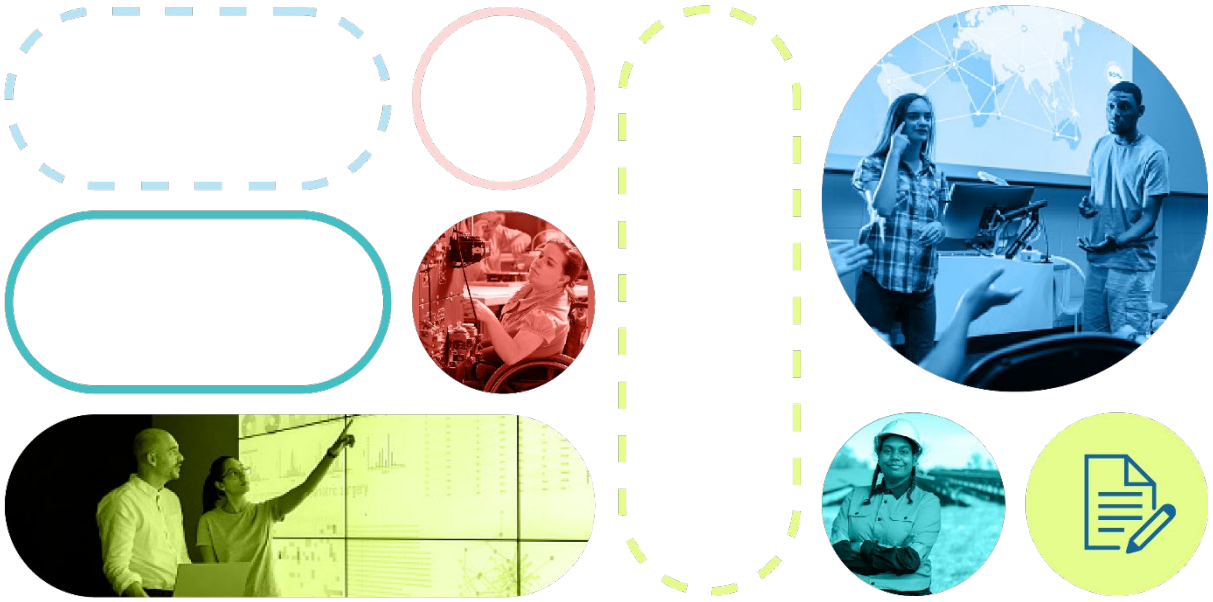
Australian Government

Pathway to Diversity in STEM Review

Draft recommendations

consult.industry.gov.au/diversityinstem2

Contents



Foreword from the **independent panel**

This draft report aims to update you on the journey we've been on and the conversations we're continuing to have about diversity in science, technology, engineering and mathematics (STEM).

We recognise we are not starting from scratch.

Many people and organisations have led and done significant work to support greater inclusion in the STEM sector. They have led policies and programs at every stage in the pathway. We acknowledge the critical role they have played and are grateful for the changes we have seen. We don't seek to reinvent the wheel with these draft recommendations. We seek to build on the wisdom and experience of those who have gone before, and the many hundreds of people working to make a difference today.

Over the past 8 months we've spoken with hundreds of people from all walks of life and backgrounds. We have done this through one-on-one conversations, the 'Dialogue Starter' and 'Let's Talk Solutions' online engagements, workshops and more.

It's been exciting to hear your ambitions for STEM and the opportunities it offers us as people and as a nation. We've heard people's lived experiences – good and challenging. We've heard people share structural challenges they've experienced and what they have had to do to overcome them. People have created new pathways to navigate STEM systems in education and employment. The system needs to change, not the people disadvantaged by it. We also bring our own lived experiences. We've seen the common threads with so many of your voices and stories.



In this review, we want to move the conversation forward and focus on the systemic areas that need to change. We want to enable more opportunities in STEM and include all people from historically underrepresented backgrounds. A more nuanced approach to diversity and inclusion in STEM will help make this possible.

We acknowledge members of underrepresented cohorts have carried the weight of advocacy. We believe there is a key role for government, but also for industry and community. We need collective change and action to fulfill our bold ambitions to be a STEM-powered nation.

We've structured this draft report to continue the consultation and conversation. We've focused on important areas of structural change. We've also considered complementary targeted initiatives, including existing Women in STEM programs. Our strong view is that without systems change, programs will always be limited in their success. Our draft recommendations reflect this view.

We have left room in the draft recommendations to continue to build them and make them more specific, with your feedback. We'd love you to continue to help us shape the recommendations in the coming weeks.

Our final report in October will illustrate the recommendations with best practice examples and evidence drawn from our consultation and review. It will include opportunities to accelerate impact, and suggestions for reform and scale. Importantly, it will recognise the critical role that we all play in creating inclusive futures in STEM.

Sally-Ann Williams

Chair, Pathway to Diversity in STEM Review | Chief Executive Officer at Cicada Innovations

Mikaela Jade

Member, Pathway to Diversity in STEM Review | Chief Executive Officer and Founder at Indigital

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Member, Pathway to Diversity in STEM Review | Associate Professor and Director, DNA Zoo Australia at the University of Western Australia

Benefits for Australia from greater diversity

- Greater, more diverse and inclusive engagement in science, technology, engineering and mathematics will greatly benefit Australia.
- These benefits will impact our economy, workforce, community and wellbeing.
- We need cultural, structural and systemic changes to realise this potential.

The Minister for Industry and Science announced this review on 6 September 2022, following the Australian Government's Jobs and Skills Summit. This review will contribute to widening the pipeline of talent available to the STEM sector and achieving 1.2 million technology-related jobs by 2030.

More broadly, a strong and diverse STEM workforce can help secure Australia's economic future and keep pace with global technological change. Australia's diverse population is our strength. If Australia is to maximise our innovation, we need to draw on and value the diverse perspectives currently underrepresented in our STEM community. This includes:

- First Nations people
- Culturally and Linguistically Diverse (CALD) people
- women and girls
- people with disability
- LGBTQIA+ people
- neurodiverse people
- people facing age-based discrimination
- people living in remote areas.

The latest data from the STEM Equity Monitor shows that women make up only 20% of people with STEM qualifications. Girls are half as likely as boys to aspire to a career in STEM.[1] Australia's STEM Workforce 2020 report showed only 0.5% First Nations people hold university-level STEM qualifications.[2]

Jobs in science, technology, engineering and mathematics are predicted to grow by 14.2% by 2026—almost twice as fast as non-STEM jobs.[3] Without maximising the potential of our whole diverse population, Australia will not meet our current and future workforce needs. Growing our STEM workforce will help Australia build resilient new industries and solve the problems we face through innovation. For example, by creating new medical treatments, developing cleaner energy or advancing our digital economy.

