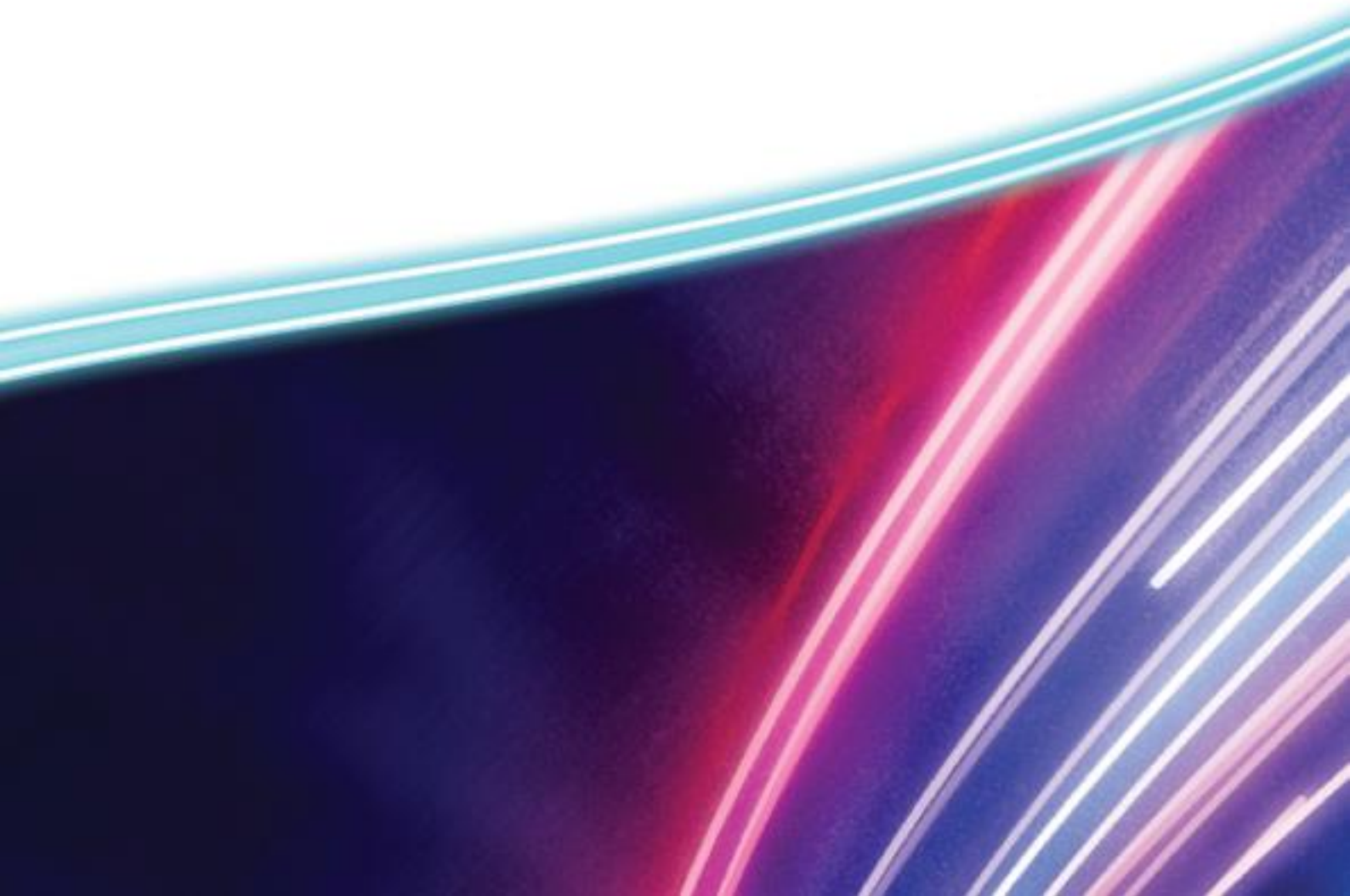
GOVERNMENT OF WESTERN AUSTRALIA

Department of
Jobs, Tourism, Science and Innovation

Western Australia's 10 Year Science and Technology Plan

Consultation Summary Report



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1. Background

The Department of Jobs, Tourism, Science and Innovation has led the development of a 10-Year Science and Technology Plan (the Plan) for Western Australia. The Plan provides a clear statement of intent to support a robust and thriving State and outlines a vision for Western Australia (WA) to be a world leader in science and technology, driving the ongoing wellbeing, resilience and sustainability of the community, economy and environment.

