Women in Highly Technical Occupations: The Leaky Pipeline

September 2025

Tech Council of Australia

Foreward

As a physicist and as Australia's former Chief Scientist, I have seen how science and technology transform lives, builds industries and safeguards our nation's future. But I have also seen how too often, women are held back, not by ability, but by barriers of confidence, culture and opportunity.

This report shines a bright light on those barriers. Women make up only 20% of Australia's highly technical workforce, and after the age of 40 they leave at nearly twice the rate of men. The cost is immense: lost ideas, lost innovation and lost competitiveness at a time when Australia urgently needs 1.2 million tech workers by 2030.

I know from my own career what it feels like to be one of only a handful of women in the room, and the profound difference it makes when mentors, leaders and colleagues create an environment where talent can thrive. Every young woman with the passion and skill for science and technology deserves that same chance.

The evidence is clear: by tackling three key drop-off points— technical subject choices, technical degree enrolments, and mid-career barriers—we could triple the number of women in highly technical roles. That is not only a matter of equity, but of national strength. With over half of our highly technical workforce already drawn from skilled migration, and a quarter of those migrants being women, unlocking this potential is essential to Australia's innovation system.

This is not a new issue. There have been many initiatives over the recent decades, but the dial has barely turned for women in highly technical occupations. We need to have fresh thinking about the barriers, including new ways of working, childcare not just at preschool stages, but also for vacation and after-school times, where support is patchy but essential. We need better support for women in the workplace.

The challenge now is to act via educators, industry, government and the community working together to ensure that it is talent, not gender, that determines who shapes Australia's scientific and technological future.

Dr Cathy Foley AO PSM FAA FTSE

Former Chief Scientist of Australia

Executive Summary | Addressing three key drop-out points to advance women in highly technical occupations

Context

- Women make up just **20% of the highly technical workforce** in Australia, dropping to 16% after age 40.
- After age 40, **women** leave the highly technical workforce at **almost double the rate of men.**
- Australia's ability to realise the **AI opportunity** depends on unlocking the full potential of our nation.

Three Key Drop-Out points have been identified

- **Early High School & Technical Subject Choices**: Girls' confidence in STEM subjects overall is **17%** lower than boys, dropping to a **25% confidence gap for engineering subjects**. This is despite similar overall performance in these subjects.
- **Late High School & Technical Degrees Enrolment**: Australia lags other developed nations - only **20% of engineering and technology students are women**. Australia would need to increase women's enrolment in technical degrees by **75%** to match top-performing countries.
- **Mid-Career**: Workplace culture is a major factor: Almost half of women in STEM report harassment (49%), **five times the rate of men** - a systemic barrier compounded by lower representation in leadership, mentorship, and workforce participation after having children.

Key Context: Skilled migrants make up over half of Australia's highly technical workforce. **Domestic women's participation is 42% lower than migrant women.**

Opportunity for Impact

- Women's participation in highly technical occupations has grown only **2% over five years** (18% → 20%).
- Targeted action at the three drop-out points could **triple the number of women** in highly technical roles from 5.8k to 17.5k
- Long-term gender balance requires a generational strategy, but skilled migration reforms can also create immediate impact and influence the pipeline.

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2 Drop-Out Points: Where do girls and women drop out of the pipeline?

3 Drivers: What’s causing the decline?

4 Initiatives: What policy and programs are tackling the problem?

5 Interventions: What is the potential impact?

01 Context

Why do we need to act?

Tech Council of Australia

Future View | The fastest growing skills and jobs will be highly technical - Australia's ability to realise the AI opportunity depends on unlocking the full potential of our nation

Fastest Growing Global Skills by 2030

1. **AI and big data**
2. **Networks and cybersecurity**
3. **Technological literacy**
4. Creative thinking
5. Resilience, flexibility and agility
6. Curiosity and lifelong learning
7. Leadership and social influence
8. Talent management
9. Analytical thinking
10. Environmental stewardship

Top 3 fastest growing skills are highly technical

Fastest Growing Jobs by 2030

1. **Big data specialists**
2. **FinTech engineers**
3. **AI and machine learning specialists**
4. **Software and applications developers**
5. **Security management specialists**
6. **Data warehousing specialists**
7. Autonomous and electric vehicle specialists
8. **UI and UX designers**
9. Light truck or delivery services drivers
10. **Internet of Things specialists**

8 of the top 10 fastest growing jobs are highly technical

> *Advancements in technologies are expected to have a divergent effect on jobs, driving both the fastest-growing and fastest-declining roles, and fuelling demand for technology-related skills, including AI and big data, networks and cybersecurity and technological literacy, which are anticipated to be the top three fastest- growing skills.*
>
> **World Economic Forum**

> *The Australian Government and tech employers are united in their commitment to create 1.2 million tech jobs by 2030 and ensure Australians nationwide can access these opportunities. Highly technical roles are a crucial subset of that.*
>
> **Damian Kassabgi, CEO, Tech Council**

Source: World Economic Forum (2025).

Technical skills / jobs **Non-technical skills / jobs**

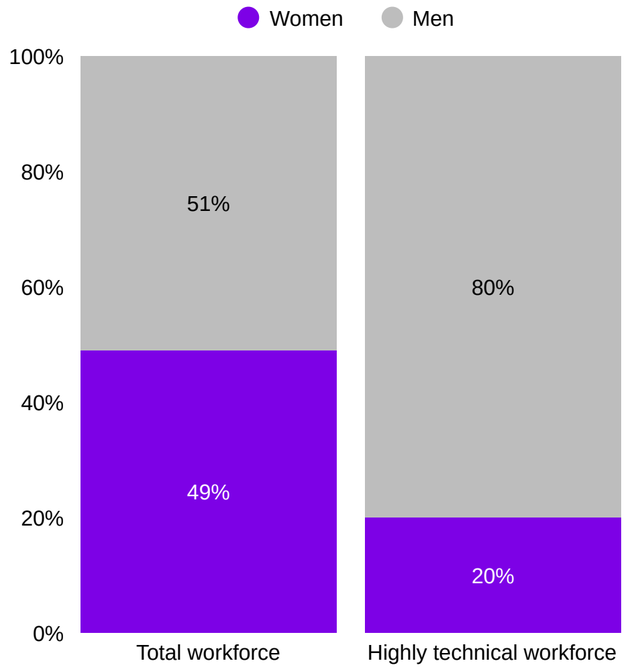
Highly technical workforce composition | Women are 49% of Australia's workforce, but just 20% of highly technical occupations

Highly Technical Occupations

- Occupations that require specialised technological knowledge and skills.
- These include, but are not limited to:
  - Software engineers
  - AI Researchers / ML engineers
  - Physicists, chemists, mathematicians
- See Appendix for the full list of occupations in scope

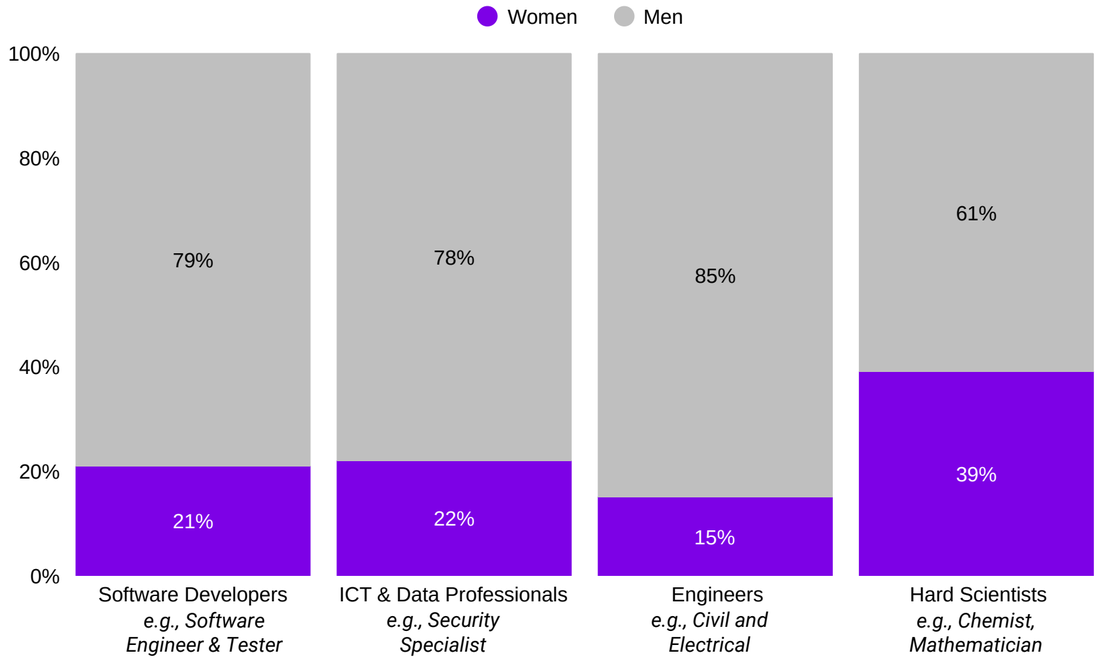
Women are underrepresented across highly technical sectors and roles

Share of persons employed in total workforce and in highly technical roles, 25 - 44 years old



Only 15% of engineers in Australia are women

Share of persons employed in highly technical roles, grouped into four groups based on role description[1], 25 - 44 years old

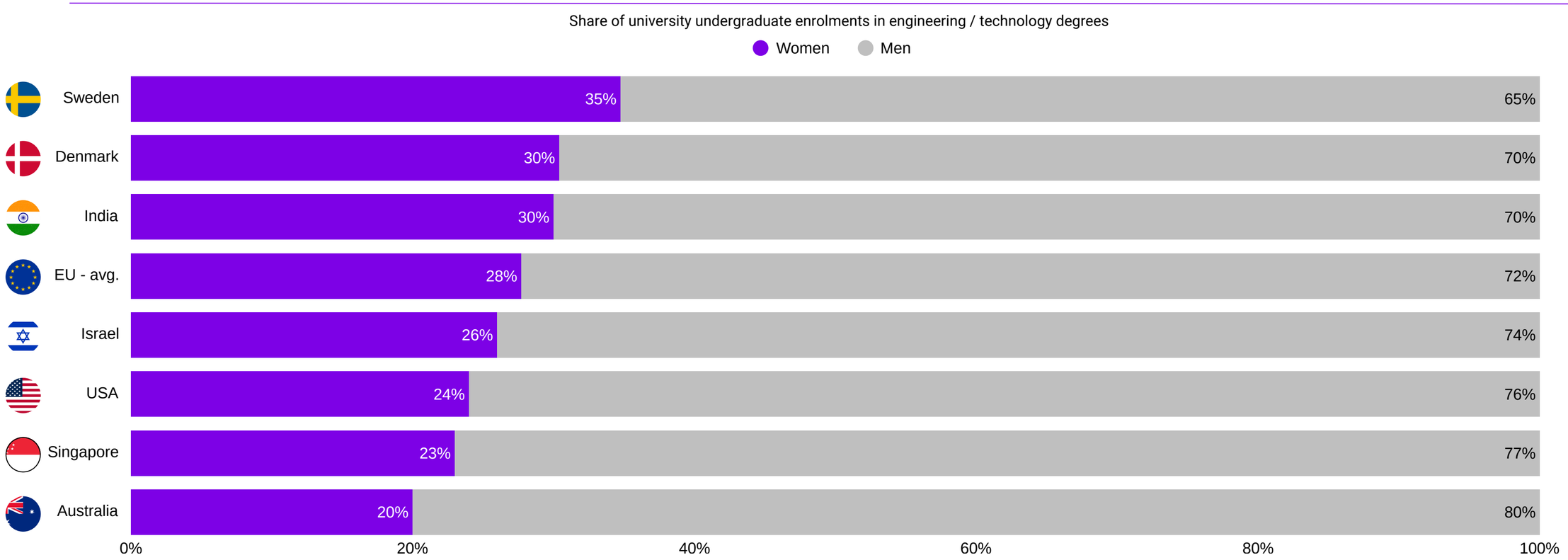


1. Grouping of highly technical roles based on: Software Developers & Testers: 216200, 261212, 261300, 261311, 261312, 261313, 261314, 261399; ICT & Data Professionals: 262100, 262111, 262112, 263000, 263100, 263111, 263200, 263211, 263212, 263213, 263299, 313100, 313101, 313102, 313103, 313104, 313108, 313109; Hard Science: 313105, 313106, 313107; Engineering: 313110, 313111, 313112, 313113, 313114, 313115, 313116, 313117, 313118, 313119, 313120, 313121, 313122, 313123, 313124, 313125, 313126.