[1] STEM Equity Monitor Data report 2023.
https://www.industry.gov.au/publications/stem-equity-monitor
[2] Australia's STEM Workforce, Office of the Chief Scientist, 2020, p12.
https://www.chiefscientist.gov.au/news-and-media/2020-australias-stem-workforce-report
[3] National Skills Commission, Projecting Employment to 2026, 29 March 2022.
https://www.nationalskillscommission.gov.au/insights/projecting-employment-2026

The Australian Intellectual Property Report 2023 notes that 'diversity spurs innovation'. Organisations that embrace diversity can gain greater marketplace understanding, enhanced creativity and problem-solving ability.[4]

The benefit of doing more to support diversity extends to each person throughout their STEM education and career. Diverse and inclusive places to learn, work and share knowledge allow people to see the opportunities and fully realise their potential in STEM careers.

To do this, we need to recognise and address the cultural, structural and systemic barriers to participating and belonging in Australia's STEM system. By removing these barriers, we create opportunities for everyone and Australia as a whole.

We need to look at the entire STEM pathway in a broad and holistic way. Opportunities to reach equity in STEM are in our communities, education settings and workplaces, in our systems of government and decision-making – even in ourselves. All organisations, institutions and people in the STEM ecosystem will benefit from a bigger, more diverse, STEM workforce. Achieving this requires a collective response.

[4] Australian Intellectual Property Report, IP Australia, 2023, p66.

Where our **Diversity in STEM Review** is up to

- We set out to discover the main barriers, challenges and opportunities to improve diversity and inclusion in STEM.
- We heard what is already working, not working, and what could work in the future, to achieve this.
- We did a wide range of engagement to inform our draft recommendations.
- We received thousands of pages of insights, personal stories, analysis and research from people and organisations in the STEM sector.
- We heard about the Australian Government's existing Women in STEM programs, what's working and what needs improving.
- We are also drawing on several research pieces, including by Australia's Women in STEM Ambassador.

The draft recommendations on the following pages are part of the process to establish what is working, what is not, and where these lessons can be applied to improve overall diversity in STEM, STEM leadership and the STEM-skilled workforce.

Achieving the work outlined in our Terms of Reference means we first need to identify and address the cultural and structural barriers that have prevented meaningful, consistent diversity and inclusion. We've focussed on addressing these barriers to ensure that money spent on programs will be money well spent to achieve real change.

This document continues a conversation about how to collectively drive systemic and cultural change across the STEM pathway. It covers insights and recommendations under 4 themes:

- Improving leadership and governance to make sure efforts and initiatives are evidence-based, support all underrepresented cohorts, and are accountable for accelerating change.
- Addressing culture and community attitudes towards STEM to break stereotypes and increase visibility of career pathways for underrepresented cohorts.
- Supporting life-long learning in STEM to make sure education settings are safe, supportive, and meet diverse needs.
- Changing how STEM workplaces attract and retain underrepresented employees, including supporting and growing diversity in leadership.

We also include recommendations to drive systemic change for future government-funded diversity in STEM programs. We draw on an evaluation of existing Women in STEM programs to propose options to reform, scale up and broaden them.

We will draw on this consultation and ongoing research to refine these recommendations for the Pathway to Diversity in STEM Review final report. We'll also include insights about initiatives led by governments, private, not-for-profit and education sectors in Australia and around the world.

We mean to inspire discussion with these recommendations. Your feedback will help us to change, build or refine them as we work towards the final report, due to be handed to government in October 2023.

Input to the review

We developed the draft recommendations with input from stakeholders across:

- industry
- academia
- education
- state and territory governments
- community organisations
- people with experience in STEM education or careers.

We engaged with people through:

- a 2-stage online public consultation, receiving over 200 submissions
- a series of targeted interviews with people with lived experience and expertise
- 9 virtual and in-person workshops with groups working to encourage underrepresented cohorts to participate in STEM.

We gave participants space to share their perceptions and experiences of STEM. They shared stories about:

- programs or initiatives that work
- barriers they've faced in pursuing STEM education or career pathways
- changes they'd like to see to mitigate these barriers.

We also used evidence to develop the recommendations, including:

- an evaluation of 9 Women in STEM programs
- research, by Australia's Women in STEM Ambassador, on workplace diversity initiatives
- Australian and international research
- best practice examples people shared throughout the engagement process.

Research, including on opportunities for improving First Nations engagement in STEM, is also ongoing and will inform the final recommendations.

The recommendations also acknowledge and complement existing initiatives and strategies to support and promote more inclusive communities, education settings and workplaces. These include:

- National Strategy to Achieve Gender Equality (due by the end of 2023)
- Respect@work platform
- National Agreement on Closing the Gap 2020 – 2030
- Australia's Disability Strategy 2021-2031 and Disability Employment Strategy
- National Autism Strategy (consultation expected to start in second half of 2023)
- Universities Accord Review of Australia's Higher Education System (final report due by December 2023).

In addition, we recognise that many organisations and associations continue to work towards supporting and growing more inclusive communities. This review has brought some of this work to our attention, informing our thinking. We intend the recommendations to complement these initiatives.

How people **perceive** STEM

- We've heard that improving diversity and inclusion in STEM means tackling power structures, culture and unconscious bias.
- We've also heard that we need a broader understanding of what STEM means to society.
- These recommendations seek to give STEM a high value in Australian society, in all its forms, applications and knowledge systems.

People usually think of STEM by its components: science, technology, engineering and mathematics. But we think it's important to take a broader view.

We see STEM reaching beyond distinct disciplines to how they apply in a broad range of problem-solving contexts. More formally, we see STEM as a collection of knowledge practices and systems that support:

- the ways people learn about the world around them in increasingly accurate ways
- the act of developing, sharing and applying knowledge
- the tools people create and use
- what people can make and will make in the future
- the patterns people see
- the stories people tell about how these all fit together.

We want people to see themselves in this vision of STEM.

We acknowledge that STEM is one set of practices and tools that people can use to solve problems and improve their lives. But STEM is not the only way to do this. Moreover, according to our approach, STEM *disciplines* (physics, chemistry, biology, etc) are not the only STEM *practices*. And, while not everything is STEM, STEM can also inform other ways of thinking to contribute to community and society.

For example, First Nations knowledges contains huge amounts of STEM practices, systems, and ways of thinking. First Nations people have passed these down for tens of thousands of years. Recognising this, and elevating First Nations knowledges, is a clear opportunity to improve social perceptions and outcomes for all Australians.

We also recognise that people often see science as progress and therefore our most valuable, or best, knowledge system. It is important that this privilege is earned and not assumed. Science is *one way* for us to pursue our values.

By recognising the role that power structures, culture and unconscious bias play in social change, we can increase access and belonging. Addressing these important aspects will help us to propose recommendations for deep and enduring change that will allow people to realise the opportunities in STEM.