The Plan also highlights the State's exciting research and technology development capabilities, defines pathways to capitalise on the State's unique advantage, and attract investment and talent to maximise impact.

Strong science and technology capability is key to realising the State's goals for economic development, community wellbeing and environmental stewardship. Ongoing advancements in science and technology will be key to addressing the challenges our State currently faces such a diversifying the economy, climate change, an ageing population, and geopolitical uncertainty. To successfully navigate this complex environment, the State's science and technology capability will need to be underpinned by fit-for-purpose research and digital infrastructure, a skilled workforce, and robust systems, institutions, and legal frameworks.

The development of the Plan was supported by an Advisory Group chaired by the WA Chief Scientist and comprised of research and industry leaders across a range of sectors. An inter-agency Working Group supported consultation to ensure alignment across Government.

A comprehensive four-phase consultation process was undertaken between September 2023 and July 2024 with a broad range of stakeholders, including industry, research institutions, Aboriginal people, government agencies, universities and underrepresented stakeholder groups including youth, people with a disability or neurodiversity, women and girls and Culturally and Linguistically Diverse (CALD) people.

2. Phase One Consultation

2.1. Consultation Method

The first phase of consultations aimed to:

1. gain an understanding of the current science, research and technology environment in WA;
2. engage with a diverse range of stakeholders to brainstorm a high-level vision for science and technology and define key priorities and challenges; and
3. consider which challenges are most critical and should be prioritised.

Phase One included a series of creative workshops with break-out brainstorming sessions and one-on-one stakeholder meetings. A large workshop was held in Perth on 26 September 2023, with additional workshops held in Albany, Broome, Carnarvon, Esperance, Geraldton, Kalgoorlie, Karratha, Mandurah and Northam following consultation with the Regional Development Commissions.

Throughout Phase One, the project team consulted with an estimated 500 individual stakeholders, falling into the following categories:

Stakeholder Category	**Percentage of Total Engagement**
Industry	38%
Universities and Research Institutes	30%
Government	24%
Other (*i.e., scientists, fellows, community)*	8%*

** Further targeted consultation sessions were conducted in early 2024*

2.2. Consultation Findings

Vision

Throughout the workshops, stakeholders emphasised that the 10-year vision should recognise the transformational intergenerational economic and social impact of greater science and technology capability in WA. The themes to base the Plan's 10-year vision on included:

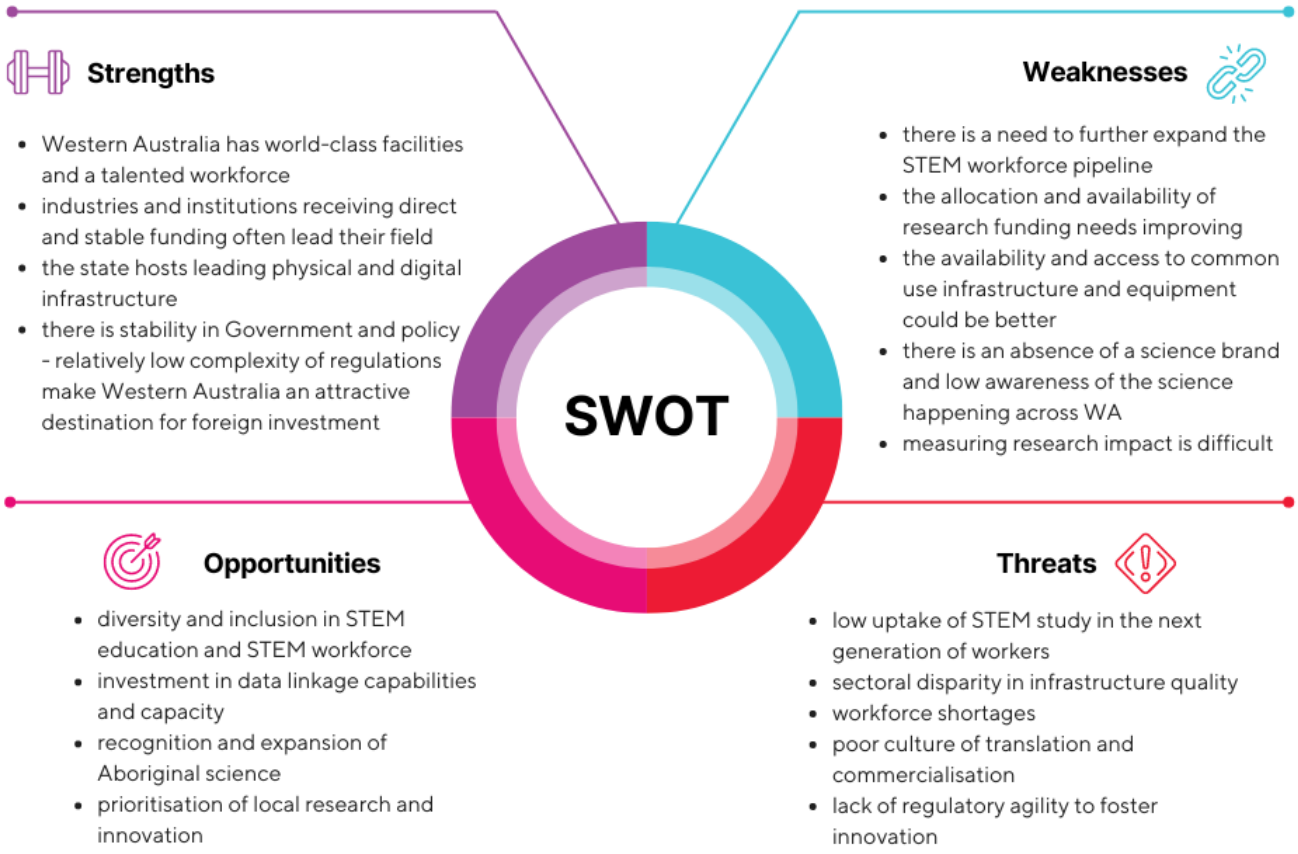
- Sustainability
- Curiosity
- Legacy and Stewardship
- Destination
- Empowerment
- Climate Resilience
- World-leading
- Impact
- Thriving communities