Source: Australian Bureau of Statistics (2021).

International benchmark | While gender gaps persist worldwide, Australia trails peers in technical degree enrolments.

Australia would need to increase women's enrolment in technical degrees by 75% to match top-performing countries



Sources: Australian Department of Education (2023), Eurostat (2025), Israeli Central Bureau of Statistics (2017), Society of Women Engineers (2019, 2025a, 2025b),.

02 Drop-Out Points

Where do girls and women drop out of the pipeline?

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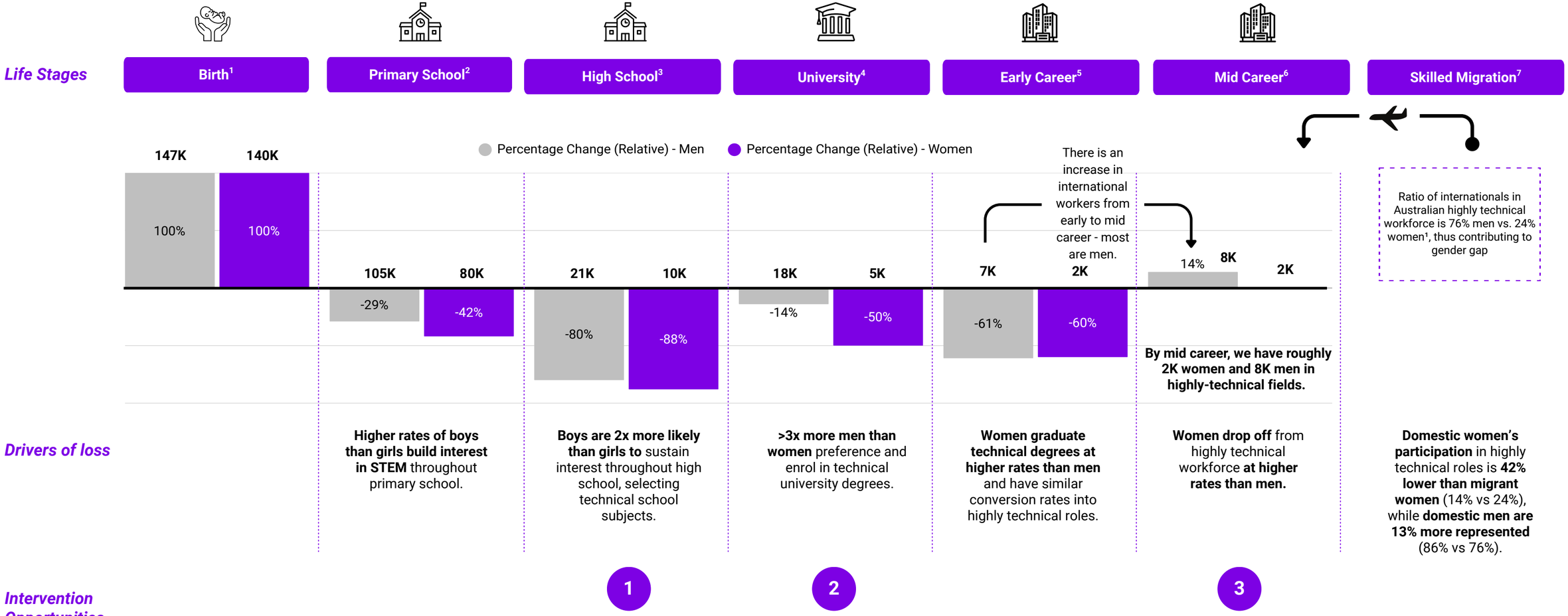
The Pipeline | Despite strong performance and early interest in childhood, women choose not to continue down technical pathways at higher rates than men - at every stage in the pipeline



Notes: 1. Births in given year 2. Interest in relevant school subjects (Yr6) 3. Enrolment in technical year 12 school subjects 4. Enrolment in technical degree 5. Early-career (25-29) in highly technical role 6. Mid-career (35-44) in highly technical role 7. Migrants in highly technical role (35-44).

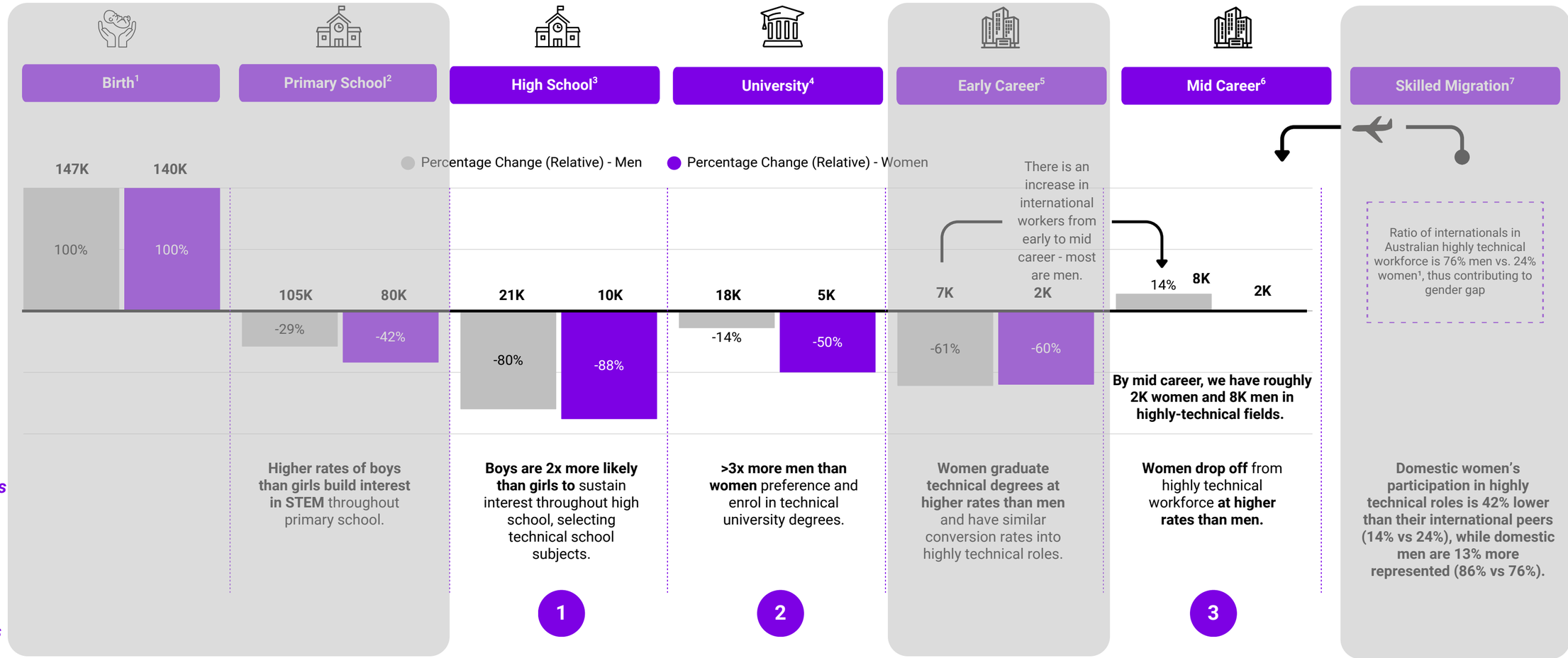
Sources: Australian Bureau of Statistics (2021, 2023), Australian Department of Education (2023), Australian Department of Industry, Science and Resources (2025), New South Wales Department of Education (2024), UAC (2022).

The Pipeline | Progress depends on tackling three pivotal Drop-Out Points in the pipeline

Build and sustain girls' interest in technical school subject choices

Improve the conversion of girls studying technical subjects to pursuing technical degrees

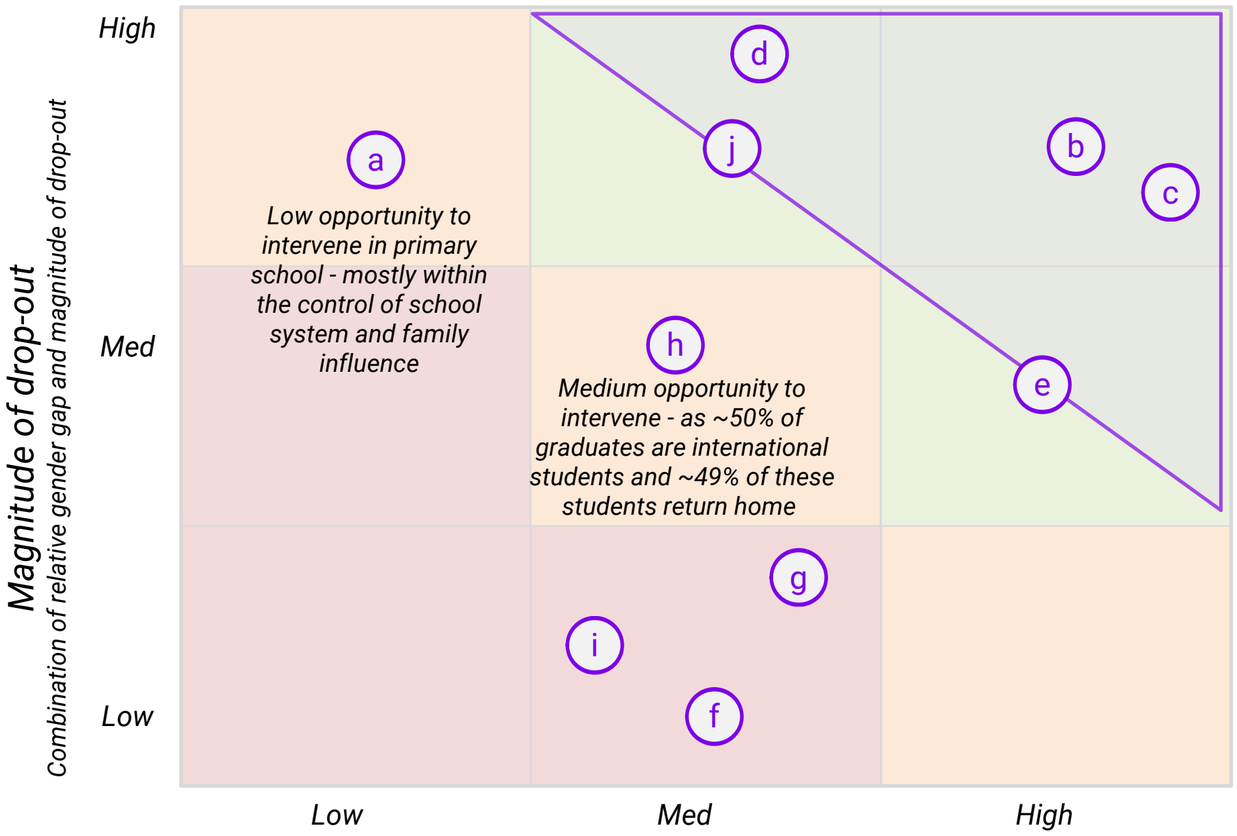
Retain women in the highly technical workforce beyond early career roles



Sources: Australian Bureau of Statistics (2021, 2023), Australian Department of Education (2024a, 2024b), Australian Department of Industry, Science and Resources (2025), New South Wales Department of Education (2024), UAC (2022).