Draft **recommendations** for feedback

Improving diversity and inclusion is only possible through a coordinated effort across sectors.

Achieving this will require committed and consistent action from government, community, all education settings, industry and the not-for-profit sector. This will take time, so it's critical we address the systemic barriers now to embed long-term change and avoid reinforcing existing disparities.

This document sets out initial recommendations to prompt discussion and further refinement. They focus on areas we identified during consultation as most able to:

- generate change at a systemic level
- lead to real impacts for the people that make up Australia's STEM landscape.

Different STEM disciplines or careers have unique challenges and opportunities that may need different approaches. The recommendations allow flexibility for different groups to act in ways that fit their local and organisational settings. We welcome advice on useful ways to make recommendations more specific. We're also keen to hear examples of best practice and demonstrated outcomes.

Discussion questions

To help us progress these recommendations, we seek your feedback on:

- Are the draft recommendations the right way to achieve the objectives?
- How can the draft recommendations be improved to drive systemic change?
- What other recommendations should we include in the report to government?
- Any data-driven case studies that show real impact.

Please submit your responses to these questions on our consultation hub:

https://consult.industry.gov.au/diversityinstem2

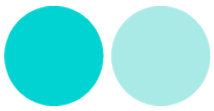
Leadership and governance

- Systemic and cultural change needs leadership by people and organisations across government, industry, not-for-profit and education sectors.
- Leaders can achieve change by turning good policies into action, coordinating initiatives, and measuring the outcomes.
- The Australian Government has a key role to play in making sure there is strong accountability, coordination and standards for action.
- Change will only happen if governments, industry, not-for-profit and education sectors work together.

Leadership and governance are critical to increasing inclusion and diversity in STEM. Change needs to happen at a strategic and systemic level and be under effective leadership.

Leadership, at a sectoral level and in organisations, is also crucial to signal commitment, generate action, and make governing and monitoring effective. The review's research to date has reinforced this:

'There is also potential for leaders and senior executives to **lead a conversation** that challenges the presumed objectivity of the merit principle, and to encourage managers to see how recruiting for equity and diversity can improve performance.'[5]



Williamson, S, Colley, L, Foley, M and Cooper, R
The role of Middle Managers in Progressing Gender Equity in the Public Sector

The review's engagement has consistently reinforced the importance of accountability, coordination and governance that supports greater diversity in STEM.

The Advancing Women in Healthcare Leadership initiative undertook a comprehensive, cross-sector literature review.[6] It found 'organisational leadership, commitment and accountability (governance structures) were necessary for organisation change'. While this study only looked at women in leadership, we think it is a clear indicator that these are important factors for increasing diversity. Effective leadership and governance also includes translating statements and policies into actions and outcomes.

The Tech Council of Australia and University of Melbourne, among others, noted in their submissions to this review that we need more coordination and connection between initiatives that support diversity in STEM. Providing a connected pathway of 'touch points' throughout the myriad of STEM programs is critical to influencing and supporting a person's decision to pursue STEM.

Governments, industry, not-for-profit and education sectors are supporting hundreds of initiatives, large and small. In this environment, there is a high risk for duplication and missed opportunities to find and scale initiatives that work.

[5] Williamson, S, Colley, L, Foley, M and Cooper, R "The role of Middle Managers in Progressing Gender Equity in the Public Sector", 2018. Retrieved from https://www.psc.nsw.gov.au/sites/default/files/2020-10/Middle%20Managers%20and%20Gender%20Equity.pdf
[6] Submission to the Diversity in STEM Review from the Advancing Women in Healthcare Leadership national initiative and the Monash Centre for Health Research & Implementation.

As a funder, employer and regulator, the Australian Government is uniquely positioned to lead and coordinate diversity in STEM initiatives. Government can lead on areas that need development and targeted or localised action while reducing duplication and disconnection, including through funding mechanisms.

There is also an opportunity to expand or shift the focus of existing Australian Government funded programs, particularly the current Women in STEM programs. These programs can support a greater breadth of diversity in STEM across education and career pathways, providing individual support *and* progressing systemic change. The U.S. National Science Foundation's ADVANCE program is an example of a centralised model. It funds initiatives to address systemic barriers to inclusion in academic workplaces, while supporting localised approaches.[7]

Our engagement and the Women in STEM program evaluation show that programs and initiatives need to be evidence-based and informed by best practice. They need to build in long-term data and evaluation capabilities to show success.

The review has seen encouraging examples of embedding monitoring and evaluation as part of program design. For example, Science in Australia Gender Equity's (SAGE) pathway to Athena Swan requires subscribers to collect quantitative data to inform their diversity and inclusion interventions. They use these data to monitor, evaluate and publicly report on progress and impact.[8] Further, SAGE's multiple award system encourages a longitudinal view for evaluating impact. In another example, ASTRO 3D achieved 50% women representation over 5 years by using evidence-based measures. They found, among other factors, designing equity into their program from the start with regular progress monitoring contributed to their success.[9]

These promising aspects can help inform stronger accountability and evaluation in future programs.

However, these practices must be embedded across all relevant government funded programs. This will show the programs' value and impact on attracting and keeping diverse people in STEM education and careers long term.

Industry and other STEM-organisations play an equally important role in embedding diversity and inclusion policies and practices. This will create safe and supportive spaces for diverse cohorts to learn and work.

[7] Women in STEM Ambassador, Workforce Gender Equity Initiatives: A rapid systematic review, Initial recommendations
[8] https://sciencegenderequity.org.au/sage-accreditation-and-awards/sage-pathway-to-athena-swan/
[9] Submission to the Diversity in STEM Review from ARC Centre of Excellence ASTRO 3D. Further information can be found here: https://astro3d.org.au/diversity/achieving-5050-gender/

Government can lead by incentivising and strengthening mechanisms for these organisations to actively progress and be accountable for their diversity and inclusion practices.

Below are draft recommendations for discussion and refinement. We want to know your views on these and any other ways you think we can improve leadership and governance to increase diversity in STEM.

Objective 1: Improve the coordination, oversight and evidence base for diversity in STEM initiatives though governance and leadership

Recommendation 1a
The Australian Government should set up an ongoing central office and independent council to maintain accountability, oversight and momentum of diversity in STEM initiatives.

An existing department of the Australian Government would host this office. It would:

- coordinate government policies and programs to ensure they connect and align with a more strategic and measurable approach to diversity in STEM initiatives
- build on, and extend, existing efforts and initiatives
- give advice and guidance to support other STEM organisations to increase diversity and inclusion.

Council membership should, as a requirement, represent as many diverse perspectives and communities as practicable, prioritising people with lived experience studying and working in STEM. The council should also draw on lived experience and perspectives across sectors and intersectional cohorts to give advice to the office and government.