SWOT Analysis

Stakeholders also collaborated to complete a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, which identified six strategic themes:

- Funding and investment
- Physical and digital infrastructure
- Collaboration and engagement
- Talent, skills and workforce
- Policy and regulation
- Research impact, translation and commercialisation

Some of the key points across each of the six themes included:



3. Phase Two Consultation

Consultation Method

Phase Two of the consultation process was designed to refine and validate the findings of Phase One and explore opportunities for action through an online survey, designed to gain an understanding of the STEM community's biggest focus areas. The survey was targeted at STEM qualified individuals or people working in science and technology sectors.

No survey questions were compulsory, except for key demographic information. Participants could choose to answer all the questions or specific questions that related to a particular interest area, with 147 responses received from a diverse range of stakeholders outlined in the below table:

Self-Identification	Participation
Aboriginal	2.04% of respondents identified as Aboriginal.
Culturally and Linguistically Diverse	21.77% of respondents spoke a language other than English at home.
Disability and/or Neurodiversity	11.56% of respondents identified as living with a disability and/or being neurodiverse.
Gender Identity	There was an even split (46.94% each) between female and male respondents.
Young People	2.04% of respondents identified as under 25 years of age.

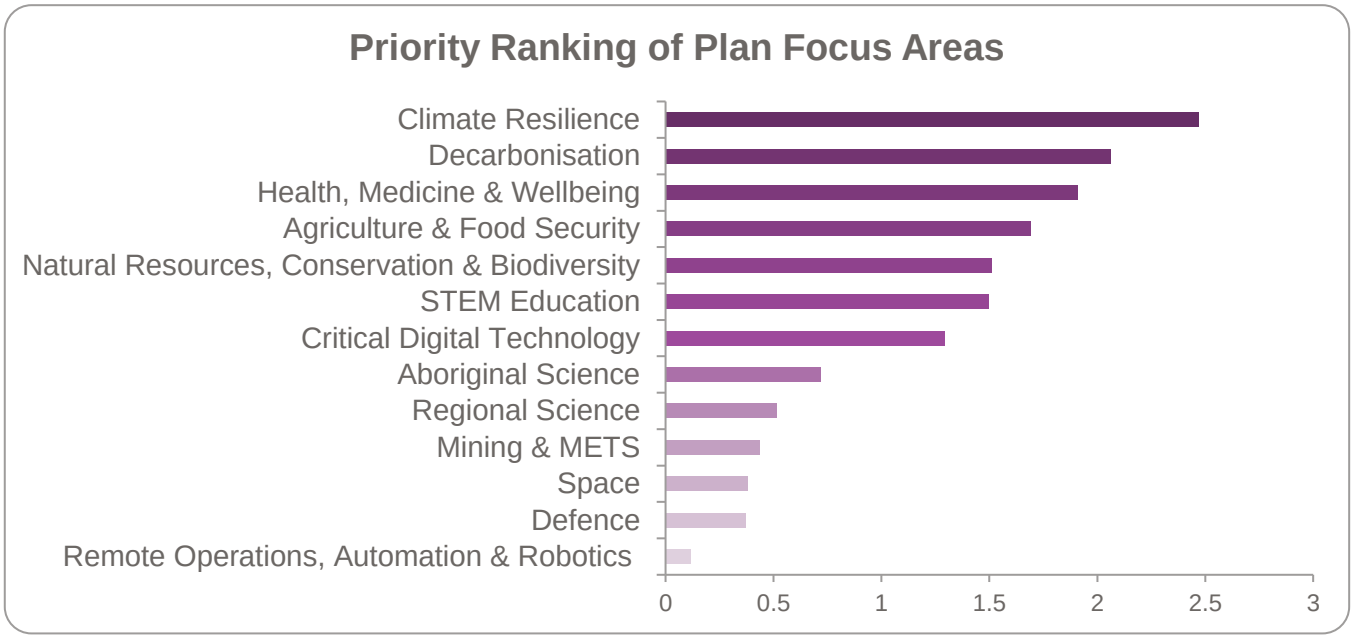
Of the 147 responses, 80.27% (118 responses) were from the Perth metropolitan region which is reflective of the general population in WA. Response from regional WA Australia were split between the Wheatbelt (6), Goldfields (5), Great Southern (5), Mid West (4), Peel (3), Pilbara (2), South West (2) and Kimberley (1).

Consultation Findings

Some of the key findings from the six strategic areas in the survey were:

- R&D should be better funded, and there is a demand for long-term, stable, transparent and scalable grant and co-initiatives
- an increased focus on STEM education in primary and secondary schools, and the pathways to further study will support the development of a talent pipeline for STEM industries
- availability of common user infrastructure, particularly for data storage and sharing was a key priority
- 60% of respondents indicated WA does not adequately attract and retain scientific talent
- 83% of respondents indicated that research impact could be measured more accurately in WA
- 86% of respondents indicated that commercialisation pathways could be improved in WA
- 58% indicated that there is inadequate research collaboration between government, universities and private industry in WA
