Inclusive Models
		3.1.1.10 General Purpose & Frontier Model
	3.1.2 Model Adaptation & Alignment	**3.1.2.1 Domain Adaptation**
		3.1.2.2 Cultural and Linguistic Alignment
	3.1.3 Model Tooling	
	3.1.4 Model & Agent Orchestration	
	3.1.5 Safety & Value Alignment	
3.2 Applications	**3.2.1 General Applications**	
	3.2.2 Sector-specific Applications	

4. Innovation & adoption: The ecosystem of support and investment that drives AI innovation and commercialisation, as well as levels and culture of adoption across society		
Category I	**Category II**	**Category III**
4.1 Innovation	**4.1.1 Support & Investment Availability**	
	4.1.2 AI Native Companies	
4.2 Rate of Adoption	**4.2.1 Private sector adoption**	**4.2.1.1 Large Enterprises**
		4.2.1.2 SMEs & Startups
	4.2.2 Public Sector Adoption	**4.2.2.1 Government Adoption**
		4.2.2.2 Defence & National Security
	4.2.3 Public Interest Adoption	**4.2.3.1 Civil Society Adoption**
		4.2.3.2 Research & Academia Adoption
	4.2.4 Inclusive AI Adoption	
4.3 Culture of Adoption	**4.3.1 Discerning Adoption**	
	4.3.2 Trust & Confidence in AI Deployment	**4.3.2.1 Trust & Confidence in Public Sector**
		4.3.2.2 Trust & Confidence in Private Sector
		4.3.2.3 Trust & Confidence in Public Interest Sector
5. Skills: The skills required for all elements of the AI ecosystem, from building and developing, to governing and living with AI		
Category I	**Category II**	**Category III**
5.1 Skills for Building AI Infrastructure and Developing AI	**5.1.1 Skills for Building Physical AI Infrastructure**	
	5.1.2 Skills for Building Accelerators (AI Chips)	
	5.1.3 AI Research Skills	
	5.1.4 AI Development & Application Skills	
	5.1.5 Research and Development Capabilities (translation)	
	5.1.6 International AI Talent Collaborations	
5.2 Skills for Deploying & Maintaining AI	**5.2.1 Business Transformation & Commercial Skills**	
	5.2.2 Interdisciplinary & Domain Expertise	
5.3 Skills for Governing & Securing AI	**5.3.1 Assurance & Risk Management** (safety, bias, explainability)	
	5.3.2 Cybersecurity & Technical Robustness	
	5.3.3 Policy, Legal & Leadership Skills	
5.4 Skills for Living with AI	**5.4.1 General Public AI Literacy & Engagement**	

6. Goverance: Strategies, frameworks and policies across government and the entire ecosystem that support national AI capability		
Category I	**Category II**	**Category III**
6.1 Government Strategy	**6.1.1 National AI Strategy & Leadership**	
	6.1.2 Policy Coherence & Coordination	
6.2 Legal, Regulatory, Standards & Assurance Frameworks & Capabilities	**6.2.1 Legal & Regulatory Frameworks**	
	6.2.2 Ethics, Standards & Assurance Frameworks	
	6.2.3 Regulatory & Oversight Capability	
6.3 Institutional Capacity to Govern AI Deployment	**6.3.1 Public Sector & Public Interest Institutional Capacity**	
	6.3.2 Private Sector Institutional Capacity	
6.4 Civic Engagement & Democratic Legitimacy		
6.5 International Engagement	**6.5.1 Influence & Norm Shaping**	
	6.5.2 Access & Partnerships	

STEP 2: ASSESS TODAY

The maturity rating: a national stocktake

To make informed policy choices, you first need to know where you stand. The stocktake consolidates evidence to measure maturity across all 103 capabilities in the typology. It brings together fragmented evaluations of the AI ecosystem into a single comparable picture. The tool provides the framework to collate credible insights and highlights areas that are under-evaluated or poorly measured.

Conducting the stocktake produces a **maturity rating** for each AI capability, revealing whether a capability is established, emerging or advanced.

Importantly, the stocktake is descriptive, not prescriptive. Measuring a capability's existence or maturity does not imply:

1. **a value judgement** – whether having more or less of a capability is inherently good or bad
2. **a fixed trajectory** – some capabilities may plateau, evolve or become obsolete as technologies and business models change
3. **uniform maturity** – capability levels vary widely across sectors. Additionally, some areas that appear less mature may be globally scarce, creating leverage and strategic advantage.

In the tool the stocktake appears in the **pink section**.

Supporting data and references can be found in each layer's corresponding 'stocktake sheet'.

The sovereignty rating: spectrum not binary

The **AI sovereignty spectrum** breaks down the traditional sovereignty binary into a measurable **sovereignty rating** for each capability.

The spectrum recognises that power comes from balance, building domestic strength while using interdependence as a source of agency. It consists of 4 elements: international access, sovereign control, resilient choice and export leverage. The sovereignty rating is higher when more of these elements apply to a capability.

The spectrum captures the overlapping capability ownership models that co-exist within a country (international, private, public and hybrid). Rather than presenting these as distinct capability rows, the tool layers and weights these relationships to reveal the cumulative strategic landscape in a compact and succinct way.

International access

Access defines a country's ability to utilise and benefit from international capabilities made available within its jurisdiction (for example, foreign models, cloud, chips). Under these conditions, a country can participate in and benefit from AI capabilities but may be dependent on others and have limited ability to shape others' behaviour. In a globally networked AI economy, access can both be a strength and a vulnerability. Total dependence on foreign systems for critical functions risks exposure to external pressure, while strategic, diversified partnerships can create resilience.

The sovereignty spectrum distinguishes between types of access. For instance, a country may gain access to AI capabilities from jurisdictions that are governed by the *rule of law* or those where authority is exercised *extrajudicially*, such as leaders whose decisions are not subject to independent or judicial review. While both increase agency by increasing choice and resilience, access via rule-of-law jurisdictions is worth twice as many points in the model, to reflect its greater reliability.

For example, as it currently stands, access to international capabilities from China or Hong Kong would be represented in the 'extrajudicial reach' column, while those from Five Eyes countries would be noted in the rule-of-law column. However, **none of these classifications are set and forget**. The benefit of this tool is in its ability to be adjusted, increasing or decreasing sovereignty in line with changes in national capability or geopolitical circumstances (for example, if a rule-of-law country suddenly became subject to extrajudicial reach).

Sovereign control

The traditional conceptualisation of 'AI sovereignty' is carried forward most directly in the category of 'control'. Control refers to a country's domestic ownership and authority over key capabilities within its jurisdiction. Control captures AI capabilities that are onshore and subject to a government's ability to directly compel actors within its jurisdiction – whether research institutions, civil society or private enterprise – to act a certain way.[20] Different governments will have different preferences regarding the level of domestic control, in part depending on the capability's strategic importance. For example, public interest compute, regulation, or AI safety research may warrant direct domestic stewardship, while commercial applications may be more suited to mixed ownership models.

In this manner, having 'control' may mean that public interest research organisations possess their own AI compute training resources, and that domestic AI companies are being established and grown; or that government has control of a capability, for example, regulation.

Defining what constitutes a 'local business' is often contentious. For consistency, this application of the tool uses the Australian Government's definition of an Australian business for procurement purposes.[21]

> '**a business**, including any parent business, that: has 50% or more Australian ownership, or is principally traded on an Australian equities market; and is an Australian resident for tax purposes; and is a business that has its principal place of business in Australia'

Articulating the gradient of national control is complex and central to AI sovereignty debates. The AI Agency Tool's sovereignty spectrum provides a structured way to articulate and measure these differences.

Resilient choice

Choice refers to the ability to manage unavoidable dependencies on others' capabilities through a mix of international and sovereign capability. It is the product of a balance of access and control. Choice involves having diversity in access to capabilities, and the resilience to sustain continuity of capability under disruption. A diverse and well-managed mix of capability sources creates flexibility, enabling fast pivots under pressure, and self-determination and adaptation as required.

In this manner, cumulative choice aids sovereignty: the broader the options, the stronger a nation's resilience and independence.

Export leverage

Leverage refers to having excess capability domestically and/or others depending on your AI capabilities in foreign jurisdictions. This enables governments to shape outcomes and what others do, with or without direct coercion, by leveraging dependencies across a globally connected system. If international partners rely on a country's capability for their own AI ecosystem, this creates further leverage, bolstering the national negotiating position to secure or maintain access to other essential capabilities. Such dependencies amplify negotiating power and position a country as an indispensable partner in the global system.

For example, leverage may involve:

- other countries depending on one nation for the supply of critical and strategic minerals that underpin AI technologies
- commercial applications made in one country but being used in international markets
- one country training another country's population in particular AI-related skills.

In the tool the AI sovereignty spectrum appears in the **blue section with the tick boxes**.

- Each layer applies the elements of the spectrum within its own context differently (for example, accessing infrastructure versus accessing skills). The logic remains constant: the sovereignty rating increases when access, control, choice and leverage are collectively as high as possible.
- Not all these elements of the spectrum are relevant for each capability. For example, by definition, private sector public cloud compute infrastructure cannot be owned by the government. In such instances, the box in the sovereignty spectrum will display 'N/A'.
- The sovereignty rating is calculated based on the proportion of boxes ticked out of the possible boxes for that row (excluding N/As).

AI agency score: identifying competitive advantage

Power is not derived from capability alone. The **AI agency score** integrates the maturity, sovereignty, and global scarcity of a country's capability. It measures not only what a country can do, but how rare that ability is in an international context. This allows the tool to highlight where a country may possess strategic leverage.

- **Maturity rating:** current capability levels, drawn from the stocktake (pink column)
- **Sovereignty rating:** access, control, choice and leverage drawn from the sovereignty spectrum (blue column)
- **Scarcity:** how common or rare the capability is globally, identifying potential sources of strategic advantage (which diminish in line with the number of alternate sources of that capability)

Scores are weighted to emphasise capability over scarcity, combining maturity and **sovereignty** (up to 12 points) with relative global scarcity (up to 3 points), for a total possible score of 15.

The AI agency score appears in the **purple section** on the far right of the 'assess today' section of the tool.

STEP 3: PRIORITISE TOMORROW

Recommended actions: decision-makers tool

The final step in the AI Agency Tool enables decisionmakers to look ahead, showing where agency should be fostered next through **recommended actions**.

Recommended actions are best next steps based on a capability's current maturity rating, sovereignty rating, global scarcity and public interest considerations. Recommendations range from building agency for international leverage, to closing critical gaps in the public interest, and maintaining and monitoring existing agency.

- **Public interest**: is the only normative assessment in the tool. It considers the public importance of increasing AI agency in a particular capability.
- In Australia's 2025 AI Agency Assessment the public interest assessment was completed by TPDi (prioritising capabilities that support 'People and Planet', as defined in TPDi's report *Tetris for Australia's Future*).[22] Different actors will disagree with TPDi's assessment of public interest, and that is the point. The score invites scrutiny and transparency by making explicit the value judgments that are embedded in decision making processes, opening them to interrogation and challenge.