Objective 2: Embed long-term action on diversity across STEM sectors

Recommendation 2a
Building on recommendations of this review, the Australian Government should create a national strategic approach to diversity in STEM initiatives.

The approach should:

- articulate long-term policy objectives
- ensure initiatives address barriers across the STEM participation life cycle
- set clear priorities for funding diversity in STEM initiatives, building on the current Women in STEM programs funded through the Industry, Science and Resources portfolio
- address the final recommendations of this review.

All programs identified for funding in the strategic approach should:

- support the breadth of diversity, beyond gender, including adapting programs and building on impactful outputs of existing initiatives
- fill gaps in support available across the STEM education and employment life cycle
- be evidence-based and subject to a monitoring and evaluation framework to continue to build this evidence base

- be able to scale to drive broader cultural or systemic change
- avoid duplicating initiatives in and across government agencies, but connect to them
- engage with industry and academia to align with workforce or research needs and build capacity to become self-sustaining over time.

Further detail and draft recommendations on the existing Women in STEM initiatives are at the end of this document.

Recommendation 2b
Government funding bodies and STEM-employing organisations should commit to the long-term success of diversity in STEM programs and initiatives.

This would include committing to long-term funding, for a minimum of 10 years. For example, through grants, in organisations, and by sponsoring and supporting other initiatives. This would also mean using consistent evaluation frameworks.

Objective 3: Government to incentivise better diversity and inclusion practices in STEM organisations

Recommendation 3a
Government grant funding, investment and procurement for STEM-related programs should align with best practice guidelines for inclusion and diversity.

The central office's work would inform these guidelines. They would include, at a minimum:

- data collection and demographics to better understand diversity of participation and long-term outcomes in programs
- long-term monitoring and evaluation built in from the start to inform continuous improvement and impact assessment
- grant recipients ensuring fair working conditions that do not perpetuate job insecurity
- tailored programs that address the nuanced barriers of different and intersectional cohorts in accessing support
- grant opportunities actively encouraging and valuing the breadth of skills and perspectives of diverse applicants
- transparency around organisations chosen for additional auditing requirements
- meeting commitments of all governments under the Priority Reforms of the National Agreement on Closing the Gap. This includes implementing policies that preference funding for Aboriginal and Torres Strait Islander owned and run organisations to deliver initiatives that support First Nations people and grow First Nations businesses[10]
- funding and delivery support for other diverse cohorts, recognising and considering intersectionality.

[10] National Agreement on Closing the Gap, July 2020

Culture, community attitudes and value

- The way the Australian community views STEM impacts how STEM presents itself, the things it does and the people who do it.
- Broadening this image allows for greater diversity and inclusion, connectedness, innovation, creativity and prosperity.
- People and organisations should see and feel the benefits of STEM. This would increase cultural awareness of the high value of STEM and diversity.

Attitudes to including more diverse communities in STEM education, workforce and leadership start with biases that exist in Australian society. Broadening our understanding of STEM and challenging stereotypes about who can, or should be, a STEM professional is central to addressing inequities in STEM education and careers.

The review's engagement to date has revealed a strong belief in the importance of STEM to our society, to people and our future. We have heard, through submissions and workshops, that a better understanding of the 'why' behind STEM will improve interest and participation.

Contributors have also noted that STEM goes beyond the laboratory and Western scientific perspectives. STEM is about people and Country. It values scientific knowledges applied by First Nations peoples as the world's oldest continuous living cultures:

> 'There's one thing that binds us all together and that is the way we've used science and **we've viewed it as a whole picture** whereas European science view it as a single picture, which it doesn't mean it's right or wrong, it's just a different lens. And I think that if we can train our kids to think of science in the whole picture, then actually we will probably **advance more as a nation** because we're seeing the grey bits in between.'[11]
>
> A/Prof Corey Tutt OAM

An Australian culture that supports diverse ways of scientific thinking and engagement is an informed culture that can talk about the challenges our society faces. A culture informed by diversity supports people to make informed decisions about aspects of their lives, from health care to energy use. It fosters an environment for the next generation of diverse talent, perspectives and innovation.

Citizen science is a valuable tool to engage communities and produce valuable knowledge. It provides significant scientific insights, and inclusive and diverse opportunities for STEM engagement for everyone.

Our culture and community have many influences. Our collective experiences, backgrounds and upbringings, media and education system, shape our culture and how we view the world and those in it.

[11] A/Prof Corey Tutt OAM, interview with Mikaela Jade

Each person and organisation can help shape how our culture influences, attracts and keeps people from diverse backgrounds in STEM education and careers. We need to inspire:

- a broader community that understands and values the role of STEM in society and how diverse people participate in STEM
- community understanding and action to remove artificial barriers that have real impacts on people
- an inclusive STEM community where everyone feels safe and valued for their skills and perspectives, and where they aren't othered by peers, colleagues and leaders.

We can dismantle stereotypes of what STEM is, and who can do it, at home, in the community, at school and in the workplace.

There is a role for government in amplifying this conversation. The review identified good examples of how public awareness campaigns can help shift perceptions and behaviour in STEM education. An example is Victoria's *Maths Multiplies Your Choices* media campaign in 1989. It showed that presenting information about how maths and science subjects could enhance career opportunities for girls increased enrolment in these subjects by girls.[12]

Below are draft recommendations for discussion and refinement. We want to know your views on these and any other ways you think we can shift how our community views STEM.

[12] McAnalley, K, "Encouraging parents to stop pigeon-holing their daughters: The 'Maths Multiplies Your Choices' Campaign," v.i.e.r. bulletin no. 66 (1991)

Objective 4: Drive and expand understanding of, and engagement with, the meaning and value of STEM in Australian culture and communities, including the benefits of diversity in STEM

Recommendation 4a
The Australian Government should develop and run a formal, long-term and measurable national communication and advertising campaign relating to STEM.

This would be a multi-level campaign aimed at children, parents and the community, featuring diverse groups of people, locations and opportunities. It would shift perceptions and break down barriers to people seeing themselves in STEM education.

The campaign should focus on:

- the critical role of STEM in society
- reaching diverse, intersectional cohorts, including through accessibility measures
- communicating an inclusive vision of STEM
- communicating the value and breadth of opportunities to enter STEM careers, including by re-skilling
- perceiving STEM more broadly, particularly by incorporating and respecting First Nations knowledges
- building community-to-community connections, including by government and industry
- opportunities for STEM-based careers in different regional areas across Australia
- drawing on lessons from successful national awareness raising campaigns, ensuring broad reach and measurable impact.

Recommendation 4b
The Australian media and entertainment industry should work with relevant academies, STEM peak bodies and not-for-profit organisations to celebrate diversity in STEM. This would involve more accurately representing the diverse people and roles in STEM.