- Responses emphasised the importance of diversity and inclusion in R&D and highlighted the need for additional pathways to engage with Aboriginal knowledge.

The quantitative responses from the second phase of consultation reinforced the qualitative responses identified in Phase One and helped to shape the *Research and Capability Priorities* to sit under the six strategic areas, with the priority ranking of Plan Focus Areas outlined below:



Note: Respondents were asked to rank their top five focus areas in order of preference, and these preferences were tallied. After entering their top preferences, respondents were given the opportunity to enter an additional unlisted focus area. Alongside manufacturing and sustainability, cross-sector application of technology was listed including biotechnology, agritech and medtech.

4. Phase Three Consultation

Consultation Method

Phase Three involved over 100 representatives from industry, universities, government and not-for-profit organisations participating in a series of roundtable sessions aimed to confirm the vision, priorities and identify potential actions to:

- ensure sector support for the vision and focus areas;
- determine how the Plan can support sector strategies and priorities;
- outline focus area priorities; and
- define key actions relevant to the focus area.

The roundtables provided stakeholders with the opportunity to discuss how WA could lift its performance in science and technology over the next decade.

Consultation Findings

Following the conclusion of the Phase Three consultations, a range of proposed research and development (R&D) priorities within six research focus areas were identified.

Strategic Action Areas	Research and Capability Priorities
Decarbonisation and Clean Energy	• Low Emission Energy • Carbon Capture, Utilisation and Storage and Biosequestration • Advanced Energy Storage
Health and Wellbeing	• Regional, Remote and Aboriginal Health • Precision Health • Disease Prevention and Community Resilience
Environment and Sustainability	• Conservation, Restoration and Discovery • Climate Adaptation • Water Security • Recycling for a Circular Economy
Critical and Emerging Technology	• Remote Operations, Robotics and Autonomous Systems • Artificial Intelligence and Cybersecurity • Data Insights, Linkage and Optimisation • Quantum Capabilities • Radio Astronomy and Space Technology • Advanced and Additive Manufacturing
Mineral Supply and Value-Adding	• Mineral Exploration and Characterisation • Precision and Low Impact Extraction • Critical Minerals Supply • Value-added Processing
Sustainable and Secure Food Production	• Climate Resilient Food Production • Land and Water Optimisation • Value-added Food Supply

For each of the research focus areas, participants were asked to reflect on several questions as they prepared their thoughts on research and development priorities.