Interventions | The biggest opportunity for intervention is in high school and mid career

	Life milestone		Sub-life milestone	Age	Relative Gap[1]	Drop out magnitude[2]
	Building STEM Interest Primary School (4-12)	a	Interest in relevant school subjects (Year 6)	4-12	23%	59k
		b	Interest in relevant school subjects (Yr 7-9)	13-15	26%	27k
1	Technical Subject Choices Early High School (13-16)	c	Enrolment in technical Y12 school subjects	16	27%	43k
	Technical Degree Enrolment Late high school (17-18)	d	First preference technical degree	17-18	67%	5k
2		e	Enrolment in technical degree	18	3%	0.1k
	Early-Career Choice University / Early Career (18-29)	f	First year technical degree	19-21	(6%)	(5k)
		g	Graduate technical degree	21-24	(7%)	4k
		h	Early-career (25-29) in highly technical role	25-29	20%	4k
3	Long-Term Career Employment (30-44)	i	Mid-career (30-34)in highly technical role	30-34	(6%)	(0.3K)
		j	Established career (35-44) in highly technical role	35-44	26%	0.4K



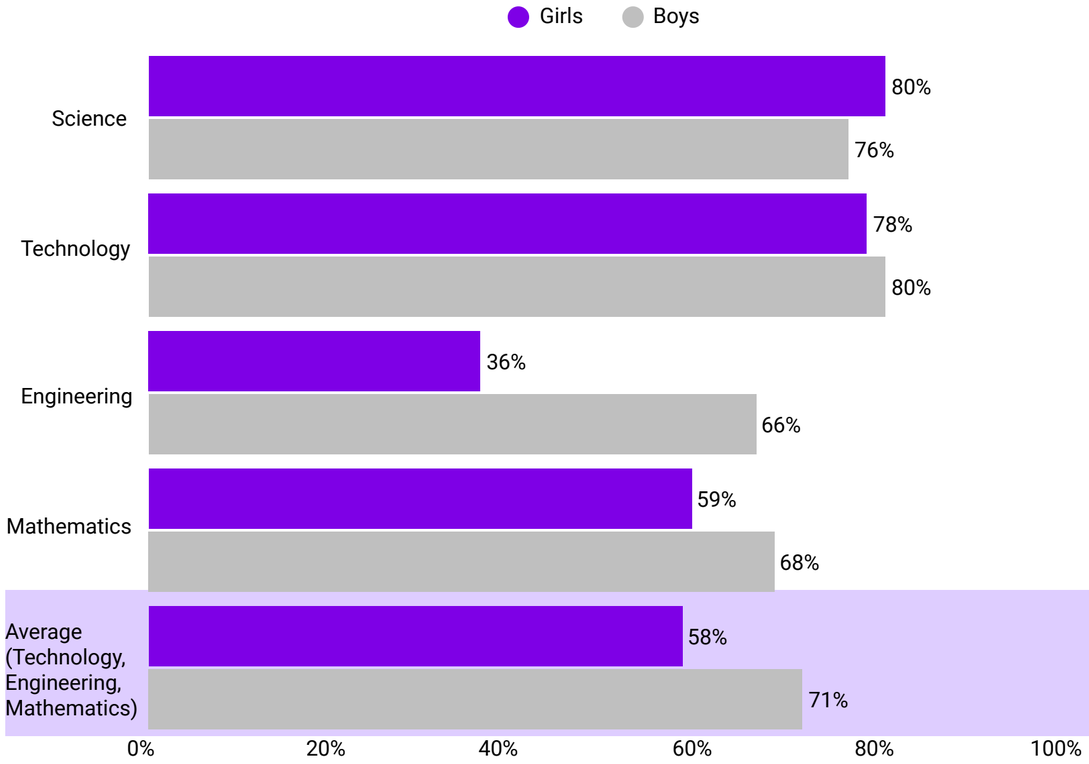
1. The relative difference calculated as a percent between the number of women and men at each life stage
2. The total number of women dropping out of the pipe at each life-stage

Sources: Australian Bureau of Statistics (2021, 2023), Australian Department of Education (2024a, 2024b), Australian Department of Industry, Science and Resources (2025), New South Wales Department of Education (2024), UAC (2022).

Early-high school | Girls are less interested in technical subjects compared to boys and the gap in interest increases with age

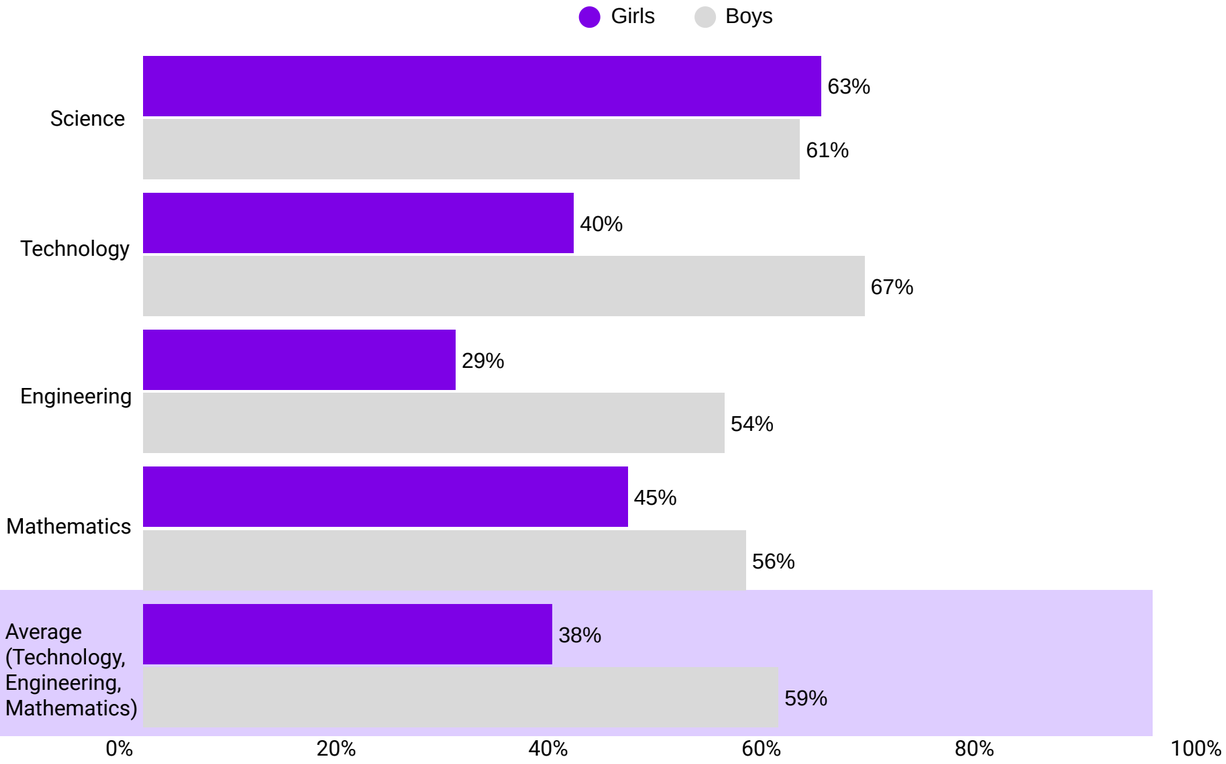
In year 6, fewer girls are interested in Engineering & Mathematics compared to boys

Percentage of students interested in STEM subjects ages 12 -13, used as proxy for interest at 12 years old or year 6



In year 7-9, the interest gap grows across Technology, Engineering & Mathematics

Percentage of students interested in STEM subjects ages 14 -17, used as proxy for interest at 13-15 years old / year 7 - 9

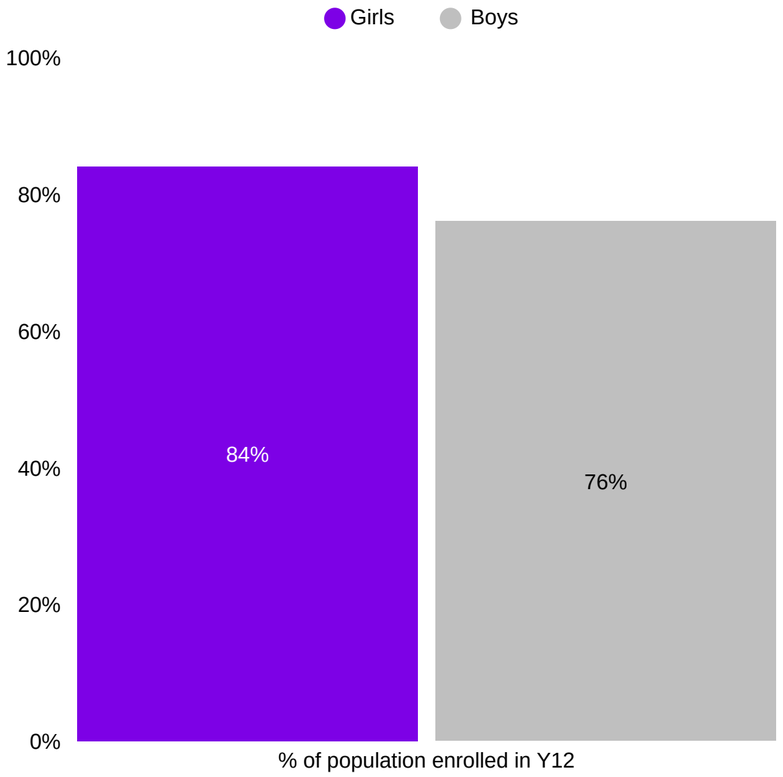


Source: Australian Department of Industry, Science and Resources (2025).

Final year subject selection | Despite outnumbering boys in year 12, girls are half as likely to choose technical subjects

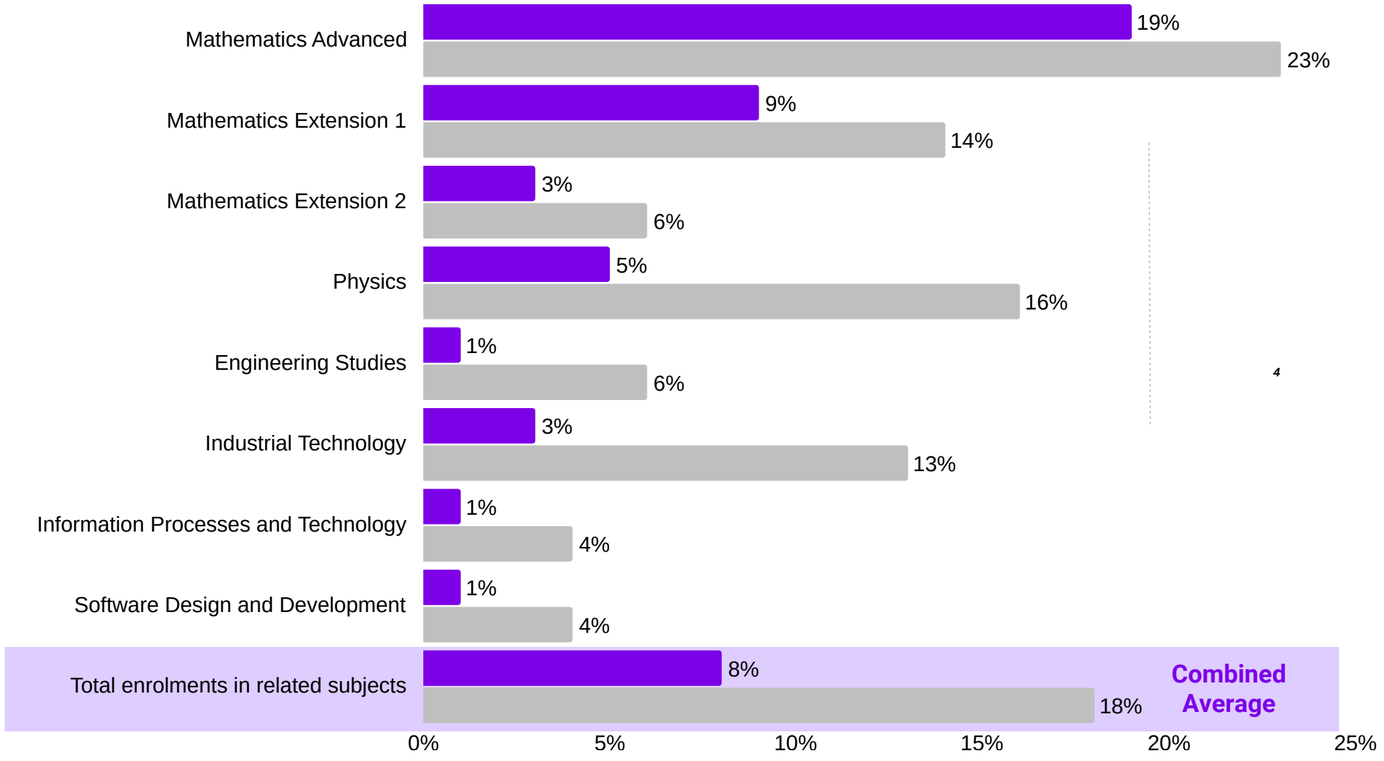
A greater % of girls are enrolled in year 12 than boys