Media could draw on Science and Technology Australia and other peak organisations to help influence diverse representation beyond women to non-binary people and people from other diverse cohorts. This could include using the Superstars of STEM initiative.

Recommendation 4c
All STEM-related sectors should actively include diverse knowledges and representations of diversity in research, publications, education materials and scientific approaches.

This could include:

- industry, governments, and academia forming meaningful partnerships with diverse cohorts and community-run organisations. For example, creating formal partnerships with First Nations communities and employing First Nations people to draw on traditional scientific knowledges in STEM education, research or projects
- STEM publications using diverse imagery and inclusive language, and highlighting diverse stories, people and evidence
- diverse representation in education materials
- a requirement for diversity in reading lists for new research units and the broader academic community as appropriate.

Life-long learning

- Everyone learns in different ways throughout their life, formally and informally.
- People build knowledge and interest in STEM through early childhood, school, higher education, and their jobs.
- Many people face systemic barriers to their STEM learning. Providing clear pathways that attract and support all people in STEM is crucial.

Life-long learning builds fundamental skills and experiences that shape a person's attitudes and interests. This includes formal schooling from pre-K to 12, tertiary study (including vocational education and training), on-Country learning, up-skilling and re-skilling.

Throughout a person's learning journey, it is important to contextualise:

- why STEM matters – to people, to Country and to society
- the breadth of career opportunities available and how to get there.

The Ai Group's submission to the review highlights the importance of integrated STEM education and career pathways:

> 'Without knowing the full range of opportunities available to students, it is very difficult to sell STEM occupations as a viable career pathway if its definition is limited… This can be remedied if there are greater opportunities for engagement with industry, at an **earlier stage**.'[13]

Ai Group

Many respondents agreed that STEM education needs to start early:

> 'We need to change the stereotypes and curriculum at the younger age groups and highlight what **new and emerging careers** in STEM look like.' [14]

Diversity in STEM Review Respondent

[13] Submission to the Diversity in STEM Review from Ai Group.
[14] Submission to the Diversity in STEM Review. Respondent opted to submit anonymously

Keeping learners engaged at all levels of STEM education and supporting them to return if they need to disengage for any reason, will avoid losing them from the STEM pathway altogether.

Feedback to the review showed barriers to diverse participation in STEM can manifest at all stages of the education pathway. One submission noted the effect of maths anxiety on future subject choice:

‘People with **heightened levels of math anxiety** often experience a lifelong tendency to avoid math, math-related situations, career paths that require math, and most notably, courses and degrees in STEM.’[15]

The review’s engagement showed the important role educators play in influencing student participation and achievement in STEM subjects at all schooling levels. Workshops and interviews raised the importance of acknowledging the essential role educators play in improving learning outcomes and inclusion. Participants also stressed the need to support educators in this role. Actions in this area should be careful to avoid placing extra burden on educators.

‘By **up skilling and uplifting teacher STEM capability**, the STEM message spreads…STEM programs for individual teachers, are critical, especially as they cater to teachers’ affinity and belonging with their identifying discipline, which reflects in their teaching, enthusing and motivating students.’[16]

[15] Lau, N, Hawes, Z, Tremblay, P, Ansari, D, ‘Disentangling the individual and contextual effects of math anxiety: A global perspective’, Proceedings of the National Academy of Sciences, 2021.
[16] Submission to the Diversity in STEM Review. Respondent opted to submit anonymously

Beyond formal schooling, we need to highlight the opportunities in STEM for adults who wish to re-engage or reskill. Education providers play a key role, particularly in the tertiary and vocational education and training (VET) sectors. Formal learning needs to be reinforced by a life-long learning approach, and microcredentials may be an appropriate and interesting offer for a wide range of people.[17]

The review also heard about the benefit of integrating First Nations knowledges, through First Nations-led initiatives, to increase engagement and retention in STEM education.[18] Hands-on STEM teaching approaches that draw on traditional scientific knowledges have resulted in improved outcomes for all students. One example is the Inquiry for Indigenous Science Students program, which supported teachers to carry out inquiry-based teaching of First Nations scientific approaches. A program evaluation found in 2018 that the number of 'low-achieving' students receiving a passing grade increased from 0 to 42%. These results were similar for Indigenous and non-Indigenous students.[19]

Life-long learning also recognises how important it is to provide flexible and accessible pathways for Australians to continue STEM skills after school. This approach also recognises the opportunity for people to up-skill or re-skill to enter STEM careers, particularly in growing industries. Older Australians need access to these pathways as there is a significant opportunity for this cohort to engage or re-engage in STEM. This work should involve vocational, industry education and private education providers.

We need to address barriers that disrupt access to STEM education for underrepresented cohorts. This includes factors like cost pressures, connectivity, access in remote or regional areas, and lack of social or academic support. The Australian Universities Accord Review has highlighted many of these barriers for higher education more broadly in their recent Interim Report, and we will seek to reference this effort in our final report.

Across all education settings, spaces to learn must be safe, inclusive and supportive of diverse learning needs. Our workshops at the Batchelor Institute in Darwin and TAFE NSW, Albury, highlighted the benefit of peer support networks and communities of practice for individual learners and educators.

Below are draft recommendations for discussion and refinement. We want to know your views on these and other ways you think we can support diverse participation in life-long STEM learning.

[17] Submission to the Diversity in STEM Review. Respondent opted to submit anonymously.
[18] Submission to the Diversity in STEM Review from Deadly Science.
[19] CSIRO, Indigenous STEM Education Project Final Evaluation Report September 2014 – June 2021. 'Low achieving' defined as those receiving a grade of 'D' or 'E' before participating.

Objective 5: Empower schools and educators to teach STEM thinking and skills, and support pathways to STEM careers for diverse students

Recommendation 5a

Implementing the *2022 National Teacher Workforce Action Plan* should incorporate a strong focus on teaching STEM thinking and skills pathways into STEM.

Actions in the Plan that could help to achieve this objective include:

- more teaching places at universities in the right subjects and specialisations
- more bursaries to attract high quality candidates to teaching
- more places in the High Achieving Teachers program to encourage more professionals to switch careers to teaching
- trialling new ways to attract and keep teachers in schools that need them most
- co-designing actions to attract and retain First Nations teachers
- piloting new approaches to reduce teacher workloads through a Workload Reduction Fund to maximise the value of a teacher's time
- improving access to high-quality First Nations' cultural responsiveness resources to ensure teachers are better prepared to teach First Nations students in culturally safe ways
- developing microcredentials and expanding the Quality Teaching Rounds to enhance teachers' access to quality professional development.