Taken together, the recommended actions help decisionmakers prioritise their finite resources. They also reveal how agency in certain capabilities should be leveraged to secure international access to other capabilities where there is lower national agency.

In the tool the recommended actions appear in the **dark grey section**.

With these steps combined, the AI Agency Tool helps decision-makers to identify what they have, where to build, where to partner and where to lead, reinforcing the shift from a binary concept of sovereignty to a dynamic concept of AI agency.

The AI Agency Tool

When the 6-layer Typology is combined with the elements of the AI Agency Tool, it produces an AI Agency assessment. This section shows a sample of one segment of *Australia's 2025 AI Agency Assessment*. View or download the assessment in full at https://www.techpolicy.au/aiagency.

1 Infrastructure & resources

The physical underpinning of AI power (compute, data centres, supply chains and natural resources)

Define

AI typology — Common language to describe and measure different types of national AI capability

This layer assesses the physical underpinnings of AI power: national compute and data infrastructure, such as data centres, training and inferencing clusters, and data storage. It evaluates the hardware supply chain for AI, from strategic and critical minerals through extraction, refinement, and into accelerator design, fabrication and packaging, plus cross-border supply arrangements and other data centre hardware inputs. It covers supporting infrastructure and resources that determine where and how compute can be built and run at scale: clean electricity generation and transmission, broadband and research networks, subsea cables, water availability and usage, suitable land, and timely planning/approvals (including appropriate engagement with First Nations owners).

Category I	Category II	Category III	Category IV	Definition	Examples Not exhaustive, illustrative only	Indicators
1.1 Compute & Data Infrastructure	**1.1.1 Data Centres**			The secure, efficient physical infrastructure, including cooling systems and redundant power, that houses and supports large-scale inferencing and training compute (defined below).	Equinix; CDC Data Centres; AirTrunk; NEXTDC; DCI Data Centres; Macquarie Data Centres.	▪ Mega Watt capacity on compute scale ▪ Power Usage Effectiveness (PUE) on energy efficiency ▪ Tier Certification (Uptime Institute) on reliability ▪ Renewable energy share
	1.1.2 Training Compute Large-scale computing power required to train AI models by processing large amounts of data over extended periods, housed within a data centre.	**1.1.2.1 Private Sector Training Compute**	**1.1.2.1.1 Cloud Training Compute Infrastructure as a Service** (public cloud)	Large-scale compute clusters made available locally as Infrastructure as a Service (IaaS). Individuals, companies or organisations can rent computing capacity remotely and on demand for AI model training, often using specialised chips (accelerators) such as Graphics Processing Units (GPUs) and Tensor Processing Units (TPUs).	Multinational hyperscalers (AWS, Google Cloud, Azure, Oracle Cloud). Local/regional AI cloud providers (e.g. Sharon AI).	▪ Number and scale of local cloud clusters ▪ Availability and cluster sizes of advanced chips known as accelerators (such as GPUs like NVIDIA H100 or equivalents) ▪ Approximate number of H100-equivalent accelerators
			1.1.2.1.2 Private Training Compute Clusters	Dedicated training infrastructure owned and operated by companies for proprietary AI development (not available on demand). Typically used for confidential or long-term projects where compute cannot be shared or outsourced. May include in-house or dedicated, long-term private co-located compute supply in third-party data centres.	In-house clusters at technology firms, finance, defence, or pharmaceutical companies.	▪ Number of local clusters, number of accelerators ▪ Total private compute capacity in H100 equivalents ▪ Investment in private AI infrastructure
		1.1.2.2 Public Sector & Public Interest Training Compute	**1.1.2.2.1 Public Sector & Public Interest AI Training Infrastructure**	High Performance Computing (HPC) systems optimised for AI training, owned and operated by government, universities or research agencies. These systems may combine traditional Central Processing Unit (CPU) based HPC with AI accelerator enhanced architecture.	National laboratories, university HPC centres, scientific agencies' supercomputers (e.g. CSIRO's Virga).	▪ Number and scale of publicly owned AI training-capable HPC clusters ▪ Availability and cluster sizes of accelerators ▪ Number of H100-equivalent accelerators ▪ Top500 /Top100 world rankings ▪ Compute hours accessible to public interest research
			1.1.2.2.2 General-purpose Public Sector & Public Interest High-Performance Compute Infrastructure	National or institutional HPC systems supporting scientific, environmental and data-intensive computation, which indirectly enable AI by hosting data pre-processing, simulation or more validation tasks. This complements AI-specific infrastructure and ensures continuity of high-performance research capacity.	The National Computational Infrastructure (Gadi), Pawsey Supercomputing Research Centre (Setonix), and major university systems (e.g. UNSW Katana).	▪ Total system capacity (PetaFlops) ▪ Proportion of workloads supporting AI-enabling tasks (e.g. simulation, data preparation)
			1.1.2.2.3 International Agreements for Cross-border Access to Training Compute	Bilateral or multilateral agreements enabling shared access to AI training compute infrastructure across national boundaries.	Europe Joint Undertaking, bilateral research agreements, research consortia with reciprocal compute access. Square Kilometre Array Observatory Treaty. Worldwide LHC Computing Grid.	▪ Number of active agreements ▪ Guaranteed compute hours ▪ Reciprocity terms and security terms
	1.1.3 Inferencing Compute Computing power used to run pre-trained AI models in real time – processing new data to generate outputs, housed within a data centre.	**1.1.3.1 Private Sector Inferencing Compute**	**1.1.3.1.1 Cloud Inferencing Compute Infrastructure as a Service** (public cloud)	Cloud-based compute resources used to run AI models – rather than train them – offered as an on-demand commercial service. This includes national edge zones and micro data centres positioned close to the use case to reduce latency (time delay).	Multinational hyperscalers (AWS, Google Cloud, Azure, Oracle Cloud). Local/regional AI cloud providers (e.g. Sharon AI).	▪ Number and scale of local cloud clusters ▪ Geographic distribution of inferencing capacity (relevant to latency) ▪ Number of accelerators
			1.1.3.1.2 Commercial Edge Inferencing Compute Deployments	Compute resources positioned close to data sources or end users/ customers – such as telecommunications nodes or Internet of Things (IoT) networks – to enable rapid, low latency AI inferencing. Typically owned or managed by private firms.	Telecommunications providers deploying AI at network edges; logistics or manufacturing firms using local inferencing for automation.	▪ Number of commercial edge deployments ▪ Coverage and density of edge compute sites (relevant to latency) ▪ Volume of inferencing operations (per second)
			1.1.3.1.3 Private Inferencing Compute Deployments	Dedicated inferencing infrastructure owned and operated by companies for ongoing operational use (not available on demand). Typically used for confidential or long-term projects where compute cannot be shared or outsourced. May include in-house or dedicated, long-term private co-located compute supply in third-party data centres.	Companies running in-house AI models, such as real-time recommendation engines, fraud detection or autonomous systems.	▪ Number of corporate inferencing clusters ▪ Number of accelerators

Assess today

Prioritise tomorrow

Maturity rating	**Sovereignty rating**							**Agency score**		**Decision-makers tool**	
Measures the existence and sophistication of specific capability in jurisdiction, based on stocktake of existing assessments	**Sovereignty spectrum: access, control, choice or leverage over a capability** Sovereignty is calculated based on the proportion of boxes ticked out of the possible boxes for that row (excluding N/As) and converted into a standardised sovereignty rating							**Competitive advantage** What competitive advantage a country currently has based on the maturity of capability, sovereignty over that capability, and the scarcity of that capability globally		**Next steps** The recommended actions prioritise capabilities where agency should be increased, either to seize an international leadership opportunity, advance public interest, or close a critical domestic gap. Taken together, the recommended actions reveal how agency in certain capabilities should be leveraged to secure international access to other capabilities where there is lower agency.	
See stocktake sheet for this layer for source of maturity rating	**Resilient choice —** from a mix of international and sovereign capability					**Export leverage** through export of capability	**Sovereignty rating** Measures the proportion of international access, soveriegn control, resilient choice and export leverage over a capability	**Global scarcity**	**Agency score**	**Public interest**	**Recommended action**
	International access to capability within jurisdiction		**Sovereign control** over capability within jurisdiction					of capability on a global level (i.e. how many other countries have this capability?)	Measures a country's strategic position in a given AI capability by combining the maturity of its capability, its sovereignty over that capability, and the scarcity of that capability on the global stage, into a single score	of *increasing* agency (a normative assessment, in this case completed by TPDi, prioritising capabilities that support 'People & Planet', as defined in TPDi's report *Tetris for Australia's Future*)	Indicates the recommended strategic approach by government and the private sector to this capability based on its current maturity, sovereignty, scarcity and public-interest importance (the latter of which is inherently subjective).
	Subject to **extrajudicial reach** (e.g. China) (half weighted)	Subject to **Rule of law** (e.g. UK) (full weight)	Controlled by **domestic business** (full weight)	Controlled by **domestic public interest organisation** (full weight)	Controlled by the **government** (full weight)	**Used** by other countries (full weight)					
Established (4)	–	✓	✓	✓	✓	✓	High (6)	Few countries (2)	High (12)	Public interest (1)	Build
Established (4)	–	✓	✓	N/A	N/A	–	Medium (4)	Very few countries (3)	High (11)	High public interest (2)	Prioritise Building
Emerging (2)	✓	✓	✓	N/A	N/A	–	High (6)	Very few countries (3)	High (11)	Public interest (1)	Maintain & Monitor
Emerging (2)	N/A	N/A	N/A	✓	✓	–	Medium (4)	Very few countries (3)	Moderate (9)	High public interest (2)	Close Critical Gap
Emerging (2)	N/A	N/A	N/A	✓	✓	–	Medium (4)	Very few countries (3)	Moderate (9)	High public interest (2)	Close Critical Gap
Emerging (2)	–	✓	N/A	✓	✓	✓	High (6)	Very few countries (3)	High (11)	High public interest (2)	Close Critical Gap
Established (4)	–	✓	✓	N/A	N/A	✓	High (6)	Few countries (2)	High (12)	High public interest (2)	Prioritise Building
Emerging (2)	✓	✓	✓	N/A	N/A	✓	High (6)	Few countries (2)	Moderate (10)	Public interest (1)	Maintain & Monitor
Emerging (2)	✓	✓	✓	N/A	N/A	–	High (6)	Few countries (2)	Moderate (10)	Public interest (1)	Maintain & Monitor

3.

PART 3: THE TOOL IN PRACTICE

Australia's 2025 AI Agency Assessment

TPDi applied the AI Agency Tool to produce *Australia's 2025 AI Agency Assessment*, drawing on peer-reviewed research, public data and national consultation insights.

The assessment finds that:

- **Australia predominantly has emerging maturity in AI capability** with 51 of 103 AI capabilities found to be emerging, 33 are established, with only 11 advanced and 2 with no maturity at all (6 not enough data).
- **Australia's AI sovereignty is predominantly high**, with 85 capabilities assessed as high sovereignty and 15 as medium, with only 2 at low (1 not enough data).
- When also factoring in how globally scarce capabilities are, **Australia's agency is high**: 58 are high, 29 moderate, and 8 very high advantage, with only 2 scoring low (6 not enough data).