Year 10 – 12 retention rates, nationwide



Boys select technical subjects in year 12 at almost twice the rate of girls

Percentage of NSW Y12 HSC student enrolments in related subjects[1] (%), assumption: NSW data used as proxy for all Australian students



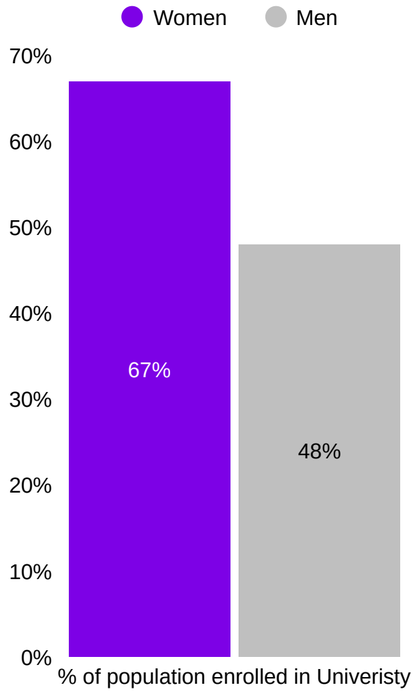
1. Individual subject enrolments = calculated as number of enrolments in relevant subject divided by number of women or men enrolled in HSC. Total enrolments = total enrolments in related subjects divided by total number of subject enrolments for HSC.
2. Total enrolments calculated by taking number enrolments in related subjects divided by total number of HSC enrolments.

Sources: Australian Bureau of Statistics (2024), New South Wales Department of Education (2024).

University preferences | The majority of university students are women, but they are far less likely to pursue highly technical degrees

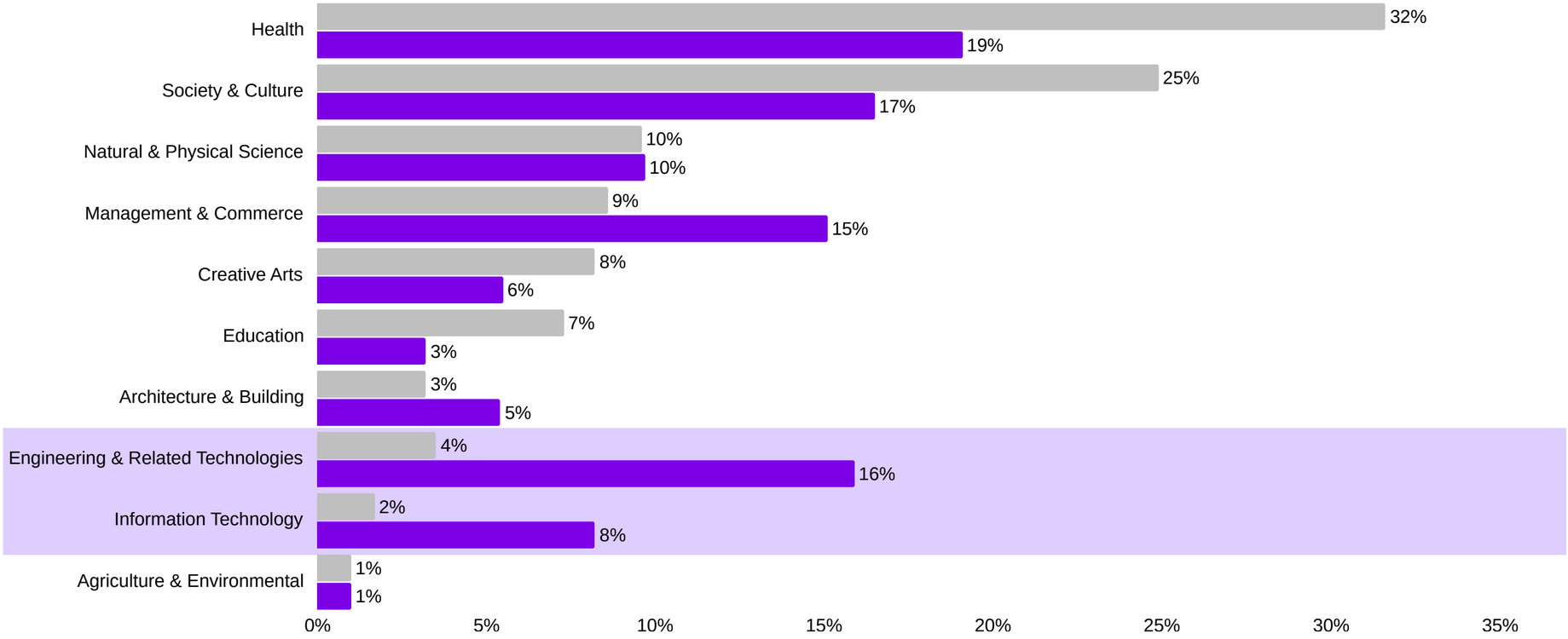
More women enrol in university than men

% of students who go to University within a 3-year window from Y12[1]



Women are more likely to preference Health & Science

Allocation of first preferences for undergraduate university degrees 2022-2023, Assumption: NSW data used as proxy for all Australian students



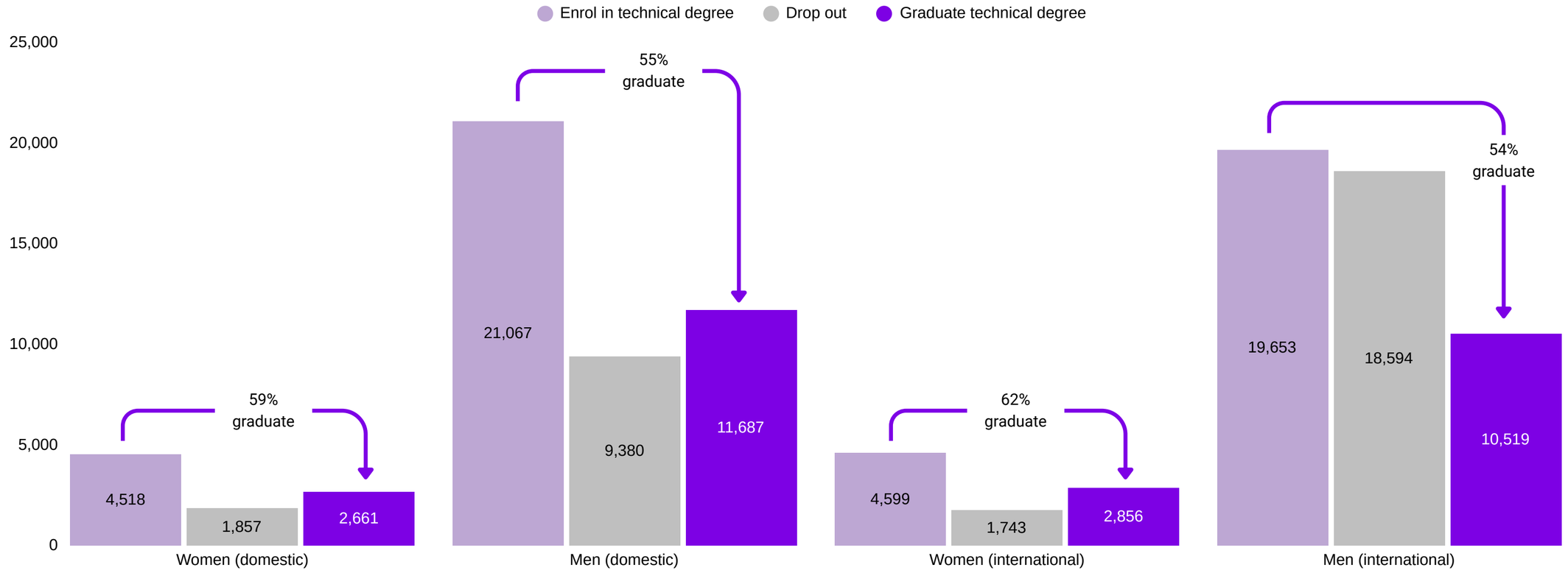
1. Calculated individual women and mate % based on ratios of women and men enrolled who enrol in university immediately after finishing year 12, plus % students who don't enrol immediately after year 12 that go to university before 21 and based on ratios of women and men enrolled in university and in year 12.
2. Select universities only: See appendix for details.

Sources: Australian Bureau of Statistics (2024), UAC (2022).

First year enrolments & graduations | Women graduate from highly technical degrees at higher rates, but domestic women drop-out more than their international peers

Highly technical degree funnel from enrolment to graduation, with a 6% gap between graduation rates in favour of women

2019 - Enrolments in technical undergraduate degrees, Domestic and International students, nationwide.
2023 - Graduations from technical undergraduate degrees, Domestic and International students, nationwide[1]

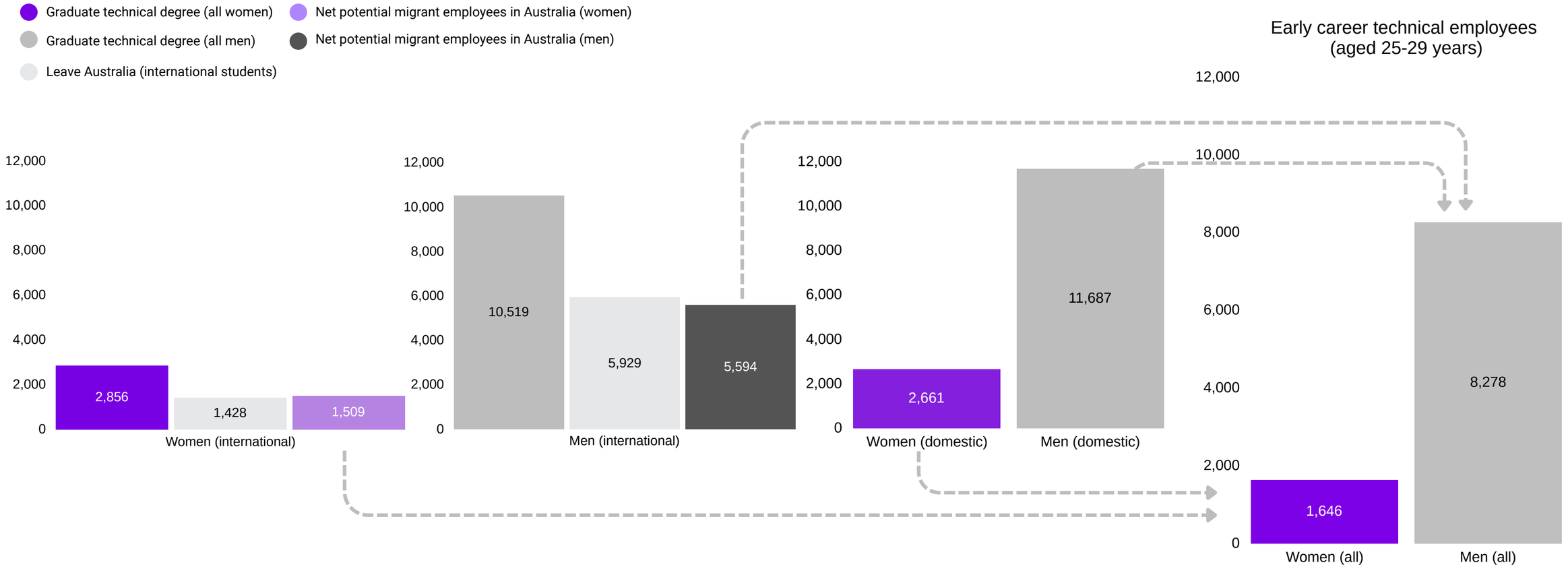


1. Technical degrees includes those with “Broad Field of Education Primary” in both Engineering & Related Technologies and Information Technology degrees.
2. Graduation % calculated as: # graduations in related degrees in 2023 over # enrolments in related degrees in 2019.