In carrying out and supplementing these actions, education authorities (federal and state/territory) should consider opportunities for:

- relevant curriculum support materials to represent diverse opportunities in STEM, and diverse people who have and continue to study and work in STEM
- mandatory STEM training in initial teacher education, including cultural and other diverse perspectives of STEM practices.
- prioritising STEM teaching in the additional teaching places at universities, especially for people from diverse backgrounds
- ongoing professional development funding and support for teachers and careers advisors to up-skill in STEM at all levels
- skilling opportunities and resources to support teachers to teach diverse intersectional cohorts and understand and combat unconscious bias in the classroom
- access, availability and time for teachers to fully participate in STEM professional development within acceptable workloads
- support for all schools to offer opportunities for students and teachers to develop STEM-related entrepreneurial skills and participate in inclusive innovation.

Recommendation 5b

Governments should partner with First Nations people and the education sector to reflect First Nations scientific knowledges in courses. This would include school curriculum support materials, teacher professional development, and vocational and higher education courses.

There are already many excellent resources available. Greater collaboration would ensure these are culturally safe, appropriate, easy to access and consistently available across all states and territories. This could include expanding or accrediting existing successful training and resources drawing on the Australian Institute of Aboriginal and Torres Strait Islander Studies *Guide to Evaluating and Selecting Education Resources*.

Objective 6: Strengthen perceptions of vocational education and training STEM courses and careers

Recommendation 6a

Vocational education and training (VET) providers, industry and other education providers (like schools and universities) should increase collaboration to promote VET-based STEM offerings. This includes promoting streamlined pathways to STEM careers or university STEM qualifications. These communications should reach parents to address parental perceptions of STEM VET education.

Governments and industry should continue to highlight the crucial role vocational education plays in developing a diverse, skilled workforce and growing Australian industries. Promoting VET-based STEM-careers should build on the National Careers Institute's work to promote STEM-related VET pathways. These communications should focus on reaching diverse cohorts and challenging stereotypes around VET-trained roles.

Government responses to the Australian Universities Accord Review Panel recommendations may also result in better integration and navigation of VET and higher education courses. This would promote access to STEM education through the VET sector, particularly in areas of national priority.

VET providers should apply diversity and inclusion practices to address imbalances and discrimination in STEM courses. They should develop these practices with a thorough understanding of the local and organisational settings, underpinned by data and evidence.

Objective 7: Build STEM workforce capability through industry training and diverse engagement

Recommendation 7a

Industry and government should increase horizon-scanning exercises to inform STEM workforce development.

This should include working with relevant Jobs and Skills Councils to identify skill needs and ways to build them in advance. These initiatives should focus on the most appropriate training solutions and on attracting and supporting the most diverse cohort possible.

Objective 8: Support pathways for diverse cohorts into university STEM education

Recommendation 8a

Governments and Australian universities should work together towards equity in access, participation and attainment of STEM higher education.

Opportunities for reform include:

- systemic changes to incentivise not only greater enrolment, but retention and attainment, of underrepresented cohorts in STEM courses
- listening to the voices and aspirations of First Nations people to design measures that support greater participation of First Nations students
- removing barriers to higher education for people from underrepresented cohorts, like:
    - cost
    - lack of academic or social support
    - inadequate accessibility of places to study
    - reduced course availability across regional or remote areas.
- ensuring study places are safe and inclusive through strong governance and accountability mechanisms.

Recommendation 8b

Each Australian university should address the barriers to access for diverse cohorts for its STEM courses.

This should consider:

- broadening the available pathways into STEM courses, particularly alternatives to benchmarked and scaled entry requirements
- the impact of degree costs or availability on accessibility and retention
- intersectionality among these cohorts.

Recommendation 8c

The Australian Government should consider opportunities to broaden existing successful initiatives that support gender diversity in university STEM education to other underrepresented cohorts.

This includes initiatives funded outside the Industry, Science and Resources portfolio.

The Australian Government should monitor outcomes of Elevate, a relatively new program to support women and non-binary students that has shown early success. If it continues to achieve positive outcomes, the government should explore opportunities to expand the program through various funding models, including industry partnership.

Workplace

- STEM organisations have a responsibility to actively create diverse and inclusive workplaces.
- Evidence shows organisations will benefit from these actions.
- Many organisations have inclusive policies. They should apply these consistently and alongside programs shown to work.
- System level actions can accompany each step in the employee life cycle: recruitment, retention, progression and leadership.

Diversity and inclusion in workplaces is good for businesses and innovation. It leads to better outcomes for people and society.

Analysis of more than 1,000 large companies from 15 countries found those with the most gender or cultural and ethnic diversity on executive teams were more likely to experience above-average profitability.[20] For example, equity and diversity in healthcare leadership leads to improved outcomes such as quality of care, greater productivity, and reduced attrition.[21]

Product development, innovation and research all benefit from diverse perspectives that reflect the diversity of the community. For example, artificial intelligence products and services can only benefit everyone when they don't reinforce existing biases in our systems.

The review's engagement and Women in STEM program evaluation highlights the importance of diverse leadership at all levels in organisations. All leaders need to be competent to drive diversity and inclusion efforts.[22][23] High-ranking executives to middle managers greatly influence the day-to-day experiences and career opportunities of diverse groups working in STEM-employing organisations.[24] Middle managers need to acknowledge their ability and responsibility to help employees access flexible working arrangements. This involves creating an inclusive work environment that encourages mentorship, career development and promotion for all.

Workplace policies like targets or quotas for diversity, flexible work arrangements and salary equity can drive recruitment of under-represented cohorts. Organisations need to back these up with effective inclusion practices and programs.[25] STEM-employing organisations[26] need to systemically change organisational culture to create a safe and supportive environment that attracts, keeps and supports progression of diverse employees.

Bullying, harassment, and discrimination are barriers that organisations must address to increase attraction and retention of diverse STEM employees. For example, research by Engineers Australia found that female and migrant engineers are more likely to suffer from bullying and harassment, and devaluation of their work, despite their extensive experience.[27] Research by the Women in STEM Ambassador highlights that successful workplace anti-harassment initiatives prioritise prevention and have leadership commitment.[28] Workplaces must also implement stronger accountability mechanisms to address bullying and harassment and accelerate cultural change.

[20] McKinsey & Company, Diversity Wins: How inclusion matters, 2020.
[21] World Health Organisation, Delivered by Women, led by men: A gender and equity analysis of the global health and social workforce. Geneva, 2019.
[22] ACIL Allen Women in STEM Evaluation Report.
[23] Submission to the Diversity in STEM Review from Professors Denise Cuthbert, Kay Latham, Nicola Henry, Associate Professors Robyn Barnacle, Ceridwen Spark, Dr Leul Sidelil (RMIT Respectful Research and Women in STEMM Research Team).
[24] Williamson, S. et al 2018
[25] Women in STEM Ambassador, Workforce Gender Equity Initiatives: a rapid systematic review. June 2023.
[26] Any academic, government, not-for-profit or private organisation that employs STEM-skilled people in STEM roles.
[27] Submission to the Diversity in STEM Review from Engineers Australia.
[28] Women in STEM Ambassador, Workplace Anti-Harassment Initiatives: A rapid systematic review, June 2023

The review's engagement highlighted that in research careers, poor job security and remuneration are other barriers to progressing and keeping underrepresented cohorts. For example, research sector stakeholders in our Workplace Leadership workshop stressed the PhD stipend should be increased. Governments and other funding bodies should also require longer researcher contracts.