Australia has the baseline AI maturity and sovereignty required to increase our AI agency, provided that we strategically prioritise. Australia is well placed to build and leverage our areas of competitive advantage in our national interests. The assessment provides the independent, expert-led, evidence base to inform such prioritisation. We have the power to shape our AI trajectory, we just need to use it.

Australia's strengths

Australia has very high agency (or competitive advantage) in 8 of the 103 capabilities. These include Australia's critical and strategic minerals endowment; domain specific datasets (particularly medical, geospatial, environment and resources, demographic, and infrastructure data); model development in computer vision; and Australia's international influence and proven ability to shape global norms.

Australia's weaknesses

Australia has uneven agency across the infrastructure and resources layer, with only moderate agency in public sector and public interest AI compute infrastructure and low agency in the production of accelerators (AI chips). Similarly, agency is patchy across the innovation and adoption layer, where low investment availability, adoption and public trust hold Australia back. The models and applications layer, reveals Australia's reliance on access to international capability for certain model development capabilities.

Where evidence is missing

Some capabilities could not yet be assessed due to limited data or as new categories were introduced following the consultation. Evidence gaps include international agreements for accelerator supply, proprietary enterprise and research data, and model safety and value alignment.

While applied to Australia in this example, the AI Agency Tool is intended for global use. It offers a practical framework for any country seeking to assess and benchmark national AI goals.

- Australia's AI Agency assessment findings are summarised by layer in an infographic (Figure 2, page xiii of this report). Insights from the assessment are discussed by layer on pages 22–28 in this report.
- The assessment at a glance is at Appendix 5, whereas the full assessment is available for download from TPDi's website.
- Analysis of the National AI Plan against the assessment's recommended actions is on pages 29–31 of this report. The full *Analysis of Australia's 2025 AI agency assessment and the Australian Government's National AI Plan* is available for download from TPDi's website.

Australia's AI agency by layer

This section offers a summary of Australia's AI agency score across all 6 ecosystem layers, based on Australia's 2025 AI Agency Assessment.

Agency combines the maturity rating, agency rating and global scarcity of a capability to indicate what competitive advantage Australia has on the world stage. A detailed breakdown of these inputs is in the full assessment, available for download in its entirety on TPDi's website.

More detail in the National AI Plan analysis on page 28 in this report

1.

2.

3.

4.

5.

6.

1. Infrastructure & resources

AI capability begins with the physical foundations of compute power. This layer examines how effectively nations can build and sustain AI infrastructure – from data centres, training and inferencing clusters, and high-performance computing, to the strategic mineral, hardware and energy inputs that they rely on. It highlights supply chain resilience across accelerator design, production and cross-border supply, and maps the supporting infrastructure that enables compute to operate at scale, including clean energy, broadband and research networks, subsea cables, water access and suitable land. True maturity depends not only on technical strength but on whether infrastructure is established efficiently, sustainably, and in partnership with First Nations communities.

Australia's 2025 AI Agency Assessment

Lower agency	Higher agency
▪ Low agency in accelerator (AI chips) manufacturing and packaging ▪ Public sector and public interest AI training and inferencing compute infrastructure has moderate agency and is assessed to be a critical gap ▪ Moderate agency in electricity transmission and distribution	▪ Very high agency in strategic and critical mineral resources ▪ High agency in data centres, private sector public cloud training and inferencing compute, and data storage infrastructure ▪ Enabling infrastructure including clean electricity, broadband capacity and land is also high agency

In Australia's National AI Plan

- Strong focus on attracting data centre investment, expanding private sector cloud compute and strengthening digital connectivity
- Limited emphasis or action on public sector and public interest training and inferencing compute, accelerator manufacturing, and the broader hardware and resource foundations that AI relies on

2. Data assets & lifecycle management

AI systems rely on data, but data ecosystems differ widely. This layer maps the breadth, quality and diversity of national data assets across domains such as language and culture, business, health, geospatial, environment and resources, economy and public administration. It considers how well those assets reflect a nation's reality and diversity. It highlights the importance of provenance, inclusivity and stewardship across the entire lifecycle: from creation aligned with Indigenous Data Sovereignty to ethical preparation, licensing, secure reuse and the right to delete. It also considers whether data is machine-ready, well-documented and discoverable, and secure enough to enable responsible AI development and deployment.

Australia's 2025 AI Agency Assessment

Lower agency	Higher agency
▪ High agency but lower maturity in key areas of data lifecycle management, including annotation and curation, copyright, deletion and oversight ▪ More evidence required to understand Australia's current agency in enterprise and business data, scientific, synthetic and simulated research data, and community and citizen science	▪ Very high agency in domain specific datasets, including medical, geospatial, environmental, infrastructure and demographic data ▪ Data access and use has high agency, particularly in the availability of government data and offshore data access ▪ High agency and established maturity in standards and provenance

In Australia's National AI Plan

- Strong emphasis on improving access to government, economic and public-interest datasets and Indigenous Data Sovereignty, investment in geospatial data
- Relatively limited specific focus on unlocking other high-agency domain specific datasets or on maturing data quality, stewardship, retention and lifecycle governance capabilities. The latter is particularly noteworthy given increasing maturity and agency in these data lifecycle management capabilities is a prerequisite to fully leveraging the high agency domain specific datasets

3. Models & applications

At the heart of AI capability are the models and the applications they underpin. This layer tracks a nation's ability to develop, adapt and deploy a range of model types, from computer vision and forecasting to robotics and generative AI. It also captures how safety, transparency and ethical alignment are embedded across model lifecycles and whether research translates effectively into real-world applications for both public and commercial use. Maturity in this layer reflects not only technical capability but the ability to align innovation with cultural and safety standards, turning ideas into impact.

Australia's 2025 AI Agency Assessment

Lower agency

- Most areas of model development, such as general purpose and frontier, generative, discovery, and optimisation, have moderate agency
- Moderate agency and emerging maturity in cultural and linguistic alignment, which is assessed as a critical gap
- More evidence required to assess safety and value alignment

Higher agency

- Model development in computer vision has very high agency
- High agency in computer linguistics, robotics and physical AI, forecasting, and culturally and nationally inclusive models, and domain adaptation
- High agency in the development of both general purpose and sector-specific applications that leverage AI for broader commercial use

In Australia's National AI Plan

- Strong emphasis on the development of general applications
- Comparatively limited focus on domestic frontier model development, or the specific model development areas in which Australia has very high or high agency
- Limited focus on nationally inclusive models and cultural and linguistic alignment or advanced model tooling and orchestration capability

4. Innovation & adoption

Innovation is only meaningful if it takes root and scales. This layer examines how effectively research translates into market-ready technologies, and how widely these technologies are adopted across sectors. It considers investment flows, startup activity, and pathways to commercialisation, alongside inclusive adoption across businesses, government and communities, and whether the public can engage critically and confidently with AI systems. This layer reveals both the innovation engines and the social readiness that determine whether capability truly grows. Mature capability means individuals and institutions can make informed choices about whether, when and how to adopt AI, including the choice not to.

Australia's 2025 AI Agency Assessment

Lower agency	Higher agency
▪ Support and investment availability and establishment of AI Native companies has moderate agency, coming from a base of emerging maturity ▪ Private sector adoption, across SMEs, startups and large enterprises has emerging maturity, but rates highly on the sovereignty spectrum	▪ Adoption across the government, plus defence and national security community, has high agency ▪ Adoption by research and academic communities also has high agency ▪ Trusting, discerning and inclusive adoption have only emerging maturity, but high agency

In Australia's National AI Plan

- Some funding for AI research, and emphasis on accelerating AI adoption across the economy – particularly through small and medium enterprise (SME) adoption and public sector deployment
- Limited focus on research sector adoption or leveraging defence AI adoption
- Strong narrative focus, but no specific whole-of-nation initiatives to lift trusting, discerning and inclusive AI adoption

5. Skills

AI capability ultimately depends on people. This layer assesses the technical, interdisciplinary and governance skills required to design, build, deploy and oversee AI responsibly. It captures both depth and breadth, from frontier research and engineering expertise, to digital, ethical and civic literacy across the broader workforce and society. It also measures how well nations develop and retain AI talent, translate discovery between research and industry, and prepare the broader workforce to AI-enabled roles. Equally important is public literacy – the ability of people, workers and institutions to understand and engage critically with AI. True capability combines technical excellence with an informed public, creating a society able to use, question and oversee AI safely. Mature ecosystems cultivate adaptive learning systems that keep pace with technology and embed AI fluency across all sectors, including those who choose not to use it.

Australia's 2025 AI Agency Assessment

Lower agency	Higher agency
▪ Moderate agency in research & development skills for translation and AI development and application skills ▪ International AI talent collaborations have moderate agency, but emerging maturity ▪ More evidence required to understand Australia's interdisciplinary and domain	▪ Skills for building physical AI infrastructure, and skills to build accelerators have high agency ▪ High agency in skills related to AI research, assurance and risk management, cyber security, business and policy-legal expertise ▪ High agency (but only emerging maturity) in General Public AI Literacy and Engagement

In Australia's National AI Plan

- Moderate commitments to develop Australians' AI skills – particularly across AI research, assurance and risk management, policy and legal skills and building physical AI infrastructure
- Limited emphasis on leveraging Australia's specialised skills for building accelerators, or harnessing Australia's high agency skills in cybersecurity and technical robustness
- Likewise, limited commitment to addressing capabilities of lower agency listed above

6. Governance

Good governance, across all sectors, determines whether AI becomes a public good or a public risk. This layer examines the institutions, laws and coordination mechanisms that uphold accountability and trust. It covers national strategies, regulatory coherence, standards and assurance systems, and ethical oversight alongside civic participation and international engagement. It evaluates how effectively public and private institutions govern AI with transparency and responsibility. Strong governance aligns domestic legitimacy with global influence, enabling nations to help shape the rules that shape AI. Ultimately, mature governance reflects not just compliance, but leadership in setting the terms of responsible AI at home and abroad.

Australia's 2025 AI Agency Assessment

Lower agency	Higher agency
▪ Moderate agency in private sector institutional capacity to govern AI deployment, emerging maturity in this capability for public sector, public interest, and private sector ▪ Only emerging maturity in regulatory and oversight capability, and policy coherence and coordination (but high agency)	▪ Very high agency in international influence and norm shaping, and high agency in international access and partnerships ▪ National AI strategy and leadership elevated to high agency with the release of the National AI Plan ▪ Ethics, standards and assurance frameworks have high agency

In Australia's National AI Plan

- Clear priority on ethics, standards and assurance frameworks, public sector institutional capacity and international engagement
- Focus on updating existing laws, democratic and institutional processes rather than establishing new governance mechanisms, with a number of ongoing regulatory reform processes referenced
- Limited commitment to lifting emerging maturity in regulatory and oversight capability, or civic engagement and democratic legitimacy

National AI Plan analysis

The AI Agency Tool also provides an evidence-based framework for assessing government priorities and measuring national progress over time.