Sources: Australian Department of Education (2024a, 2024b).

Graduations to early-career | Only 31% of women with a technical degree enter highly technical occupations, compared with 37% of men, translating to a total of only 1,646 women versus 8,276 men

Graduations from technical undergraduate degrees, domestic and international students, nationwide, Persons employed in highly technical roles, 25 - 44 years old



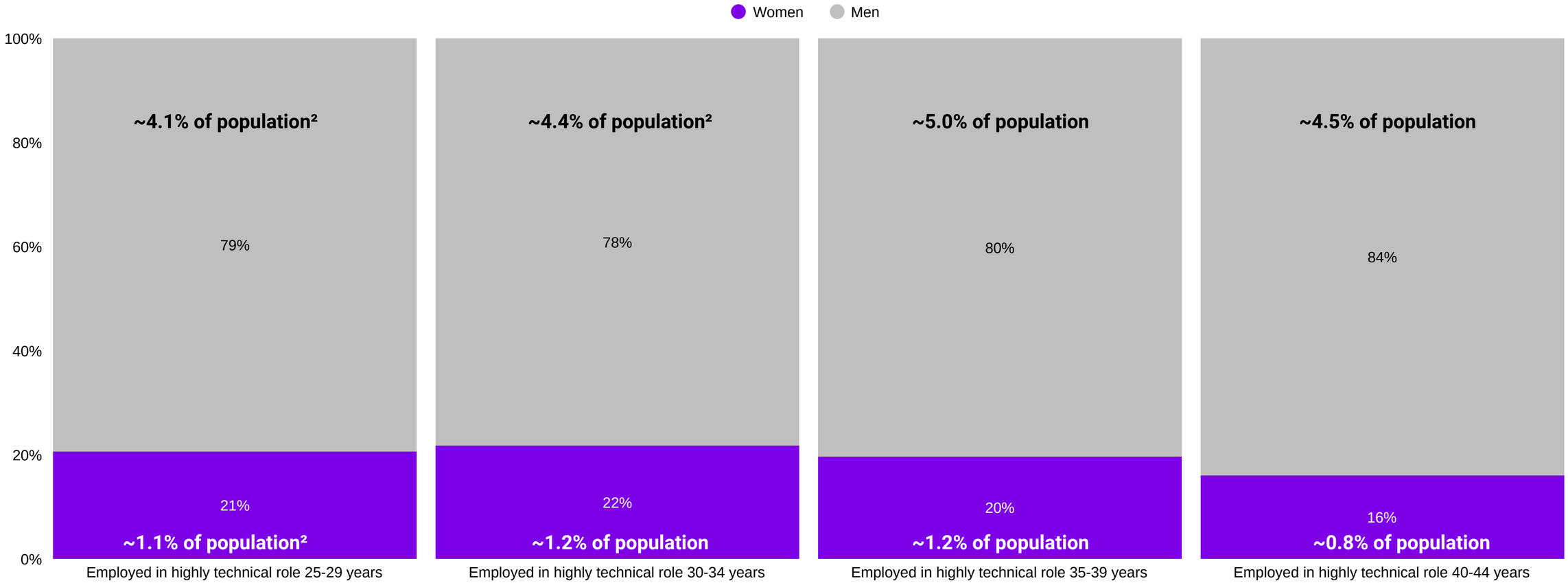
1. Technical degrees includes those with “Broad Field of Education Primary” in both Engineering & Related Technologies and Information Technology degrees.
2. Percentage of population calculated by dividing number employed in highly technical occupations by all people in age bracket.

Sources: Australian Bureau of Statistics (2021), Australian Department of Education (2024b), Tech Council of Australia (2022).

Early-career to established-career | Women represent 20% of the highly technical workforce until age 40 when this declines to 16%

Workforce gender composition for highly technical occupations

Persons employed in highly technical roles, 25 - 44 years old[1]



1. Highly technical roles defined in appendix.
2. Percentage of population calculated by dividing number employed in highly technical occupations by all people in age bracket.

Source: Australian Bureau of Statistics (2021).

03 Drivers

What is causing the decline?

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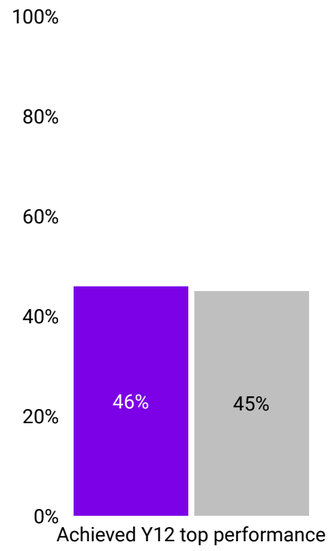
Drivers: Technical Subject Choices | Confidence, interest, and peer influence are key factors limiting girls' engagement in highly technical subjects during early high school

I Confidence

Girls have lower confidence in technical subjects than boys, despite similar performance

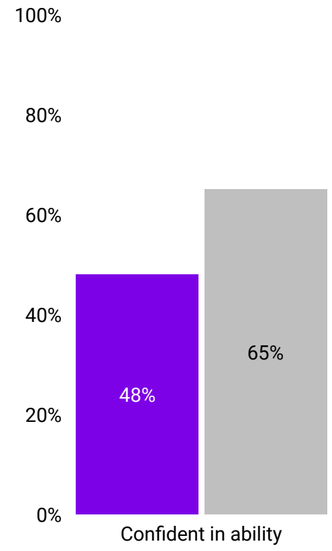
Year 12 Performance

Achieved top performers in HSC subjects, NSW used as proxy (%)[1]



Mid High School Confidence

Confident in ability to study and get good results in STEM subjects, ages 14-17 (%)

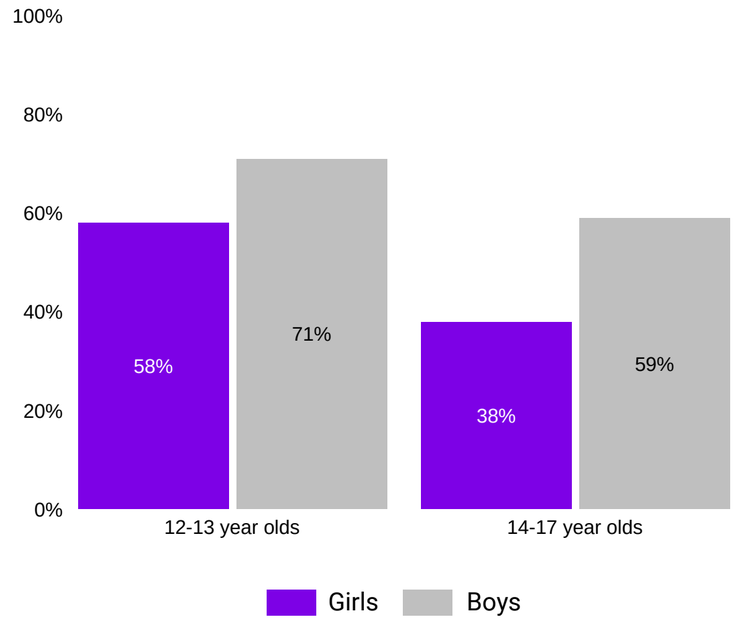


II Interest

Girls are less interested in technical subjects than boys, which continues to decrease with age

Interest in related subjects

Interest in STEM subjects (%)

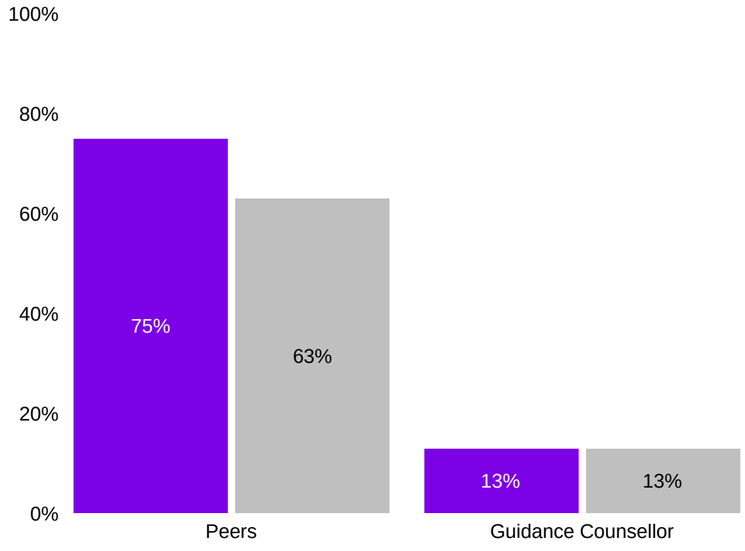


III Peer Perception

Girls are more likely than boys to talk to peers about their future plans

Share of students talking to peers about future plans

Which stakeholders 14-15 year olds talk to about their plans for the future (%)



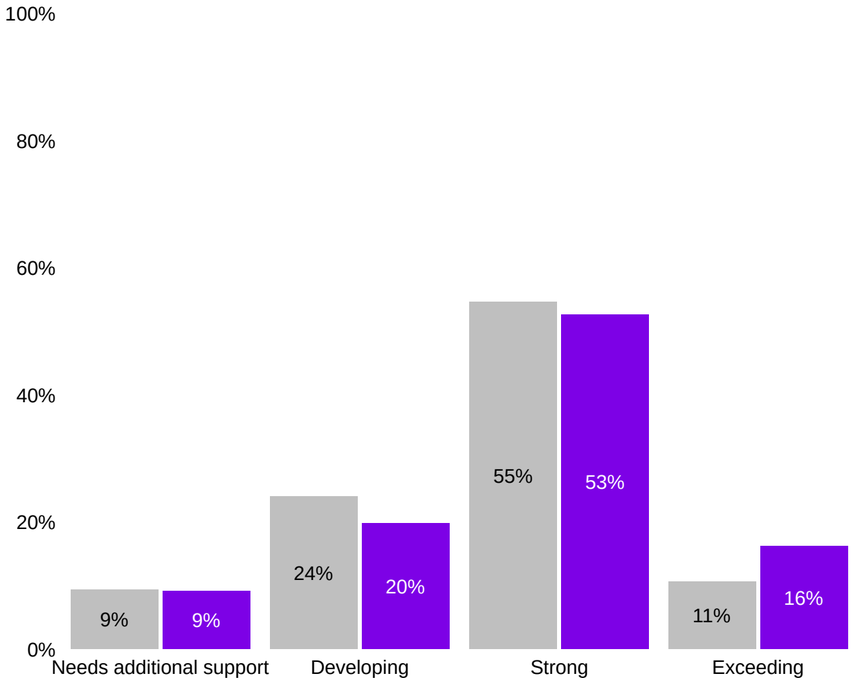
1. Top performers defined as NSW students that achieve a result in Band 5 or Band 6 for HSC Mathematics Advanced 2 or Physics. NSW used as proxy as no national data set available at the detailed subject granularity.