In addition, Australia's research metrics system needs an update to avoid negatively impacting research careers for diverse cohorts. The current system is weighted towards recognising the number of papers published and citation impact. It does not appropriately take into account diverse needs, career break impacts or other beneficial activities like mentoring or diversity and inclusion work. For example, the University of Melbourne highlighted:

> ‘Academics with a disability who compete for metrics at the same pace as their colleagues without disability report working **additional hours and compromising their physical and mental health and work-life balance.**’[29]

The University of Melbourne

Griffith University's recent *Discovery Report* notes systemic changes should be ambitious, rethink the fundamentals of how current systems work, and incentivise and sustain innovation in the systems context.[30] This includes:

- improving inclusive recruitment practices, job security, recognition and reward systems
- actively supporting career pathways
- using evidence-based policies and programs
- creating strong incentive and accountability structures to ensure initiatives are making a difference.

New organisations and teams should do this, and more, from inception.

Below are draft recommendations for discussion and refinement. We want to know your views on these and any other ways you think we can support diversity and inclusion in workplaces.

[29] Submission to the Diversity in STEM Review from The University of Melbourne.
[30] Griffith University June 2023 Discovery Report.
https://www.shapinginnovationfutures.co/s/Shaping-Innovation-Futures-Discovery-Report.pdf

Objective 9: Implement incentives and accountability mechanisms in STEM-employing organisations to increase diversity and inclusion

Recommendation 9a

STEM-employing organisations and governments should apply policies like anti-bullying and harassment, flexible work and pay transparency to create safe and inclusive environments. They should invest in programs to accelerate progress for underrepresented groups, like career development, fellowships, job customisation or mentoring.[31]

As a STEM employer, the Australian Government must model best practice action to support diversity and inclusion.

Where appropriate, STEM-employing organisations can use existing resources, for example the:

- Australian Academy of Technology and Engineering's *Diversity and Inclusion Toolkit for small and medium enterprises*
- *Respect@work* platform
- Women in STEM Ambassador's *Workplace Gender Equity: An implementation guide*.

STEM-employing organisations and funding bodies should recognise all forms of bullying, harassment and discrimination as scientific and academic misconduct. This type of misconduct would be reason to deny or withdraw funding. The American Geophysical Union Ethics and Equity Center in the US uses this approach. It was one of the first professional societies to define harassment and discrimination as scientific misconduct to create safer environments and keep people in science careers.

Recommendation 9b

STEM-employing organisations and governments should adopt or strengthen accountability mechanisms for middle and senior leaders to effectively implement policies and programs that accelerate change and inclusion.

This could include combined actions like mandatory training and evaluation, quotas or targets, and performance agreements.

These organisations should supply evidence of diversity practices and outcomes in a range of circumstances. For example:

- when STEM-employing organisations tender for work, apply for, or deliver grant funding
- when emerging STEM businesses seek government support. This will help to embed an inclusive culture from the outset.

[31] Women in STEM Ambassador, Workforce Gender Equity Initiatives: A rapid systematic review, Initial recommendations.

To support these efforts, Science in Australia Gender Equity (SAGE) should work with the Australian Government to explore building on the existing accreditation program. This program currently helps remove barriers to women progressing in STEM research careers. Expanding it could involve strengthening accountability in sectors other than academia and publicly-funded research or accrediting diversity and inclusion initiatives to go beyond gender. SAGE should also consider ways to strengthen partnerships with industry to achieve this objective and the model's longevity.

Champions of Change Coalition should also consider building on its initiatives to support leadership progression for other under-represented cohorts and expanding the pool of champions.

Objective 10: Support career pathways for diverse cohorts and recognise efforts to advance inclusion and diversity

Recommendation 10a

All STEM-employing organisations should develop a recruitment and promotion system for STEM positions that attracts, retains and promotes employees from underrepresented, including intersectional, cohorts.

STEM-employing organisations should recognise the often unpaid, extra work that employees from underrepresented cohorts do to improve workplace diversity and inclusion. This work provides significant benefits to organisations.

Organisations should give employees the time, space and remuneration to lead initiatives in addition to existing responsibilities. They should have reward and recognition systems to appropriately acknowledge and compensate employees for progressing inclusion and diversity outcomes. Support of such diversity and inclusion initiatives should not be a barrier to career progression. It should be recognised and valued.

Recommendation 10b

The Australian Government should do a detailed analysis of how overseas STEM qualifications are recognised in Australia.

This work should focus on identifying barriers to recognition and employment and suggest strategies to overcome these. As an example, recent research found significant evidence of discrimination against ethnic minorities during recruitment for leadership positions.[32]

[32] Adamovic, M., & Leibbrandt, A. (Accepted/In press). Is there a glass ceiling for ethnic minorities to enter leadership positions? Evidence from a field experiment with over 12,000 job applications. *Leadership Quarterly*, https://doi.org/10.1016/j.leaqua.2022.101655

Objective 11: Improve recognition systems and job security to attract and reward diverse STEM researchers in academia

Recommendation 11a

Australia should follow the lead of other countries, such as the Netherlands and the UK, to change the recognition, reward and research systems we use to assess the performance of STEM researchers.

These adjustments should better capture the contributions, value or expertise of individual researchers. They should account for career paths outside academia, career breaks or other factors that may impact how much research diverse or underrepresented cohorts produce.

The Australian Government should adopt in full the recommendations from the *Trusting Australia's ability: Review of the Australian Research Council Act 2001*[33] to advance First Nations Australians in the research system. This would help remove barriers to First Nations people participating in STEM research and recognise First Nations knowledge systems and peoples.[34] It should employ comparable actions in other funding areas, including through the National Health and Medical Research Council.

Research funding bodies and organisations doing research should create conditions that support researcher job security and progression. These include:

- minimum researcher contract terms, particularly in line with grant cycles
- allowing promotion in employment contract periods
- establishing conditions and remuneration for PhD students that allow them to do their studies and receive a reasonable living wage, regardless of circumstances.
- encouraging researcher mobility between academia and industry.

[33] Trusting Australia's Ability: Review of the Australian Research Council Act 2001 https://www.education.gov.au/higher-education-reviews-and-consultations/resources/trusting-australias-ability-review-australian-research-council-act-2001

[34] ibid.