To demonstrate this, TPDi mapped commitments in the Australian Government's 2025 National AI Plan (the plan),[23] against *Australia's 2025 AI Agency Assessment* (the assessment). The resulting analysis identifies where government commitments align with the evidence-based assessment. It also identifies areas where increased attention, coordination or evidence is warranted to strengthen Australia's agency, increase leverage internationally; or to address critical gaps domestically.

TPDi's analysis compares recommended actions in the assessment against the government's commitments in the National AI Plan. Across the 103 AI capabilities, the analysis shows:

- 44 government commitments align with recommended actions in the assessment
- 20 misalign where there is agency to be built and leveraged
- 28 misalign where there is a critical gap to close
- 5 require greater coordination to better harness agency
- 6 require more evidence to make a proper assessment.

A detailed breakdown can be found in the *Analysis of Australia's 2025 AI agency assessment and the Australian Government's National AI Plan*, available for download from TPDI's website.

The assessment and analysis should be repeated periodically to measure progress and inform future prioritisation.

What the National AI Plan gets right

Every significant commitment in the plan aligns with the assessment's recommendation to lean into those capabilities.

Governments have finite resources and must make tough decisions about what to prioritise. It is noteworthy that every significant commitment in the plan aligns with a recommendation in the assessment to take action to leverage, build or maintain Australia's current agency.

- **Data centres and supporting infrastructure:** the assessment finds Australia has high agency in Data Centres (1.1.1) and the plan signals significant focus here, positioning Australia as a data centre hub. Complementary maturity in subsea cable infrastructure (1.3.2.1) and data storage (1.1.4) provide a coherent enabling cluster that supports this ambition. Natural advantages such as land availability (1.3.4), high potential for clean energy generation (1.3.1.1), and available – if not abundant – water supply (1.3.3), combined with a commitment to streamlining permitting and approvals processes (1.3.5), underpin the competitiveness of Australia's position globally.
- **Public cloud and AI applications:** the plan also makes significant commitment to public cloud training and inferencing compute infrastructure as a service (1.1.2.1.1 and 1.1.3.1.1), rightly recognising these as foundational capabilities. The plan also leans into Australia's strength in AI applications (3.2.1), a capability in which the assessment finds Australia has advanced maturity. This represents a logical decision by government to focus initial efforts and limited resources on harvesting low hanging fruit with force multiplier benefits for the public and for the economy.

- **Government and SME adoption of AI:** adoption of AI by the public service (4.2.2.1), building trust in the public sector (4.3.2.1), and building public sector intuitional capacity (6.3.1), are all rightly recipients of signification commitments in the plan, indicating the government recognises the imperative to close what the assessment found to be critical gaps and lift emerging maturity in these capabilities. Likewise, a focus on supporting SME adoption (4.2.1.3) signals a clear intent to build agency in this area with a view to unlocking productivity.
- **International engagement:** the plan makes a significant commitment to international influence and norms shaping (6.5.1), as well as access and partnerships (6.5.2) reflecting a welcome awareness of the leverage value of Australia's uncommonly advanced maturity and very high agency in these capabilities. This also subtly signals an intent to proactively manage today's complex geostrategic environment, which directly impacts Australia's agency to access all 103 capabilities in the AI stack.

Strategic silences and deliberate omissions align with areas of low national agency.

Not all omissions from the plan necessarily reflect oversights or ambition shortfall. The typology includes all possible AI capabilities. It is not a prescription for concerted action and investment in all areas. The spirit of AI agency is to be intentionally selective and strategic with the benefit of the big picture. The plan is silent on the following areas.

- **Accelerators (AI chips):** the assessment finds that Australia has low maturity and low agency over the manufacturing of AI accelerators (1.2.2). The plan does not pursue a domestic capability in this area, instead referring to Australia's 'access' to advanced chips through global supply chains. While there are arguments for further investment in this area,[24] it is reasonable to assume the government has intentionally deprioritised this area given the difficulty and cost of specialisation, and Australia's existing low comparative advantage. Given this finding, review of the government's level of commitment to international agreement for accelerator supply (1.2.3) warrants attention, as does harnessing Australia's potential agency in designing accelerators (fabless) (1.2.2.1). Both represent opportunities to hedge against this critical dependency.
- **Foundation models:** the assessment finds that Australia's capabilities across model development are uneven, predominantly emerging maturity with some established and advanced. The plan does not pursue domestic frontier model development as a national priority. Like accelerators, this likely reflects the government deprioritising this area in favour of other strategic interventions – domain specific models and applications are examples assessed to be high agency for Australia.
- **Private sector capability:** except for SMEs, the plan does not make any significant commitments to increase maturity in private sector capability (for example, private compute clusters (1.1.2.1.2), commercial edge inferencing deployments (1.1.3.1.2), and private inference compute deployments (1.1.3.1.3)). This is a reasonable policy choice. Government effort is appropriately focused on enabling infrastructure and foundational capabilities, while allowing the market to lead on commercial deployment, adoption and use.

The capabilities listed so far represent capabilities the government has chosen to prioritise, or not prioritise, in the plan. The assessment (and its extensive evidence base) supports those decisions. Capabilities that have been prioritised in the plan score highly against the criteria used in the assessment to identify strategic opportunities for Australia, while the areas highlighted above that receive limited attention in the plan are areas in which the assessment finds Australia has low agency, or in which the government is reasonably leaving the private sector to lead.

However, there are other capabilities that also meet these thresholds for prioritisation, and areas where the assessment identifies a stronger case for action than put forward in the plan.

The analysis that follows highlights capabilities that warrant prioritised future attention as Australia builds on the strong foundations established in the plan.

Priority areas for future attention

> **There is untapped potential in Australia's highest agency capabilities.**

While the prioritisation by the government of the capabilities listed above align with the assessment's recommended actions, there are a number of other capabilities in which Australia has very high agency that remain untapped.

- **Critical minerals:** despite being a well-known and established area of very high agency for Australia, the plan makes only passing reference to critical minerals. On the one hand this makes sense, as it is dealt with in other government documents (including the Critical Minerals Strategy).[25] But not including it in the National AI Plan represents a missed opportunity to leverage our national wealth in critical minerals to address critical capability gaps elsewhere in the AI stack. This is the equivalent of the Australian Government announcing a plan to shore up supplies of globally scarce petrol without reference to Australian's abundant gas reserves (the latter being the leverage with which we use to secure the former). **Australia should better coordinate and communicate intent to leverage our very high agency in critical minerals to secure access to capabilities in which Australia has low agency, including accelerators (AI chips).**
- **Data assets and lifecycle management:** 5 of Australia's 8 very high agency capabilities are in the data layer. Geospatial data (2.2.3) is supported by a significant commitment in the plan, but Australia also has very high agency in medical data (2.2.2), environmental and resource data (2.2.4), demographic data (2.2.9) and infrastructure data (2.2.10), which the plan does not specifically prioritise. The assessment also reveals a substantial disconnect between Australia's strengths in these domain specific datasets and our maturity in data life cycle management (2.3), where the assessment identifies many critical gaps including in data access and use (2.3.3) and data stewardship and assurance (2.3.4). The full benefit of Australia's very high agency data assets is unlikely to be realised until these gaps are addressed. **Australia's high agency domain specific datasets should be leveraged by addressing critical gaps elsewhere in the AI stack, including in data lifecycle management. Doing so would unlock greater value from these existing national data assets while also strengthening the foundations of an AI industry that is uniquely Australian.**
- **Models and applications:** while Australia does not currently lead the world in many areas of AI model development, we are globally competitive in computer vision (3.1.1.1). Despite Australia's very high agency in this field, the plan makes no specific reference to this capability. **Australia's strength in computer vision should be recognised and leveraged to help increase maturity in other areas of model development, including those in which Australia already has existing high agency like computer linguistics (3.1.1.3), robotics and physical AI (3.1.1.4), forecasting (3.1.1.5), and domain adaption (3.1.2.1), but also to fill critical gaps in existing Australian capability – such as culturally and nationally inclusive models (3.1.1.9) or cultural and linguistic alignment (3.1.2.2). The latter 2 are particularly important to prioritise if Australia chooses not to prioritise development of general purpose and frontier models.**

- **Defence and national security:** the plan makes general references to AI defence technologies but is otherwise silent. Like with critical minerals, on the one hand this is understandable, given that the 2026 National Defence Strategy and 2026 Integrated Investment Program was released after the plan and have placed an increased focus on technological innovation. However, **the lack of public national coordination between defence and national security community and the broader AI ecosystem represents a strategic missed opportunity to use the significant government investments in the defence and national security domain as force multipliers. It will not always be appropriate to combine defence and civilian efforts. However, greater public coordination between defence and national security portfolios and the industry and innovation portfolios will deliver broad benefits across the economy.**

There are critical gaps that need to be filled in the public interest.

While in many instances it makes sense to lean into capabilities in which Australia has established maturity, in some cases it is also strategic to build low maturity capabilities, especially where those capabilities are globally scarce and in the public interest. The assessment identifies a number of capabilities that fall into this category but that are not prioritised in the plan.

- **Inclusive, discerning and trusting AI adoption, underpinned by democratic legitimacy:** these capabilities represent the ability of individuals and organisation to make informed and discerning choices to adopt AI (4.2.4-4.3.1), to trust AI (4.3.2), to live with AI (5.4.1) and to ensure AI enhances our democracy (6.4). The assessment found each of these capabilities currently had only emerging maturity. **Understandably, there is a strong narrative focus on these capabilities the plan. However, except for trust in public sector (4.3.2.1), this is not backed up by any substantive whole-of-nation initiatives in the plan to lift maturity. This requires urgent attention to ensure that 'all Australians, regardless of background or location, share the advantages of AI' (one of the plan's 3 stated goals).[26] Without intervention, this goal will not be achieved.**
- **Public sector and public interest compute:** the assessment finds that Australia's public sector and public interest compute capabilities are predominantly emerging maturity (1.1.2.2, 1.1.3.2). The plan commits to mapping compute infrastructure but provides limited detail on follow up action. It is silent also on data storage infrastructure (1.1.4). The lack of commitment to increase Australia's maturity in this foundational public infrastructure has already drawn well founded criticism.[27] This warrants a fast-follow by government to raise maturity across these foundational public interest compute capabilities, as well as to foster AI adoption by research and academic communities (4.2.3.2), recognising the force multiplier effect this will have across the public interests sector (including, for example, in emergency management). The assessment also supports greater priority being given to international agreements for cross border access to training compute (1.1.2.2.3).
- **Culturally and nationally inclusive models, adaption and alignment:** Australia's values and many cultures define our national identity. If Australia does not invest in uplifting predominantly emerging maturity in culturally and national inclusive models (3.1.1.9), domain adaption (3.1.2.1), cultural and linguistic alignment (3. 1.2.2), safety and values alignment (3.1.5), at best, we risk flattening of our national culture. At worst, we risk the erosion of our national identity. Government attention is recommended to lift maturity and fill these critical gaps in the public interest. This is particularly important if Australia chooses not to invest in foundational models.