Some of the suggested actions resulting from the roundtable discussions included considering:

- continuously mapping the health and medical sciences ecosystem in WA, including key infrastructure, institutions and equipment
- special economic zones or precincts and R&D sandboxes, reduced regulation and tax incentives to build and R&D ecosystem/hub
- a state-based Centres of Excellence program with the potential for a Centre for each focus theme or priority in the Plan
- a collaborative workforce program to support inter-sector collaboration and research translation. This could include government and industry investment in industry research placements
- Tradition Owner pathways into research

5. Targeted Consultation

Consultation Method

Additional consultation including a general public survey along with targeted consultation sessions and site visits were held between January and March 2024. The targeted consultations included consultations with stakeholder groups such as Aboriginal people, youth, women and girls, Culturally and Linguistically Diverse (CALD) people and people with a disability or neurodiversity. These activities broadened and deepened the consultation and helped refine and validate the findings of Phase One and Phase Two.

General Public Survey

A survey was developed for a general audience and tailored to specific topics with no compulsory questions except for key demographic information. Participants could choose to answer all the questions in the survey, or just specific questions relating to a particular interest area. The survey was open from 1 February 2024 to 18 February 2024, with 248 responses received from a diverse range of individuals. The survey covered a range of areas to gain an understanding of the public's priorities, some key findings include:

• 60% of respondents disagreed that there is adequate science and technology education and training in WA	• 47% of respondents reported that they found it difficult to find information about scientific discoveries in WA
• 73% of respondents indicated that they trusted scientific information	• 65% of respondents agreed that science and technology is important to everyday life
• asked what the Government can do to increase performance in science and technology fields, STEM education was the most prevalent theme (30%), including increasing funding and support for teachers and parents, and improving student pathways for STEM study	• asked why science and technology is important to the stakeholder, 22% of the respondents focused on survival, sustainability and social advancement, highlighting that it is key to Australia's advancement

Youth Consultation

Consultation with young people (those under 25 years of age) occurred through multiple different methods, including:

- Department of Communities, Youth Action Plan Consultation
- Ministerial Youth Advisory Council
- General public and STEM survey youth results

Department of Communities, Youth Action Plan Consultation

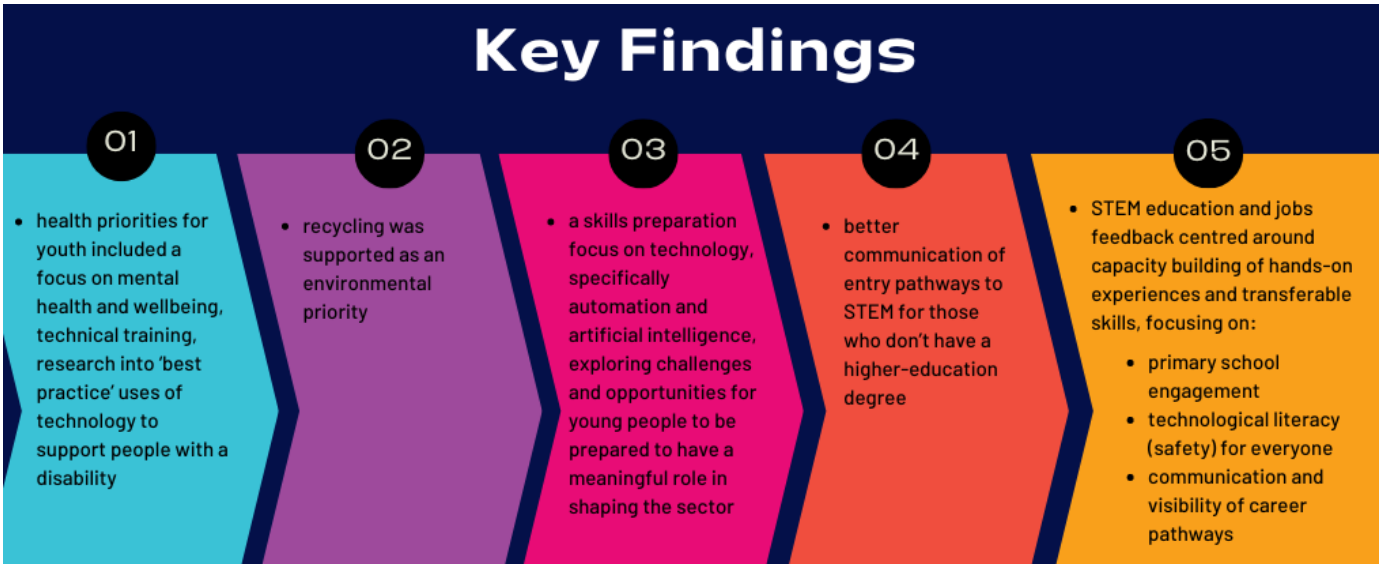
Collaboration with the Department of Communities in the planning of the consultation process for the Youth Action Plan team occurred to ensure feedback on the overarching priorities and challenges faced by young people relevant to science and technology would be captured.