Draft **recommendations** for Women in STEM programs

Existing Women in STEM programs that receive funding through the Australian Government Department of Industry, Science and Resources are largely meeting their stated objectives. However, those objectives don't match this review's goal of increasing participation of all underrepresented cohorts.

As part of the review, these programs were evaluated to determine:

- their impact
- if they are meeting intended outcomes
- if they are contributing to systemic and cultural change.

Key findings across the suite of programs:

- Government plays a role as a change agent in addressing gender equality in STEM, including encouraging ownership from industry, community and the research sector.
- The programs are designed to increase women's participation in STEM with varying degrees of intersectionality.
- Program objectives are clear, but gaps exist in:
    - whole-of-lifecycle supports, for example for early years education, middle management and mid-career women
    - tailored support for women who also belong to other diversity cohorts.
- Programs have achieved outcomes in the short to medium term. There is limited evidence of their impact on longer-term systemic or behavioural change. Programs would need significant and sustained funding to have this impact, and improved evaluation planning and data collection.
- Initiatives do not operate as a holistic suite and lack an overarching policy to guide design and connected delivery.

To have greater impact, we must adjust these programs and combine them with structural change. This includes ensuring programs connect with each other and other diversity in STEM initiatives across government.

We will further develop our recommendations on how programs can meet this review's objectives in the final report.

Women in STEM Ambassador (WiSA)

This awareness-raising initiative seeks to address drivers of underrepresentation of girls and women in STEM, including:

- limited role models and visibility
- poor workplace attitudes
- limited evidence base
- best-practice tools and expert advice.

Recommendations

- WiSA has built a foundation to highlight and promote actions to increase diversity in STEM. It is not reasonable to expect a single Ambassador to represent the needs and perspectives of the breadth of underrepresented cohorts in STEM.
- The Australian Government should consider how to incorporate this initiative or some of its outputs into the proposed central office for diversity in STEM. This would support a wider range of equity groups and intersectionality.

Elevate

This education initiative awards undergraduate and postgraduate scholarships to women and non-binary people in STEM. It gives them extra mentoring, networking, internship, leadership development and research opportunities.

Recommendations

- Elevate is a new program showing early success in meeting needs of the target cohort. There is an opportunity to expand the program to support other underrepresented cohorts if it continues to show longer-term measurable impact.
- The Australian Academy of Technology and Engineering should work with industry, the tertiary sector and government on funding models to grow the program. They should build a wider pipeline of STEM graduates and explore models for long-term self-sustainability of the program.

Girls in STEM Toolkit (GiST)

This educational initiative gives girls online tools to understand how their existing skills and interests can link to STEM careers and study pathways.

Recommendations

- GiST has shown success in meeting short term outcomes to inspire girls to pursue STEM education and shift perceptions of STEM. It needs improved measurement on longer-term impact on subject or career choice to evaluate longer-term success. The kinds of resources developed through the GiST should be available to all underrepresented cohorts.
- The proposed diversity in STEM central office could play a role in building on GiST to support other underrepresented cohorts. The office could coordinate and avoid duplication with other initiatives to raise awareness and promote STEM careers and education.
- This could also support coordination with other federal, state and territory government initiatives for greater impact and ability to measure outcomes.

Champions of Change Coalition (formerly Male Champions of Change – STEM group)

This initiative builds organisational capability. It recruits industry leaders in the STEM sector to drive the cultural change organisations need to improve women's participation in STEM.

Recommendations

- The male Champions of Change – STEM group has shown success in supporting cultural and organisational change from leadership positions.
- Now called the Champions of Change Coalition STEM Group, it should consider opportunities to expand the model to support other underrepresented cohorts. It should also build the pool of champions in member organisations and look at how it can support middle managers to drive change.

Future You

This early intervention initiative addresses drivers of underrepresentation of girls and women in STEM by improving awareness and visibility of diverse female role models. Its website offers resources for children, teachers and carers.

Recommendations

- Future You has made diverse representation in STEM careers more visible. While it has created motivation among young women and girls to study STEM and pursue STEM careers, design limitations mean there is not longitudinal data to show the program has been successful in achieving behavioural change.
- Awareness raising campaigns should look to promote broader representations of diversity in STEM, be measurable and not duplicate other awareness raising initiatives.
- We should apply lessons from Future You to the proposed broader media campaign, ensuring wide reach and impact.

Science in Australia Gender Equity (SAGE)

SAGE is an organisational cultural change and capability-building initiative. It aims to address underrepresentation of women in STEM-based careers in academia and research by driving cultural change.

Recommendations

- SAGE has shown success in making the academic and research sector accountable for cultural changes that support women to stay and progress in their careers.
- SAGE should work with the academic sector, industry and the Australian Government to build on this success. It should consider a self-sustaining, sector-led model to further embed accountability to drive cultural change, and support retention and progression for other underrepresented cohorts.

STEM Equity Monitor

The Monitor is a national data resource on the current state of STEM gender equity in Australia and changes over time. It seeks to address gaps in the availability of a centralised database and provides a consistent evidence base to inform decision-making.

Recommendations

- The Monitor is central to understanding the challenge and informing decision-making on diversity in STEM.
- The Australian Government should consider how the Monitor could more accurately and broadly measure equality, participation and engagement across diversity cohorts. This would include incorporating more existing longitudinal data sets and creating new ones.

Superstars of STEM

This mentorship and media training initiative seeks to address underrepresentation of women STEM experts in the Australian media. It does this by building a critical mass of high-profile women and non-binary role models in STEM and giving them communications training and media opportunities.

Recommendations

- Superstars of STEM helps increase capacity of STEM professionals to engage in the media and boost their profile as role models. There is a need for longer-term measurement to show long-term impact of the initiative on career choice and retention among the target cohort.
- Science and Technology Australia (STA) should explore opportunities for greater industry engagement to deliver the program. This includes support for upcoming leaders in STEM industry and self-sustaining models to support longevity.
- STA should also consider how the program can best complement other initiatives. It should also consider expanding media liaison to represent diversity in STEM beyond gender.

Women in STEM and Entrepreneurship grants (WiSE)

WiSE is a competitive grant program. It funds community-driven projects to create lasting systemic change and support girls and women by eliminating barriers to participate in STEM education, careers and entrepreneurship.

Recommendations

- The WiSE program funds community-driven initiatives to support systemic change, and has shown success in achieving short-term outcomes.
- The Australian Government should consider redesigning the program to ensure its role and outcomes align with the proposed long-term strategic approach to funding diversity in STEM initiatives. Options could include:
    - Fund a small number of long-term projects driving long-term systemic cultural change.
    - Fund localised or cohort-specific projects that align with the strategic approach and are evaluated so successful initiatives can be adopted in other locations, settings or for other cohorts.
- The funding model should also support programs that have potential to become self-sustaining and build organisational capability.