- **Skills:** the assessment finds that Australia has high agency across most of the skills layer. These strengths should be built and strategically leveraged to offset areas of lower agency. Australia's established maturity and high agency in cyber security and technical robustness (5.3.2) should be valued and leveraged more deliberately. However, there are notable exceptions to Australia's high agency skills. **AI development and application skills (5.1.4), research translation (5.1.5) and international talent collaborations (5.1.6) are assessed to be critical gaps. Despite high agency, each is assessed as having only emerging maturity, suggesting a clear need for government action to lift maturity and fill these critical skills gaps.**
- **Regulatory frameworks and oversight:** there was a moderate commitment to legal and regulatory frameworks (6.2.1) and a limited commitment to regulatory and oversight capability (6.2.3) in the plan. Both capabilities are assessed to require additional attention. Regulatory frameworks because they provide an enabling environment for all capabilities, and regulatory oversight because the entire system is undermined if regulators do not have the capability and capacity to enforce the law. **Government action to pass long overdue legislative reforms (including but not limited to privacy), and to appropriately fund regulators are 2 urgent measures recommended for prioritisation.**

Enterprise assessments

While TPDi has applied the tool to assess Australia's AI agency and analyse the National AI Plan, it can also be used to conduct similar assessments for organisations.

The tool is intentionally comprehensive. No country, organisation or initiative will demonstrate maturity in every capability. The following case studies demonstrate how different AI capabilities in the typology are combined and applied to specific missions, sectors or contexts for real-world outcomes. Due to commercial sensitivities, these case studies do not include an assessment of AI sovereignty, or agency. However, they demonstrate how the tool could be applied to assess enterprise capabilities just as it does national capabilities.

Setonix – case study

Provided by Pawsey Supercomputing Research Centre

Supported by the Commonwealth and Western Australian governments and operated by leading universities, **Setonix** is one of Australia's 2 Tier 1 high performance computing facilities alongside the National Computational Infrastructure (NCI). As a leading system in the Indo-Pacific region, it demonstrates activity across the infrastructure and resources, data assets and lifecycle management, and skills layers of the typology. This case study was written in November 2025.

Setonix assessment using the AI Agency Tool

Layer	Capability	In this case
1. Infrastructure & Resources	**1.3.3 Water Supply**	Setonix's use/resuse of aquifer water is an example of a sustainable approach.
	1.3.2.1 Broadband Capacity	Supported by AARNET a NFP providing trusted high-speed, secure connectivity for national and international research institutions.
	1.3.1.1 Clean Electricity Generation	Operates among the world's most energy-efficient HPC systems, reflecting mature capability in sustainable compute infrastructure.
	1.1.4 Data Storage Infrastructure	Hosts one of the world's largest open research data storage systems, providing secure, high-capacity infrastructure for collecting and processing datasets needed for large scale AI training.
	1.1.3.2.1 Public Sector & Public Interest High-performance Inferencing Compute Clusters	Provides national high-performance compute capacity (43 petaFLOPs, 463 TB RAM) accessible to public research institutions for large-scale modelling, simulation, experimental AI inference benchmarks.
2. Data	**2.2 Domain Specific Datasets**	Provides secure data environments and management frameworks for nationally significant scientific datasets.
3. Models & Applications	**3.2.2 Sector-Specific Applications**	Supports AI-enabled research across national priority sectors including astronomy, climate science, health, and resources demonstrating cross-sector translation of AI models into applied science.
	3.1.3 Model Tooling	Provides advanced compute environments for AI-driven modelling, simulation, and large-language-model inference across research domains, customising models with specialised data.
	3.1.1.6 Discovery	Researchers identifing new patterns and hypotheses in health and life sciences, supporting disease prediction and early-stage discovery through AI-driven pattern recognition at the frontier of biomedical research.
4. Adoption	**4.2.3.2 Research & Academia Adoption**	Accelerates AI adoption across expert research communities through training, collaboration, and applied compute access.
5. Skills	**5.1.5 Research & Development Capabilities**	Setonix supports large-scale AI research translating advanced modelling into scientific impact, including protein-structure and genomic analysis contributing to global datasets such as AlphaFold.
	5.1.4 AI Development & Application Skills	Pawsey runs dedicated, advanced computing training programs and uptake projects supporting code optimisation for use on advanced GPU clusters.
6. Governance	**6.5.2 Access & Partnerships**	Maintains strategic partnerships with international compute centres in Europe, the USA, and Asia to facilitate shared research capability and standards alignment.
	6.3.2 Private Sector & Public Interest Institutional Capacity	Implements responsible-AI governance practices in public research, aligning oversight and transparency with ethical and regulatory standards.

Maincode – case study

Provided by Maincode

Established to design, train and deploy AI models entirely within Australia, Maincode is an emerging example of Australian-owned AI infrastructure development. Through its Matilda and Matilda AFL models, Maincode demonstrates shows how early-stage innovation across multiple layers of the typology can contribute to national capability. This case study was written in November 2025.

Maincode assessment using the AI Agency Tool

Layer	Capability	In this case
1. Infrastructure & Resources	**1.1.4 Data Storage Infrastructure**	Computing Power (Rpeak): ≈ 130 petaFLOPs Aggregate Memory: ≈ 18 TB Storage: ≈ 2.7 PB
	1.1.1 Data Centres	
2. Data	**2.3 Data Lifecycle Management**	Maintains integrated, high-integrity data pipelines for model training and evaluation. These pipelines ensure auditability, efficiency, and compliance with Australian standards while supporting rapid model iteration.
3. Models & Applications	**3.1.1 Model Development**	Designs, trains, and deploys advanced models within Australia. The Matilda foundation model and Matilda AFL, trained on MC-1, show that large-scale AI manufacturing can be done locally to global standards.
4. Adoption	**4.2.2 Public Sector Adoption**	Maincode's Model Factory provides secure, in-country infrastructure for public-interest AI initiatives, enabling government and research partners to train and operate models within Australian legal and operational control.
	4.2.1 Private Sector Adoption	Partners with Australian enterprises such as Heidi Health through pilot programs that build and test domain models on the Model Factory platform, proving how local organisations can develop Australian-made AI.
5. Skills	**5.1.5 Research and Development Capabilities** (translation)	Bridges frontier AI research and industrial practice through an in-house team of PhD researchers and applied engineers translating new methods into production-ready Australian-made systems.
	5.1.1 Building Physical AI Infrastructure	Dedicated AI infrastructure within Australia, including MC-1 and the new MC-2 facility. Together they represent 35 million dollars of investment in industrial-grade compute and storage capacity for national AI development.
6. Governance	**6.3.2 Private Sector & Public Interest Institutional Capacity**	Operates an Australian-owned AI factory platform that integrates governance, engineering, and assurance. Its internal AI Assurance Framework embeds accountability, transparency, and risk management across all model training and deployment activity.

Project Southgate – case study

Provided by CDC Data Centres

Project Southgate is a partnership between Firmus Technologies, CDC Data Centres and NVIDIA to deliver national-scale graphics processing unit (GPU) compute infrastructure powered by renewable energy. The project demonstrates activity across the infrastructure and resources, innovation and adoption, and skills layers of the typology, linking data centre capacity, clean energy integration, and specialist technical roles that enable large-scale compute. This case study was written in November 2025.

Project Southgate assessment using the AI Agency Tool

Layer	Capability	In this case
1. Infrastructure & Resources	**1.3.3 Water Supply**	Utilises CDC's closed-loop LiquidCore cooling system to minimise water use in large-scale compute operations.
	1.3.1.1 Clean Electricity Generation	Underwriting of 5.1 GW in renewable power, ensuring the compute infrastructure operates on verified clean-energy sources.
	1.2.2 Producing Accelerators	Partnership with NVIDIA provides access to advanced accelerator technology and enables local integration through Firmus' AI Factory.
	1.1.3.1.1 Cloud Inference Compute Infrastructure as a Service	Project Southgate establishes national-scale AI compute infrastructure, providing local GPU access for Australian organisations to run inference and deployment workloads securely and on demand.
	1.1.2.1.1 Cloud Training Compute Infrastructure as a Service	Tasmanian founded, Firmus AI Factory platform will host model training and development workloads locally, improving energy efficiency and cost competitiveness while enabling Australian organisations to train AI systems domestically.
	1.1.1 Data Centres	CDC operates Tier 4 data centres across Australia and New Zealand, providing secure, energy-efficient, and highly reliable infrastructure for large-scale AI compute, demonstrating mature national capability in physical infrastructure.
4. Adoption	**4.2.2 Public Sector Adoption**	Expands domestic access to high performance GPU compute for research and public-sector experimentation within a secure domestic environment.
	4.2.1 Private Sector Adoption	Expands domestic access to high-performance GPU compute for private-sector organisations developing AI solutions in areas such as healthcare, energy and manufacturing.
	4.1.1.2 AI Native Companies	May enable Australian AI-native firms to develop and deploy models domestically by expanding local compute access and reducing offshore dependency.
5. Skills	**5.1.5 Research and Development Capabilities** (translation)	Project Southgate will require advanced technical expertise to design, build, and maintain data centres and high-performance compute clusters, supporting the development of Australia's specialised AI infrastructure workforce.

CONCLUSION

Calls for AI sovereignty continue to shape government strategies, public debate and investment decisions. Yet, as this report has shown, the term is often broad, binary and ambiguous. It limits the conversation to ownership and control, neglecting other key strategic dynamics that define a country's capacity to act, choose, adapt and shape outcomes within a globally interconnected system. As a result, it offers limited guidance for practical policy design or strategic decision-making.

We propose expanding from a binary notion of AI sovereignty to a nuanced AI sovereignty spectrum, which supports the more practical pursuit of AI agency.

Rather than asking whether a country has AI sovereignty, the more useful question is whether it has the agency to steer outcomes, protect and promote national interests, and capture value in a globally connected technological system. It recognises that nations do not need to lead in every capability but require the ability to understand their strengths, reduce critical dependencies where necessary and build leverage where national advantages exist.

The AI Agency Tool provides a structured and repeatable method for describing and assessing national AI maturity, sovereignty, agency and producing recommended actions across the layers of the AI ecosystem. By breaking the system into clear components – 103 possible capabilities across 6 layers – the tool supports informed decision-making and fosters a shared language across government, industry, civil society and research communities.

Having built the tool, we needed to apply it to demonstrate how it can be used in practice. Australia's 2025 AI Agency Assessment shows we are well-placed as a nation in physical AI infrastructure, data assets and applications. The most significant opportunities are in compute infrastructure; unlocking data assets through lifecycle capabilities; some models, including computer vision; and continuing to boost cross-cutting enablers, such as inclusion, skills and trust.

Some capabilities also require further evidence, reflecting the evolving and collaborative nature of this work.

While the AI Agency Tool is presented here in its final form, its value will grow through continued application, testing and refinement. We invite policymakers, business leaders and researchers to adopt the AI Agency Tool to boost evidence, clarity and strategy. Achieving meaningful AI agency is not the task of any single institution or sector, but a shared endeavour.

In a world defined by interdependence, sovereignty is only part of the equation. AI agency is what enables nations to shape their future.

APPENDIXES

APPENDIX 1: SOVEREIGNTY WAS NEVER CEDED

In many countries, including Australia, the term 'AI sovereignty' warrants additional care.