Sources: Baker, Jordan & Gladstone, Nigel (2022), Department of Industry, Science and Resources (2025), Australian Institute of Family Studies (2016)

Confidence | Girls and boys perform equally well in technical subjects at high school

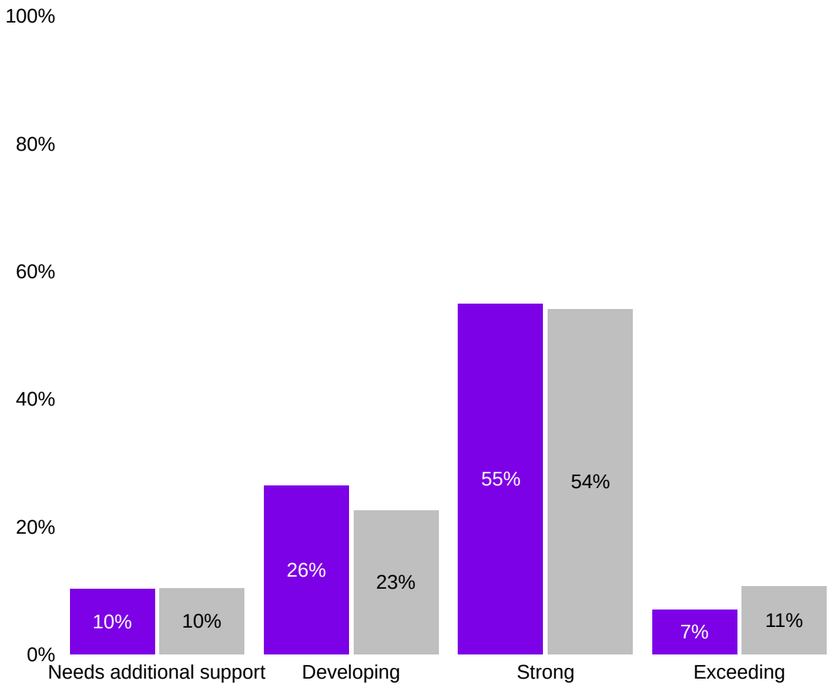
Year 7 NAPLAN Numeracy Results

Distribution of NAPLAN numeracy results across Australia in year 7[1]



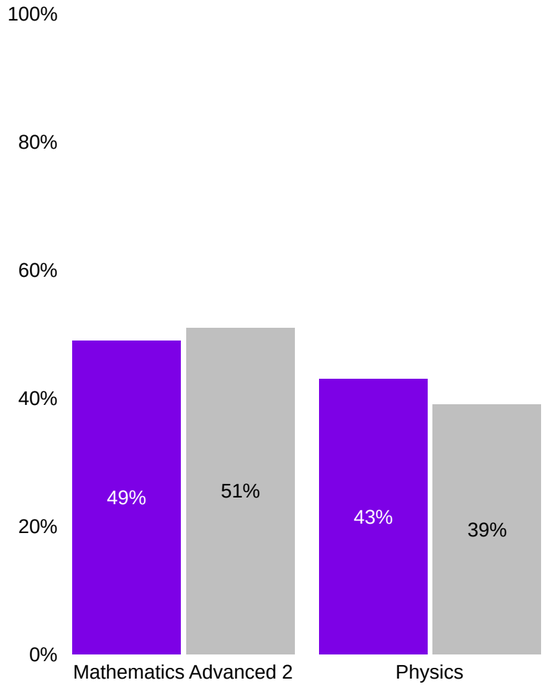
Year 9 NAPLAN Numeracy Results

Distribution of NAPLAN numeracy results across Australia in year 9



Year 12 Performance

Top performers in NSW HSC subjects, NSW used as proxy for overall national results.

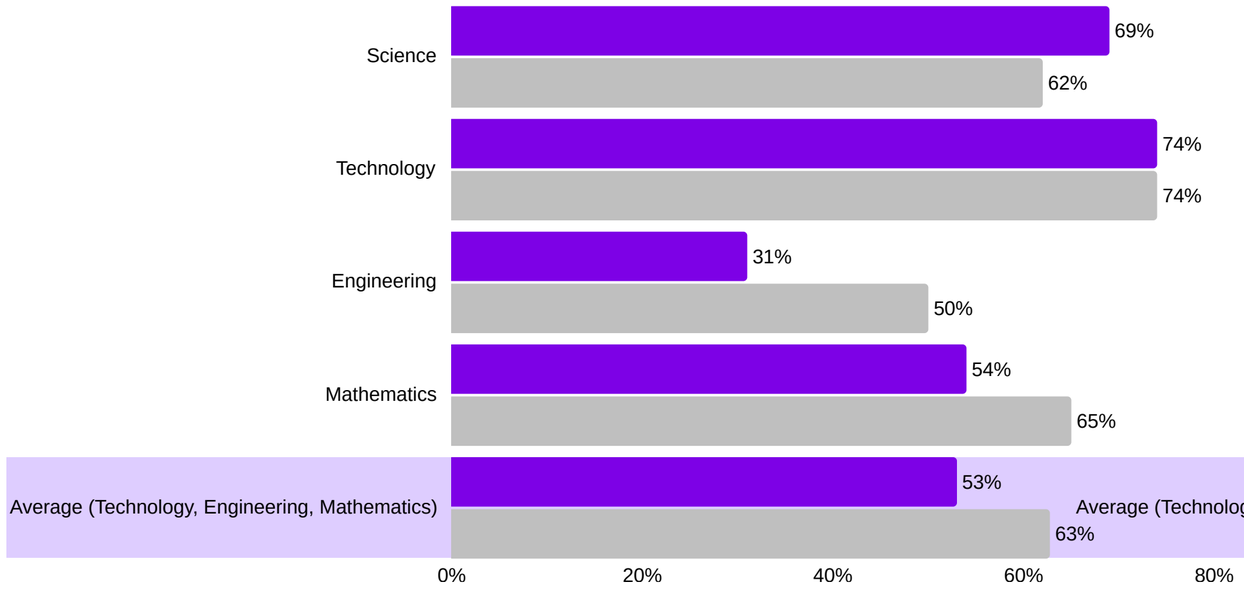


Source: Australian Curriculum, Assessment and Reporting Authority (2024).

Confidence | Girls start high school with lower confidence in STEM than boys, and the gap widens as they progress

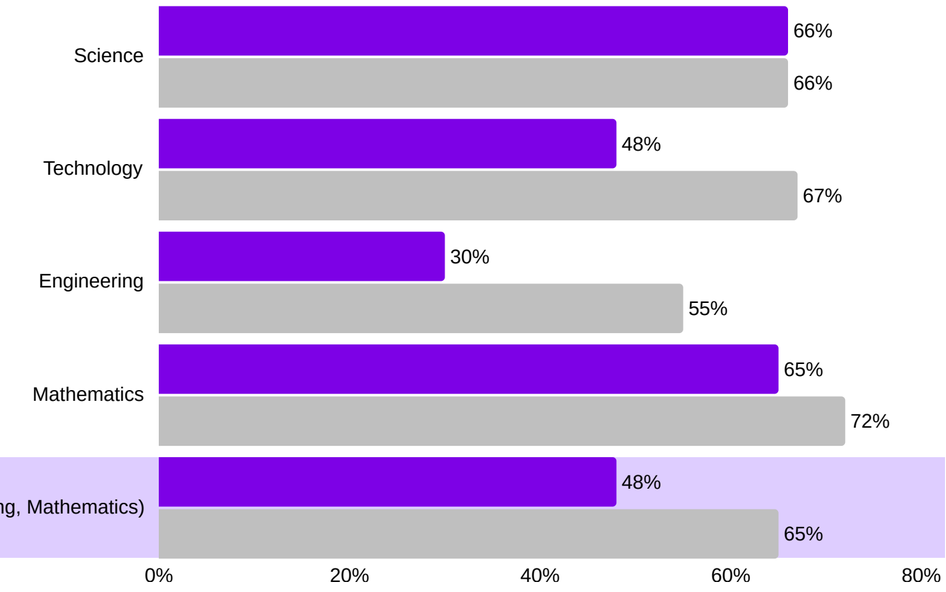
Girls aged 12-13 are 19% less confident in engineering subjects compared to boys

Percentage of students who were confident in their ability to study and get good results in STEM subjects, ages 12-13



Girls aged 14-17 are 25% less confident in engineering subjects compared to boys

Percentage of students who were confident in their ability to study and get good results in STEM subjects, ages 14-17



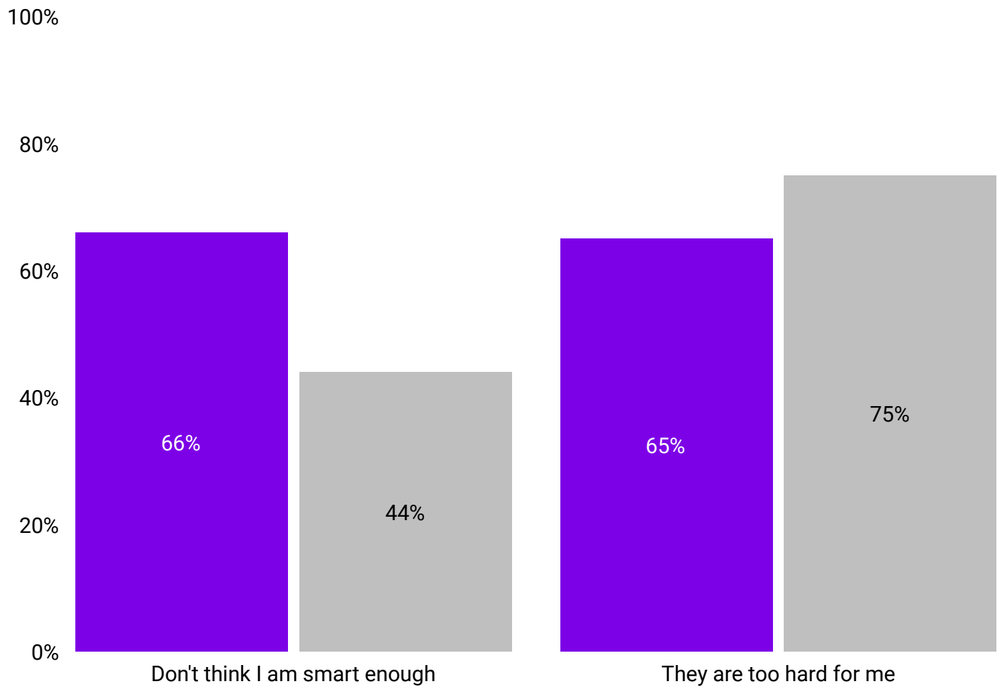
Girls Boys

Source: Department of Industry, Science and Resources (2025).