The findings from the Youth Action Plan consultation strongly aligned with the findings from other phases of consultation, as outlined in the table below:

Findings	Requests for action
Climate change and the environment	• Education, environmental protection, reducing emissions, recycling, and electric vehicles. • Aligns with the *Decarbonisation and Clean Energy* and *Environment and Sustainability* focus areas.
Health and Wellbeing	• Access to services and improved physical and mental health outcomes. • Aligns with the *Health and Wellbeing* focus area.
Education and Employment	• Career pathways, incentives to pursue or remain in further education, career counselling services, internships, upskilling and improved accessibility. • Aligns with the *Talent, Skills and Workforce* focus area to build the STEM pipeline and support STEM education and career pathways.
Digital Technologies	• Internet access (particularly in the regions) and resources (technology). • Aligns with the *Critical and Emerging Technology* focus area, as well as the physical and digital infrastructure enabler.

Ministerial Youth Advisory Council

The Ministerial Youth Advisory Council was engaged to test focus areas and priorities of the Plan. There was general support from the group on the proposed action areas and research priorities.



One-on-one Consultation

One-on-one consultations were held between December 2023 and March 2024 as a mechanism to hear from people in key demographics and industries/regions not captured in the Phase One workshops. Approximately 90 stakeholders were engaged through a combination of in-person, online and site visit meetings, and included those with lived experience and/or professional expertise in areas such as LGBTQIA+, CALD, youth engagement.

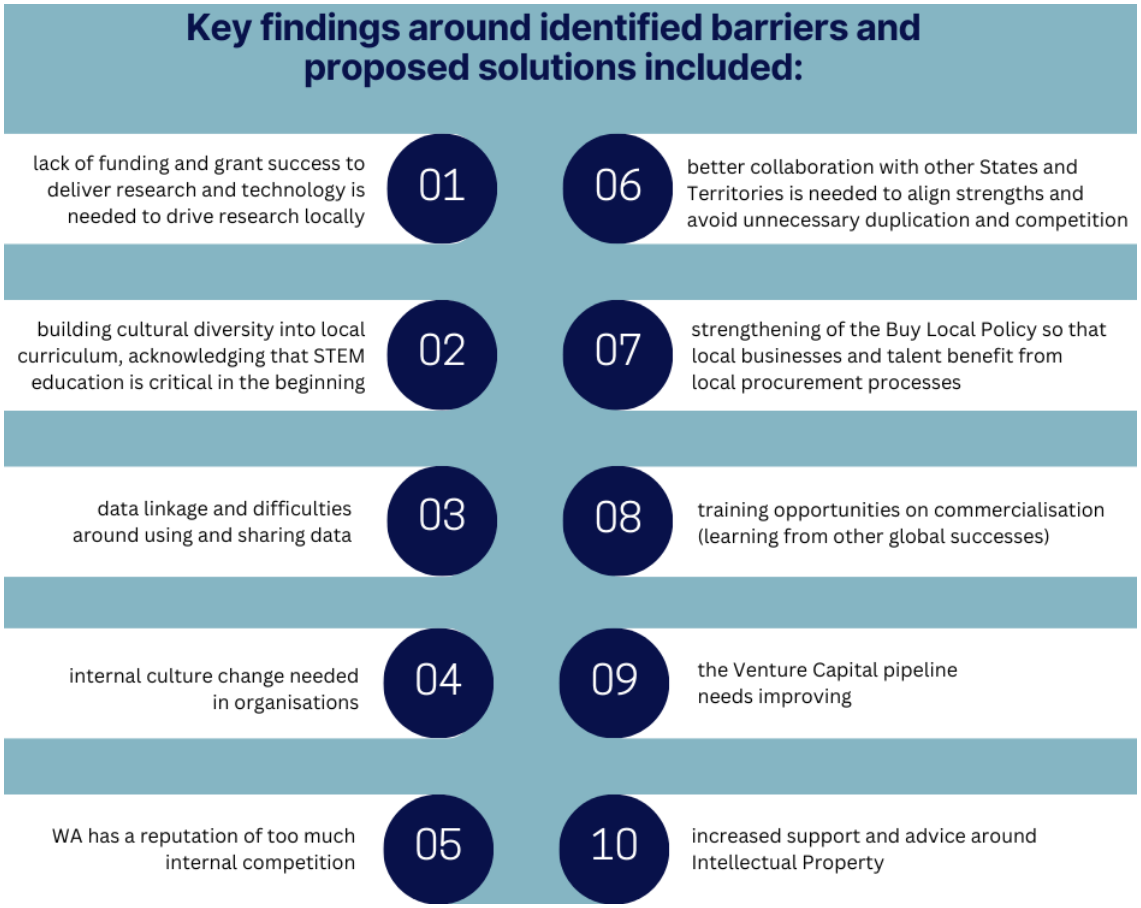
Feedback included:

- digital access to data, communications and programs is as important as accessible technology and infrastructure
- there can be a significant lag time in the uptake of new assistive technologies in WA
- increasing the visibility of women in STEM careers to school children could increase awareness of STEM pathways for girls, teachers and parents
- lack of operational or sustainment funding for initiatives or programs is often a barrier to program success and talent retention in the regions
- there can be a lack of support for students with a disability to study and transition to the workforce
- there is talent in small and medium regional enterprises working in STEM fields that could benefit from increased collaboration
- there can be limited understanding of STEM career pathways for regional and rural students
- technology could be used more extensively to engage remote communities

- flexible working arrangements and strategies can support women returning to work or retaining women in positions in STEM fields
- workforce sustainability issues could be assisted by increasing focus on unearthing regional talent and retaining talent to the regions
- the regions can represent a good destination for science and technology careers involving good work-life balance which could be better communicated

Culturally and Linguistically Diverse Roundtable

The purpose of the roundtable was to gain feedback from CALD peoples on the State's science and technology priority focus areas and actions, and to consider barriers and solutions to access and success, as well as potential actions for the Plan.



Aboriginal People

An initial yarning session was held in March 2024 with community members and elders, which highlighted the importance of building in systematic equity of access, ensuring opportunities for young people and prioritising working with Aboriginal people on science and technology initiatives.

Topics introduced during this workshop included:

- start from the community “How do we engage the mob?”;
- changing the narrative “Our stories have been here for thousands of years”;
- building capability in the Indigenous Knowledge Owner in the Western way of doing business “Bringing old ways and new ways together”; and
- recognising and promoting the connectivity across people, culture, land and water in science and technology policies and initiatives.

Discussions also identified specific action areas, which included:

• shared revenue models	• legislation and governance frameworks
• recognition and protection of Indigenous intellectual and cultural property rights	• education pathways and networks, including support for two-way science
• procurement processes that support purchasing from Aboriginal businesses	• Aboriginal people to lead knowledge building, including research and commercialisation activities

A second yarning session was held in July 2024 to build on the initial conversations and to support a positive ongoing relationship on science and technology initiatives.

Key highlights from the workshop focussed on:

the need for Aboriginal peoples to be involved in developing policies and regulatory frameworks, particularly around bush tucker, bush medicine, arts and culture, artefacts and language, particularly in the context of Indigenous Cultural Intellectual Property

science and technology engagement should start with young people and individual communities, including ‘on Country’ to provide opportunities for sharing of traditional knowledge and two-way science

it is vital for the State Government to continue to engage with Aboriginal peoples, with an emphasis on **“nothing about us, without us”.**

6. Final Phase

For the final consultation phase, the draft Plan was provided to 47 key stakeholders from the Advisory Committee, public sector agencies, Working Group, leading industry organisations, academia and JTIS for review and comment in June 2024. This final phase provided only minor amendments to content in the Plan, but most importantly confirmed the strategic action areas and priorities.