In Australia, sovereignty is not just a question of geopolitical autonomy or national industrial capability, but one that intersects with an enduring and unceded sovereignty of First Nations people. Framing national capability as a sovereignty issue risks obscuring these continuing sovereignties that predate Australian federation. Regardless of the country, any national conversation about AI should reinforce, rather than distract from, the distinct and profoundly important conversations about Indigenous sovereignty and meaningfully empower Indigenous voices, leadership and agency.

Insights from engagement with First Nations people identified 5 interrelated dimensions that any National AI Agency Assessment should take into account.

1. Recognising Indigenous knowledge systems as innovation

First Nations peoples are innovators.[28] In Australia, their systems of knowledge, grounded in care for Country and Kin, reflect advanced governance, design and stewardship. These systems of country, lore and kinship emphasise balance, reciprocity and relational accountability across people, land, water and sky. They provide a robust ethical framework for technology design and deployment, embedding responsibility, transparency and respect into the architecture of innovation itself. [29] Indigenous knowledge systems (which differ greatly globally) can strengthen pursuit of AI excellence, ensuring capability is technologically advanced, and grounded in accountability and stewardship.

2. Country, custodianship and consent

AI depends on energy, minerals, land and water. Recognising these as shared resources requires meaningful engagement with and consent from Traditional Owners as an ethical, moral and legal foundation for sustainable capability. 'Mature capability' in these domains should include dialogue with First Nations custodians to ensure resource use aligns with environmental, cultural and social responsibilities.

3. Indigenous Data Sovereignty rights

Integrating Indigenous Data Sovereignty across all data assets and lifecycle activities is another indicator of maturity. The AI Agency Tool recognises this as a distinct national capability, identifying a commitment to Indigenous Data Sovereignty through respectful handling of Indigenous Cultural and Intellectual Property (ICIP) and adherence to human rights' frameworks and the FAIR and CARE Principles.[30] Control of identity, knowledge, and future data use is central to AI agency, and there is a short window to assert this control before AI systems become too entrenched to influence meaningfully.

4. Ensuring First Nations communities shape, safeguard and benefit from AI

Conversations about First Nations people and AI must not solely focus on managing risks. Building AI capability is also about creating pathways that empower First Nations people, technologists, entrepreneurs and communities to shape and benefit from the opportunities AI presents and to engage confidently with AI on their own terms.[31]

5. Iterative dialogues and learning

The typology adopts a Western, linear structure. Indigenous knowledge systems are cyclical, relational and adaptive, embodying thousands of years of non-linear systems design and knowledge transmission.[32] TPDi will continue listening to and working with First Nations Elders, technologists and communities. TPDi is committed to continually evolving our work to ensure it respects and (where appropriate) reflects Indigenous innovation traditions.

While these insights arise from the Australian context, they highlight a broader principle for the international application of the AI Agency Tool. Indigenous communities are not homogeneous and should not be treated as such. When the tool is applied internationally, care should be taken to ensure assessments recognise and incorporate local cultural, Indigenous and community knowledge and governance systems. This is particularly important as global efforts accelerate to incorporate more languages and cultural datasets into AI systems, including large language models. While, on the surface, such efforts may appear inclusive, once cultural knowledge is digitised and embedded in AI systems, establishing culturally appropriate governance and permissions after the fact is challenging. These factors should be considered during design phases, not in retrospect.

APPENDIX 2: ORIGINS OF AI SOVEREIGNTY

The term 'AI sovereignty' has layered meanings and implications that complicate its use in policy debates.

'Sovereignty' is a foundational principle of the modern international system, emerging from the Treaty of Westphalia in 1648 and later formalised in international law through the United Nations Charter in 1945.[33] Although interpretations of sovereignty have changed over the years, it fundamentally refers to a state's right to govern its internal affairs without external interference from other states, establishing the principle of non-interference in international relations.[34] It also carries significant meaning, legal consequence and cultural weight in regards to self-determination of First Nations peoples.

However, in technology policy debates, the term 'digital sovereignty' has traditionally been used by authoritarian governments such as Russia and China to justify and advocate for state control over the internet and digital technologies.[35] In these contexts, sovereignty is used to minimise the role of non-state actors and strengthen the power of the nation-state, with serious implications for freedom of expression, privacy and other human rights.[36] This also stands in contrast to the multistakeholder model of internet and digital governance, which emphasises the inclusion of governments, civil society, technical experts, academia and the private sector to ensure no state has complete control over the digital realm.[37]

More recently, the term 'digital sovereignty' has been repurposed by many democratic governments to emphasise autonomy and reduce dependency on foreign digital infrastructure and platforms.[38] As the power and influence of big tech companies has grown, the meaning of digital sovereignty has also expanded to convey a government's efforts to counterbalance against the influence of big tech and corporations.[39] In parallel, the concept is also increasingly used to describe the autonomy and self-determination of individuals, and their ability to control their data, identities and choices within digital systems.[40]

Within this context, 'AI sovereignty' has emerged as a subset of digital sovereignty. The term features increasingly in government policies, most recently in Canada and the United Kingdom.[41]

Definitions of 'AI sovereignty' vary. It can be broadly understood as 'the capacity of a given country to understand, muster and develop AI systems, while retaining control, agency and, ultimately, self-determination over such systems.'[42] NVIDIA, meanwhile, defines it through a more technical lens referring to 'a nation's capabilities to produce artificial intelligence using its own infrastructure, data, workforce and business networks.'[43]

With AI sovereignty gaining prominence in policy debates, there is a growing body of research examining the effectiveness, trade-offs, and unintended consequences of different policy approaches adopted in binary pursuit of AI sovereignty.[44]

While the term 'AI sovereignty' usefully highlights issues of control, capability and dependency, it can imply a binary or isolationist goal that does not align with the inherently interconnected nature of the global AI ecosystem. That is the shortfall this report seeks to address.

APPENDIX 3: DEFINING AI

As the AI Agency Tool's typology sets out, AI should be understood as an ecosystem of interlocking capabilities, not a single technology. A narrow focus on compute for generative AI overlooks the data, models, skills and governance that determine how AI is developed, deployed and controlled. Recognising and measuring the full spectrum of AI capabilities gives policymakers the breadth and precision needed to collaborate, measure progress, improve performance and succeed.

AI extends beyond just generative models. Generative systems like ChatGPT that often dominate the headlines represent only one branch of a much larger field. Established tools such as recommendation algorithms, fraud detection systems and automated decision-making algorithms have been transforming industries for decades. Emerging areas, including computer vision and robotics, are likely to transform society in distinct and significant ways.

The work of defining AI has a complex backstory.[45] For consistency and comparability, this report adopts the Organisation of Economic Co-operation and Development's (OECD) definition of an AI system.[46]

> An **AI system** is a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment.

AI systems continue to evolve rapidly. The typology is designed to remain relevant through these shifts, classifying model types by their functions rather than by technical methods that are likely to change more frequently.[47]

To navigate the pace of change, policymakers need a clear view of how AI capability fits together as a system. The 6 layers of the AI ecosystem – infrastructure and resources, data assets and lifecycle management, models and applications, innovation and adoption, skills, and governance – operate as an interdependent system. Understanding the upstream and downstream implications of each layer enables policy design to evolve alongside technology itself.

AI sits within a broader strategic technology context, including quantum computing and biotech, which are rapidly converging.[48] As a general purpose technology with profound network effects, AI will both shape and accelerate these other technological advances, which have a direct impact on society. Effective policy must therefore take a joined-up sociotechnical view, recognising that technological capability and societal context evolve together.

APPENDIX 4: METHODOLOGY

This appendix outlines the research process that informed the development of the AI Agency Tool. It provides an overview of the diverse stakeholder inputs that shaped the design of the tool and the findings of *Australia's 2025 AI Agency Assessment*.

Research process

The AI Agency Tool was developed through an iterative, multi-stage research process combining conceptual design, expert reviews and national consultation (Figure A1).

- TPDi first developed a **draft framework** detailing possible AI capabilities and an 'interdependence scale', drawing on desk research, including relevant TPDi research.[49] This early draft underwent targeted **peer review** before being used as the basis for national consultation.
- In September 2025, TPDi undertook a **national roadshow consultation**, involving over 250 participants across Australia's AI ecosystem. The roadshow included **14 expert roundtables** across **5 cities**, where experts participated in a facilitated discussion about the meaning of 'AI sovereignty' and provided direct feedback on the draft framework. TPDi also invited responses to 6 **stocktake surveys**, one for each layer of the AI ecosystem, that covered the concepts behind the framework, as well as Australia's level of maturity and agency.[50]
- Insights from these workshops and survey responses informed the development of a **draft AI Agency Tool** and served as inputs for the **draft Australian assessment**. Notes on how the consultation findings shaped the first draft of the AI Agency Tool can be found in the Discussion Paper released in November 2025.[51]
- This draft tool and interim findings of the Australian stocktake underwent further refinement through a second round of **peer review** in November 2025 (peer reviewers are acknowledged on page 2 of the discussion paper).
- The draft AI Agency Tool and Australian stocktake were **published as a discussion paper** for public feedback, open from 22 November to 15 December 2025.
- Responses to the discussion paper, combined with further **First Nations engagement**, guided preparation of this **final report**, with the **final AI Agency Tool** and ***Australia's 2025 AI Agency Assessment***.

Figure A1: Phases of the research process

Stakeholder representation

The tool is an ambitious attempt to define the full breadth of the AI ecosystem and expand the concept of AI sovereignty to AI agency. Because of its scope, TPDi sought broad and diverse participation in its development.

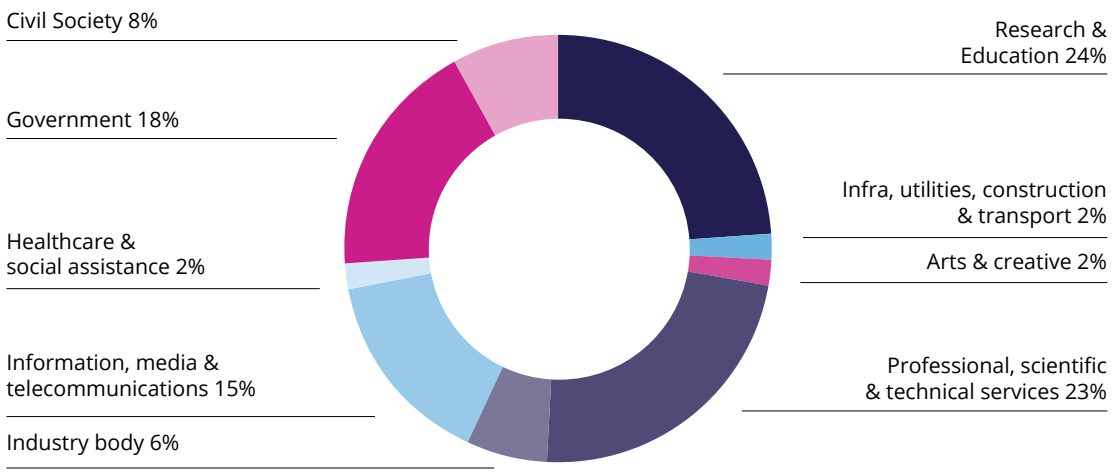
TPDi is committed to rigorous, inclusive and transparent research. We will continue to seek to elevate historically underrepresented voices, including civil society, First Nations peoples, young people, those living with disability, and those for whom English is an additional language. These perspectives are critical to ensuring our research reflects the lived realities, aspirations and values of all Australians.