Confidence | Confidence gaps leave far more girls feeling 'not smart enough' for STEM

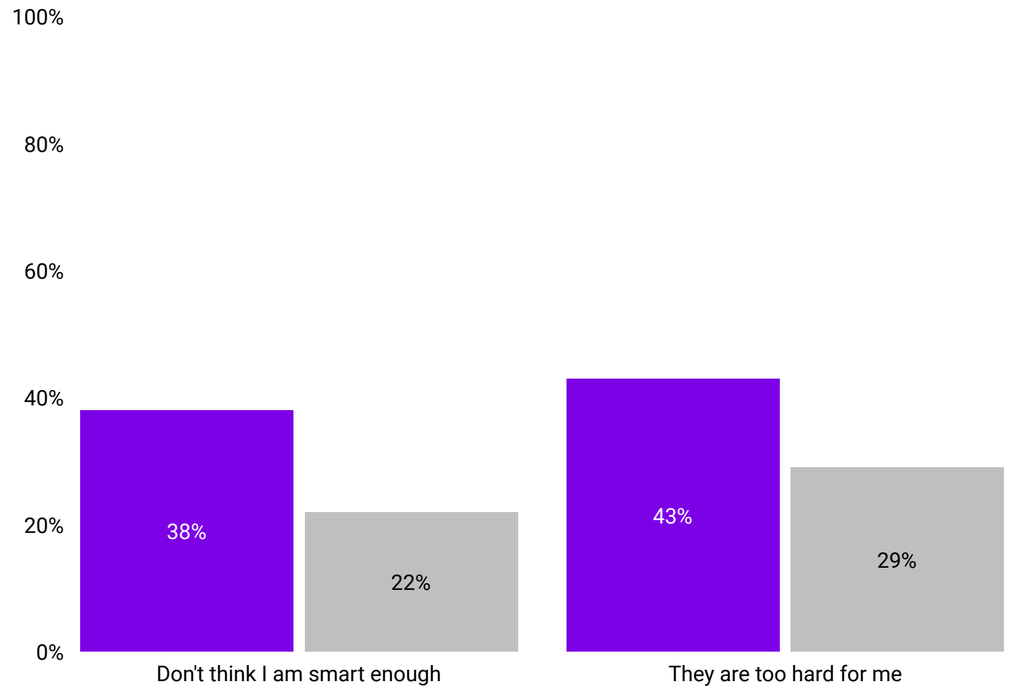
At ages 12-13, 66% of girls report feeling ‘not smart enough’ for STEM

Percentage of students who agreed with the following statements regarding barriers to studying STEM, ages 12 - 13



At ages 14–17, 38% of girls report feeling ‘not smart enough’ for STEM

Percentage of students who agreed with the following statements regarding barriers to studying STEM, ages 14 - 17

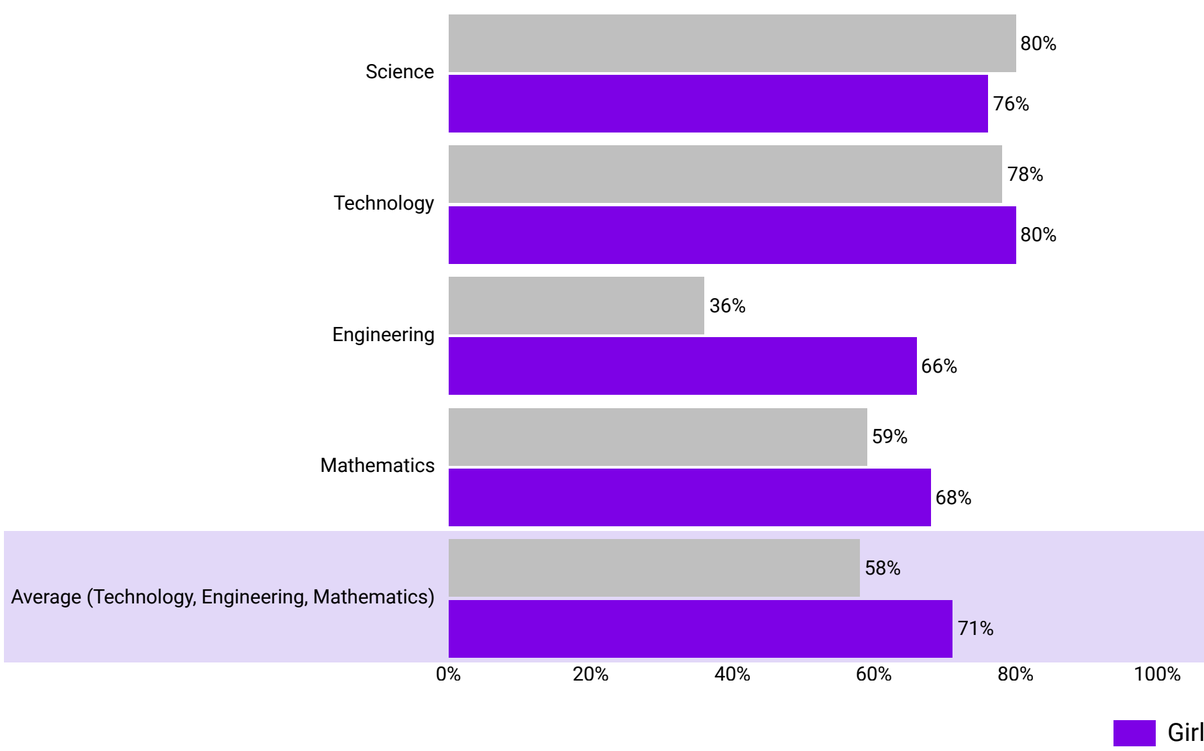


Source: Department of Industry, Science and Resources (2025).

Interest | Girls become less interested in STEM than boys as they progress through high school.

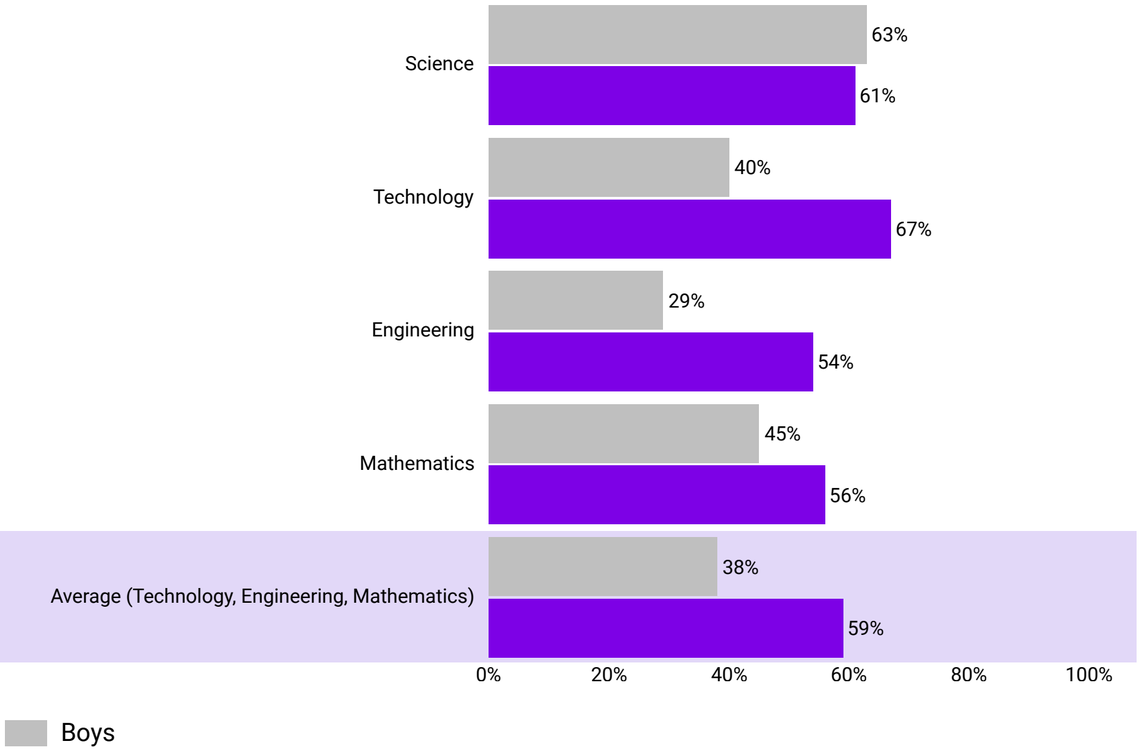
At ages 12-13, girls are 13% less interested in technical subjects relative to boys

Percentage of students interested in STEM subjects, ages 12 -13



By ages 14-17, girls are 21% less interested in technical subjects relative to boys

Percentage of students interested in STEM subjects, ages 12 -13

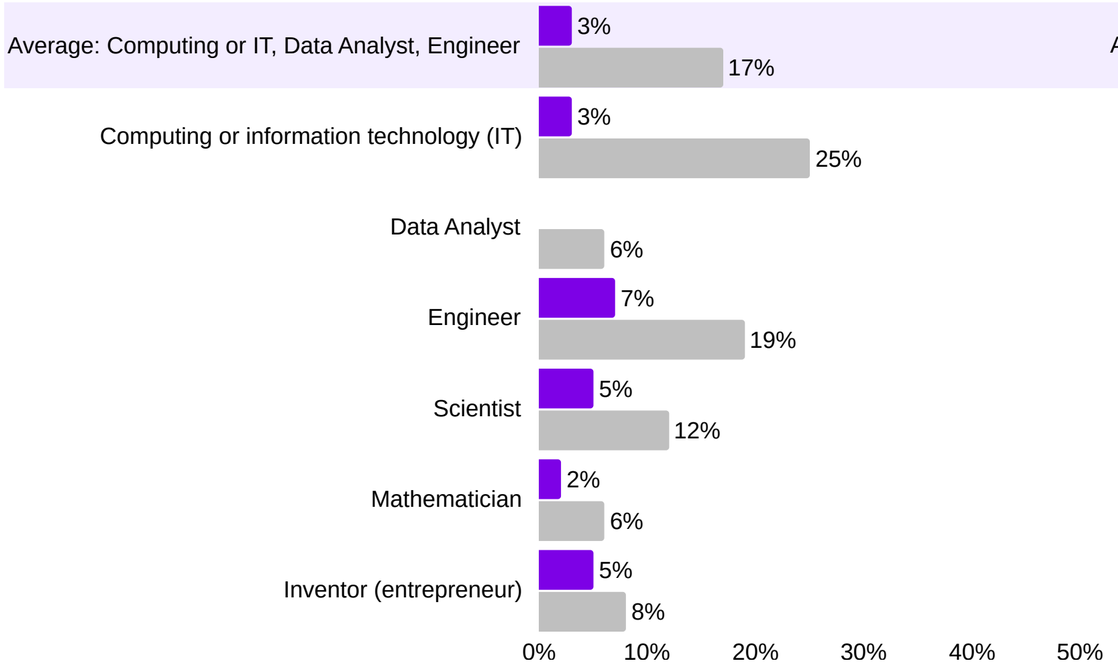


Source: Department of Industry, Science and Resources (2025).

Interest | There is a large gap in girls' and boys' aspirations for a highly technical career in early high school, and this gap narrows slightly with age

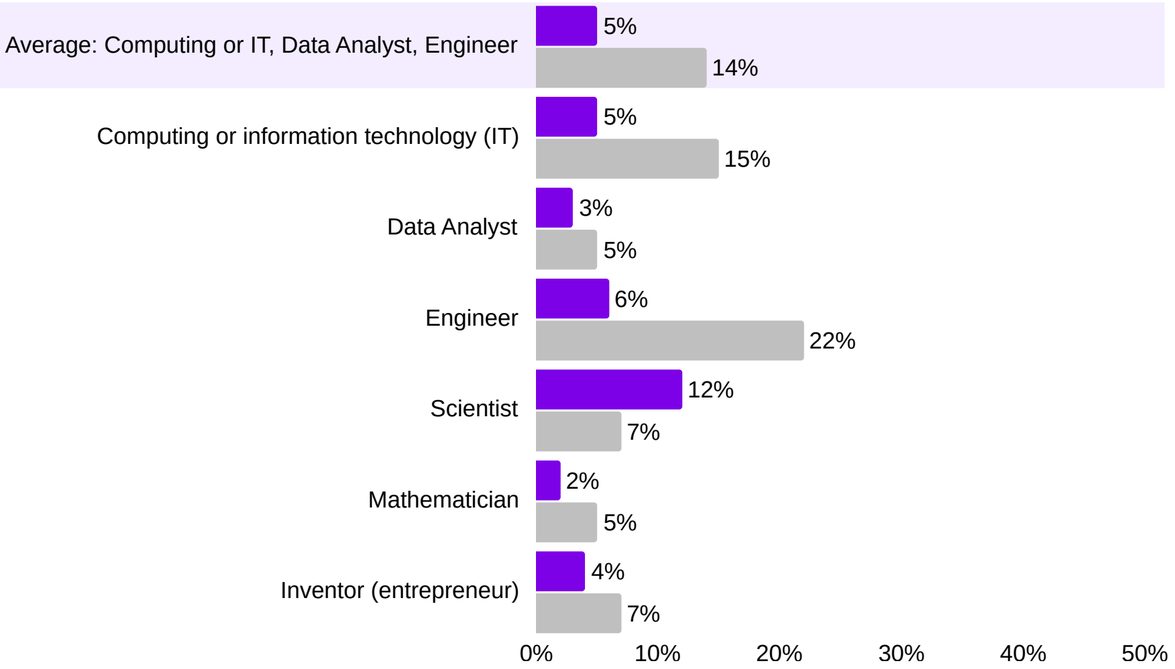
At ages 12-13 there is a gap in aspiration of 14% between boys and girls