National roadshow consultation

The September 2025 national consultation attracted a multi-stakeholder cohort of participants with expertise across all elements of the AI ecosystem. Participants included representatives from civil society (8%), government (18%), research and education (24%) and industry (50%) (Figure A2). Virtual workshops and online surveys enabled participation beyond capital cities.

Participants represented Australia's leading digital, research and policy institutions alongside representation from the tech, finance, education and creative sectors. This phase focused on expert practitioners directly involved in developing, deploying or governing AI systems. AI users, such as SMEs and the general community, were not specifically targeted in this phase.

Figure A2: Pie chart of multi-stakeholder participation in the roadshow



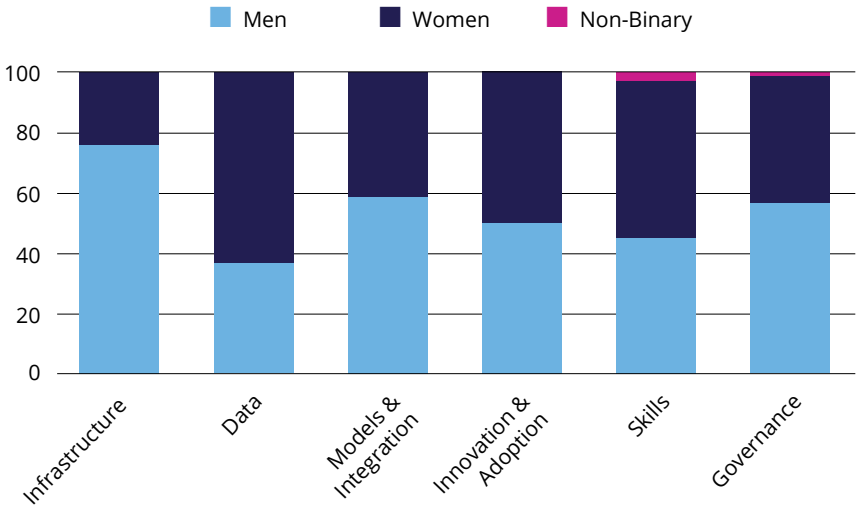
Notably, the cohort demonstrated stronger female participation (43%) than national technology sector averages, particularly among information and communications technology (ICT) professionals (Figure A3).[52]

The roadshow consultation confirmed several known ecosystem gaps: limited civil society participation (especially at the model-development layer), limited Indigenous representation despite a dedicated First Nations roundtable, and limited representation of participants under 30 years old. Ten consultation participants listed English as a second language.

The activated network of national AI stakeholders represents a valuable longitudinal resource through which TPDi can sustain engagement and policy dialogue to measure progress over time.

The authors are grateful to all of the individuals and organisations who generously shared their time, expertise and perspectives to increase the value of this research. Participants are listed at Appendix 6.

Figure A3: Gender diversity of national roadshow participants across each layer of the AI ecosystem



First Nations engagement

In recognition of the sensitivities around the topic of sovereignty in Australia, TPDi undertook targeted engagement with First Nations peoples. This included 2 dedicated workshops: one in hybrid in Brisbane in September 2025 as part of the national roadshow, and one virtual in March 2026 to receive feedback on the discussion paper and refine this final report.

The authors are grateful to the First Nations individuals who generously shared their time, expertise and perspectives to increase the value and cultural awareness of this research. Participants are listed at Appendix 6.

APPENDIX 5: AUSTRALIA'S AI AGENCY ASSESSMENT AT A GLANCE

Key to the tables

Assess today		
Maturity rating	**Sovereignty rating**	**Agency score**
Existence and sophistication of specific capability in the jurisdiction, based on national stocktake of existing assessments	Derived from a weighted sovereignty spectrum taking into account extent of international access, sovereign control, resilient choice and export leverage for each capability	Objective competitive advantage a country has over a capability, based on compilation of maturity rating, sovereignty rating and the scarcity of that capability globally
Not enough data	**Not enough data**	**Not enough data**
No maturity	**Low**	**Low**
Emerging	**Medium**	**Moderate**
Established	**High**	**High**
Advanced		**Very High**

Prioritise tomorrow
Recommended action
Strategic imperative to increase current agency over a capability, taking into account current maturity, sovereignty, scarcity and public interest (the latter of which is inherently subjective) The recommended actions prioritise capabilities where agency should be increased, either to seize an international leadership opportunity, advance public interest or close a critical domestic gap. Taken together, the recommended actions aid prioritisation by revealing how agency in certain capabilities should be leveraged to secure international access to other capabilities where there is lower advantage.
Gather more evidence: insufficient data.
Maintain and monitor: current agency is strategically appropriate. Continue monitoring for changes in the strategic environment that may require future adjustment.
Build: this is an opportunity to strengthen national agency in globally scarce capabilities, where some national maturity and sovereignty already exists. Consider additional targeted effort to increase international leverage and future flexibility.
Close critical gap: this is a significant domestic maturity gap in a globally scarce capability with high public interest value. Consider prioritised effort to reduce vulnerability and build baseline capability.
Prioritise building: this is a strategic opportunity to strengthen national advantage where national maturity is already advanced and agency is high, or where increasing national maturity in a globally scarce capability is in the public interest. Consider prioritised effort to increase both international leverage opportunities and domestic public interest outcomes.
Leverage and maintain: this is a capability of existing very high national agency, which should be maintained and leveraged internationally to offset gaps in other capabilities of low agency.

Layer 1 Infrastructure & resources: The physical foundations of AI power (compute, data centres, supply chains and natural resources)

Typology: 1. Infrastructure & resources				Assess today			Prioritise tomorrow
Category I	**Category II**	**Category III**	**Category IV**	**Maturity rating** National stocktake	**Sovereignty rating** International access, sovereign control, resilient choice, export leverage	**Agency score** Maturity rating, sovereignty rating, global scarcity	**Recommended action** considering maturity rating, sovereignty rating, global scarcity, and domestic public-interest
1.1 Compute & Data Infrastructure	1.1.1 Data Centres			Established	High	High	Build
	1.1.2 Training Compute	1.1.2.1 Private Sector Training Compute	1.1.2.1.1 Cloud Training Compute Infrastructure as a Service	Established	Medium	High	Prioritise building
			1.1.2.1.2 Private Training Compute Clusters	Emerging	High	High	Maintain and monitor
			1.1.2.2.1 Public Sector & Public Interest AI Training Infrastructure	Emerging	Medium	Moderate	Close critical gap
		1.1.2.2 Public Sector & Public Interest Training Compute	1.1.2.2.2 General-purpose Public Sector & Public Interest High-Performance Compute Infrastructure	Emerging	Medium	Moderate	Close critical gap
			1.1.2.2.3 International Agreements for Cross-border Access to Training Compute	Emerging	High	High	Close critical gap
	1.1.3 Inferencing Compute	1.1.3.1 Private Sector Inferencing Compute	1.1.3.1.1 Cloud Inferencing Compute Infrastructure as a Service	Established	High	High	Prioritise building
			1.1.3.1.2 Commercial Edge Inferencing Compute Deployments	Emerging	High	Moderate	Maintain and monitor
			1.1.3.1.3 Private Inferencing Compute Deployments	Emerging	High	Moderate	Maintain and monitor
		1.1.3.2 Public Sector & Public Interest Inferencing Compute	1.1.3.2.1 Public Sector & Public Interest Inferencing Compute Clusters	Emerging	High	Moderate	Close critical gap
			1.1.3.2.2 Public Sector & Public Interest Edge Inferencing Compute Deployments	Established	Medium	Moderate	Prioritise building
		1.1.3.3 Consumer or Personal AI Inferencing Devices		Advanced	High	High	Prioritise building
	1.1.4 Data Storage Infrastructure			Established	High	High	Build

Typology: 1. Infrastructure & resources				Assess today			Prioritise tomorrow
Category I	**Category II**	**Category III**	**Category IV**	**Maturity rating**	**Sovereignty rating**	**Agency score**	**Recommended action**
1.2 Hardware Supply Chain	**1.2.1 Strategic & Critical Minerals**	**1.2.1.1 Natural Resources**		Advanced	High	Very high	Leverage and maintain
		1.2.1.2 Extraction		Established	High	High	Build
		1.2.1.3 Refinement & Processing		Emerging	High	High	Maintain and monitor
	1.2.2 Producing Accelerators (AI Chips)	**1.2.2.1 Designing Accelerators** (Fabless)		Emerging	Medium	Moderate	Maintain and monitor
		1.2.2.2 Manufacturing Accelerators		No maturity	Low	Low	Maintain and monitor
		1.2.2.3 Packaging Accelerators		No maturity	Low	Low	Maintain and monitor
	1.2.3 International Agreements for Accelerator Supply			Not enough data	Not enough data	Not enough data	Gather more evidence
	1.2.4 Other Critical Data Centre Hardware & Construction Inputs			Established	Medium	Moderate	Maintain and monitor
1.3 Supporting Infrastructure & Resources	**1.3.1 Electricity**	**1.3.1.1 Clean Electricity Generation**		Established	Medium	High	Prioritise building
		1.3.1.2 Electricity Transmission & Distribution		Established	Medium	Moderate	Maintain and monitor
	1.3.2 Network & Connectivity	**1.3.2.1 Broadband Capacity**		Established	High	High	Maintain and monitor
		1.3.2.2 Subsea Cables		Established	Medium	Moderate	Build
	1.3.3 Water Supply			Emerging	High	Moderate	Maintain and monitor
	1.3.4 Suitable Land			Established	High	High	Maintain and monitor
	1.3.5 Permitting & Approvals Process			Established	High	High	Build

Layer 2 Data assets & lifecycle management: Data capabilities required to support AI development and use (availability and quality of data, access arrangements and data sovereignty practices)

Typology: 2. Data assets & lifecycle management			Assess today			Prioritise tomorrow
Category I	**Category II**	**Category III**	**Maturity rating** National stocktake	**Sovereignty rating** International access, sovereign control, resilient choice, export leverage	**Agency score** Maturity rating, sovereignty rating, global scarcity	**Recommended action** considering maturity rating, sovereignty rating, global scarcity, and domestic public-interest
2.1 Commitment to Indigenous Data Sovereignty			Emerging	High	High	Close critical gap
2.2 Domain Specific Datasets	**2.2.1 Language, Arts, Culture & History**		Established	High	High	Prioritise building
	2.2.2 Medical		Advanced	High	Very high	Leverage and maintain
	2.2.3 Geospatial		Advanced	High	Very high	Leverage and maintain
	2.2.4 Environment & Resources		Advanced	High	Very high	Leverage and maintain
	2.2.5 Economic		Established	High	High	Maintain and monitor
	2.2.6 Enterprise & Business		Not enough data	High	Not enough data	Gather more evidence
2.2 Domain Specific Datasets	**2.2.7 Scientific, Synthetic & Simulated Research**		Not enough data	High	Not enough data	Gather more evidence
	2.2.8 Community & Citizen Science		Not enough data	High	Not enough data	Gather more evidence
	2.2.9 Demographic		Advanced	High	Very high	Leverage and maintain
	2.2.10 Infrastructure		Advanced	High	Very high	Leverage and maintain
	2.2.11 Public Administration		Emerging	High	High	Close critical gap

Typology: 2. Data assets & lifecycle management			Assess today			Prioritise tomorrow
Category I	**Category II**	**Category III**	**Maturity rating**	**Sovereignty rating**	**Agency score**	**Recommended action**
2.3 Data Lifecycle Management	2.3.1 Data Creation & Sourcing	2.3.1.1 Standards & Provenance	Established	High	High	Prioritise building
		2.3.1.2 Responsible Data Sourcing	Emerging	High	High	Close critical gap
	2.3.2 Data Preparation & Curation	2.3.2.1 Data Quality & Validation	Emerging	High	High	Close critical gap
		2.3.2.2 Annotation & Curation	Emerging	High	High	Close critical gap
	2.3.3 Data Access & Use	2.3.3.1 General Use Access	Emerging	High	High	Close critical gap
		2.3.3.2 Availability of Government Data	Established	High	High	Prioritise building
		2.3.3.3 Restricted Access – Copyright/IP	Emerging	High	High	Close critical gap
		2.3.3.4 Offshore Data Access (trusted transfers)	Established	High	High	Prioritise building
		2.3.3.5 Operational Data Access & Interfaces ('In-Life')	Established	High	High	Prioritise building
	2.3.4 Data Stewardship & Assurance	2.3.4.1 Data Retention & Archiving	Emerging	High	High	Close critical gap
		2.3.4.2 Data Deletion & Oversight	Emerging	High	High	Close critical gap

Layer 3: Models & applications: The development and adaptation of models from computer vision to optimisation, and the applications that build on top of them

Typology: 3. Models & applications			Assess today			Prioritise tomorrow
Category I	**Category II**	**Category III**	**Maturity rating** National stocktake	**Sovereignty rating** International access, sovereign control, resilient choice, export leverage	**Agency score** Maturity rating, sovereignty rating, global scarcity	**Recommended action** considering maturity rating, sovereignty rating, global scarcity, and domestic public-interest
3.1 Models	3.1.1 Model Development	3.1.1.1 Computer Vision	Advanced	High	Very high	Leverage and maintain
		3.1.1.2 Computer Audition	Emerging	Medium	Moderate	Maintain and monitor
		3.1.1.3 Computer Linguistics	Established	Medium	High	Build
		3.1.1.4 Robotics & Physical AI	Established	High	High	Build
		3.1.1.5 Forecasting	Established	High	High	Build
		3.1.1.6 Discovery	Emerging	Medium	Moderate	Maintain and monitor
		3.1.1.7 Planning / Optimisation	Emerging	Medium	Moderate	Maintain and monitor
		3.1.1.8 Creation / Generative	Emerging	Medium	Moderate	Maintain and monitor
		3.1.1.9 Culturally & Nationally Inclusive Models	Emerging	High	High	Close critical gap
		3.1.1.10 General Purpose & Frontier Model	Emerging	Medium	Moderate	Maintain and monitor
	3.1.2 Model Adaptation & Alignment	3.1.2.1 Domain Adaptation	Established	High	High	Build
		3.1.2.2 Cultural and Linguistic Alignment	Emerging	High	Moderate	Close critical gap
	3.1.3 Model Tooling		Emerging	High	Moderate	Maintain and monitor

Typology: 3. Models & applications			Assess today			Prioritise tomorrow
Category I	Category II	Category III	Maturity rating	Sovereignty rating	Agency score	Recommended action
3.1 Models	3.1.4 Model & Agent Orchestration		Emerging	High	Moderate	Maintain and monitor
	3.1.5 Safety and Value Alignment		Not enough data	High	Not enough data	Gather more evidence
3.2 Applications	3.2.1 General Applications		Advanced	High	High	Prioritise building
	3.2.2 Sector-specific Applications		Established	High	High	Maintain and monitor

Layer 4 Innovation & adoption: The ecosystem of support and investment that drives AI innovation and commercialisation, as well as levels and culture of adoption across society

Typology: 4. Innovation & adoption			Assess today			Prioritise tomorrow
Category I	**Category II**	**Category III**	**Maturity rating** National stocktake	**Sovereignty rating** International access, sovereign control, resilient choice, export leverage	**Agency score** Maturity rating, sovereignty rating, global scarcity	**Recommended action** considering maturity rating, sovereignty rating, global scarcity, and domestic public-interest
4.1 Innovation	4.1.1 Support & Investment Availability		Emerging	High	Moderate	Close critical gap
	4.1.1.2 AI Native Companies		Emerging	High	Moderate	Maintain and monitor
4.2 Rate of Adoption	4.2.1 Private Sector Adoption	4.2.1.1 Large Enterprises	Emerging	High	Moderate	Maintain and monitor
		4.2.1.2 SMEs & Startups	Emerging	High	Moderate	Maintain and monitor
	4.2.2 Public Sector Adoption	4.2.2.1 Government Adoption	Emerging	High	High	Maintain and monitor
		4.2.2.2 Defence & National Security	Established	High	High	Build
	4.2.3 Public Interest Adoption	4.2.3.1 Civil Society Adoption	Emerging	High	Moderate	Close critical gap
		4.2.3.2 Research & Academia Adoption	Established	High	High	Prioritise building
	4.2.4 Inclusive AI Adoption		Emerging	High	High	Close critical gap
4.3 Culture of Adoption	4.3.1 Discerning Adoption		Emerging	High	High	Close critical gap
	4.3.2 Trust & Confidence in AI Deployment	4.3.2.1 Trust & Confidence in Public Sector	Emerging	High	High	Close critical gap
		4.3.2.2 Trust & Confidence in Private Sector	Emerging	High	High	Close critical gap
		4.3.2.3 Trust & Confidence in Public Interest Sector	Emerging	High	Moderate	Close critical gap

Layer 5 Skills: The skills required for all elements of the AI ecosystem, from building and developing, to governing and living with AI

Typology: 5. Skills			Assess today			Prioritise tomorrow
Category I	**Category II**	**Category III**	**Maturity rating** National stocktake	**Sovereignty rating** International access, sovereign control, resilient choice, export leverage	**Agency score** Maturity rating, sovereignty rating, global scarcity	**Recommended action** considering maturity rating, sovereignty rating, global scarcity, and domestic public-interest
5.1 Skills for Building AI Infrastructure and Developing AI	5.1.1 Skills for Building Physical AI Infrastructure		Advanced	High	High	Prioritise building
	5.1.2 Skills for Building Accelerators		Emerging	High	High	Maintain and monitor
	5.1.3 AI Research Skills		Established	High	High	Build
	5.1.4 AI Development & Application Skills		Emerging	High	Moderate	Close critical gap
	5.1.5 Research & Development Capabilities		Emerging	High	Moderate	Close critical gap
	5.1.6 International AI Talent Collaborations		Emerging	High	Moderate	Close critical gap
5.2 Skills for Deploying & Maintaining AI	5.2.1 Business Transformation & Commercial Skills		Established	High	High	Maintain and monitor
	5.2.2 Interdisciplinary & Domain Expertise		Not enough data	High	Not enough data	Gather more evidence
5.3 Skills for Governing & Securing AI	5.3.1 Assurance & Risk Management		Emerging	High	High	Close critical gap
	5.3.2 Cybersecurity & Technical Robustness		Established	High	High	Build
	5.3.3 Policy, Legal & Leadership Skills		Established	High	High	Build
5.4 Skills for Living with AI	5.4.1 General Public AI Literacy & Engagement		Emerging	High	High	Close critical gap

Layer 6 Goverance: Strategies, frameworks and policies across government and the entire ecosystem that support national AI capability

Typology: 6. Governance			Assess today			Prioritise tomorrow
Category I	**Category II**	**Category III**	**Maturity rating** National stocktake	**Sovereignty rating** International access, sovereign control, resilient choice, export leverage	**Agency score** Maturity rating, sovereignty rating, global scarcity	**Recommended action** considering maturity rating, sovereignty rating, global scarcity, and domestic public-interest
6.1 Government Strategy	6.1.1 National AI Strategy & Leadership		Established	High	High	Maintain and monitor
	6.1.2 Policy Coherence & Coordination		Emerging	High	High	Close critical gap
6.2 Legal, Regulatory, Standards & Assurance Frameworks & Capabilities	6.2.1 Legal & Regulatory Frameworks		Established	High	High	Prioritise building
	6.2.2 Ethics, Standards & Assurance Frameworks		Established	High	High	Prioritise building
	6.2.3 Regulatory & Oversight Capability		Emerging	High	High	Close critical gap
6.3 Institutional Capacity to Govern AI Deployment	6.3.1 Public Sector & Public Interest Institutional Capacity		Emerging	High	High	Close critical gap
	6.3.2 Private Sector Institutional Capacity		Emerging	High	Moderate	Maintain and monitor
6.4 Civic Engagement & Democratic Legitimacy			Emerging	High	High	Close critical gap
6.5 International Engagement	6.5.1 Influence & Norm Shaping		Advanced	High	Very high	Leverage and maintain
	6.5.2 Access & Partnerships		Emerging	High	High	Maintain and monitor

APPENDIX 6: CONSULTATION AND ENGAGEMENT LIST

TPDi gratefully acknowledges the contributions of the following experts and organisations who participated in workshops, surveys and interviews that informed this project.

Their participation reflects wide engagement across Australia's technology, research, policy and civil society communities.

A special acknowledgment to the industry and research bodies that helped amplify the consultation process, with executive participation and opportunities for their members to contribute, including the Australian Academy of Science (AAS), Australian Computer Society (ACS), Australian Council of Learned Academies (ACOLA), Electronic Frontiers Australia Inc, IoT Alliance Australia (IoTAA), Digital Rights Watch (DRW), the Kingston AI Group, ARC Centre of Excellence for Automated Decision-Making and Society (ADM+S), Gradient Institute, Science and Technology Australia (STA), Tech Council of Australia (TCA), and the UNSW AI Institute.

This list extends beyond those engaged in the national roadshow and survey research, representing over 250 individuals. This broader network of 187 organisations and independent contributors provided input, feedback or collaboration throughout the broader consultation process.

Disclaimer: please note that participation in the consultation process does not indicate endorsement of the report's findings or recommendations. Affiliations are listed as at the time of consultation.

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Australian Academy of Technological Sciences and Engineering, Sally-Anne Williams
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Digital Rights Watch, Lizzie O'Shea and Tom Sulston
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Commonwealth Scientific and Industrial Research Association (CSIRO)
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National Disability Insurance Agency (NDIA)
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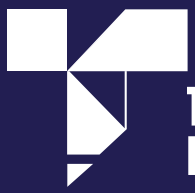

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