Percentage of students who would choose to work in the following STEM careers, ages 12-13



At ages 14-17 years the gap persists, but reduces to 11%

Percentage of students who would choose to work in the following STEM careers, ages 14-17

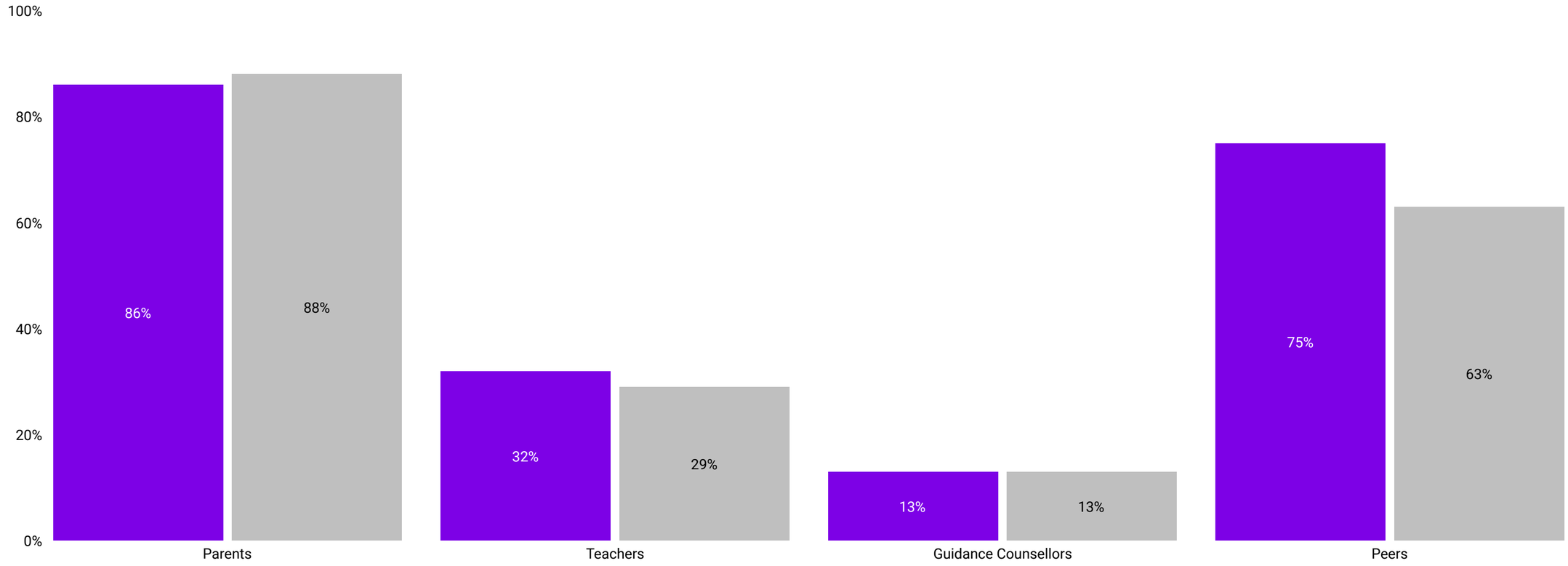


Source: Department of Industry, Science and Resources (2025).

Peer Perception | Girls are slightly more likely than boys to discuss subject and career choices with their teachers and peers and slightly less likely to discuss it with their parents

Girls age 14-15 are more likely to talk to peers about future compared to boys

Which stakeholders do 14–15-year-olds talk to about their plans for the future?



Source: Australian Institute for Family Studies (2016).

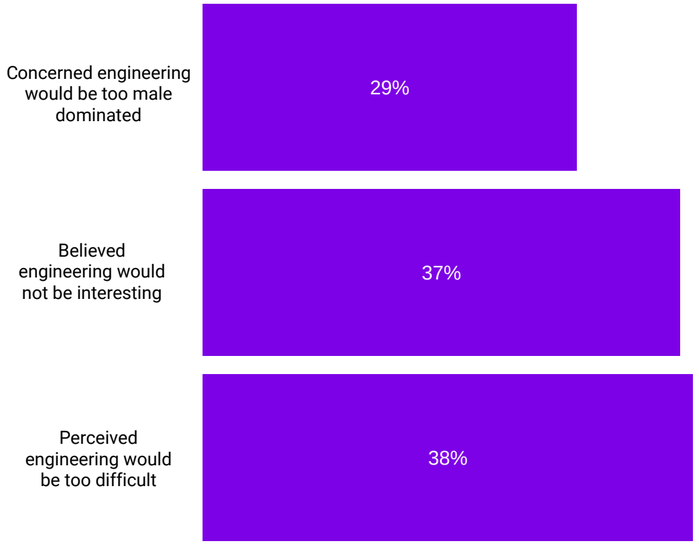
Drivers: Technical Degree Enrolment | In late high school, confidence, interest and peer expectations are key drivers for a drop-off in women's participation in technical degrees

I Confidence and Perceptions

Women are concerned that technical degrees are difficult, uninteresting and male dominated

Drivers behind women not considering Technical Degrees

Reasons for not considering engineering for women among those who pursued non-engineering degrees (%)

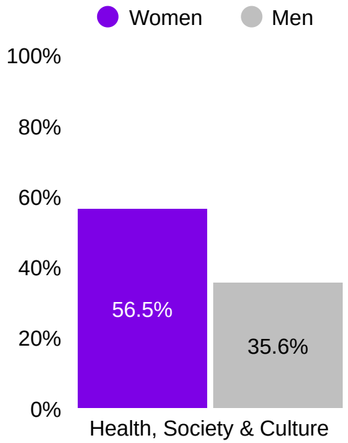


II Non-Technical Preferences

Women select non-technical degrees and have low awareness of technical degrees

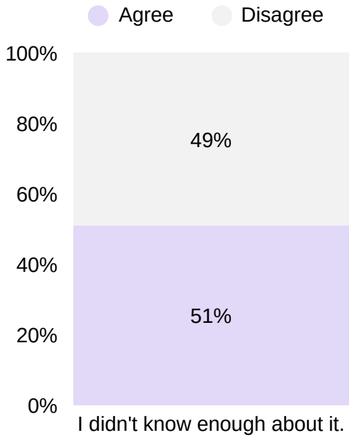
University first preferences

Allocation of first preferences for undergraduate university degrees (%)



Awareness of degrees

Reasons for women never considering studying engineering (%)

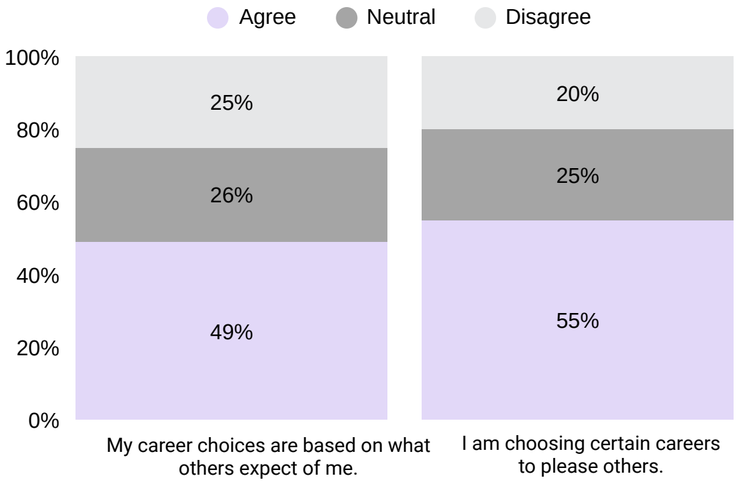


III Peer Expectations

Women more inclined to choose careers based on peer expectations

Extent to which others influence women's career choices

Young women's perceptions of the extent to which others influence their career choices (%)

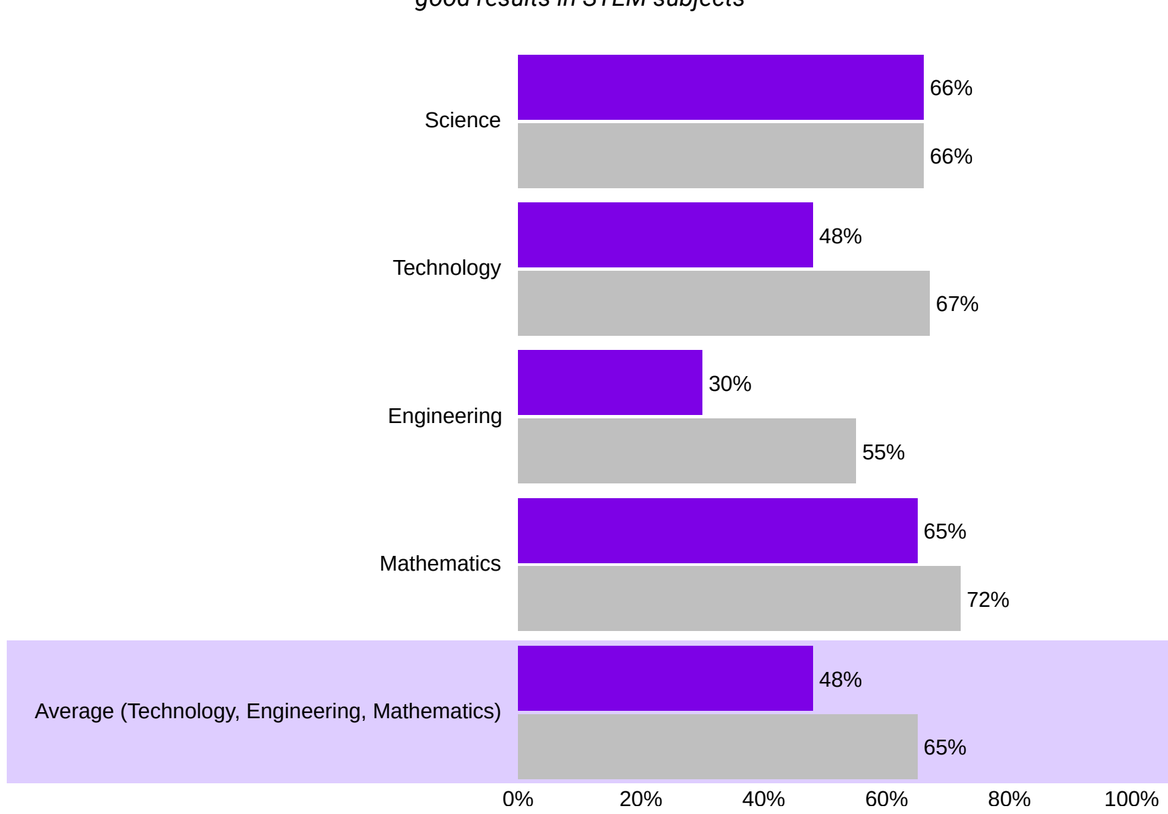


Sources: Engineers Australia (2022), Gleeson, *et al*. (2022), UAC (2022).

Confidence and Perceptions | Significantly lower confidence is a key driver for not studying technical degrees, with women ~50% less confident than men in mid to late high school

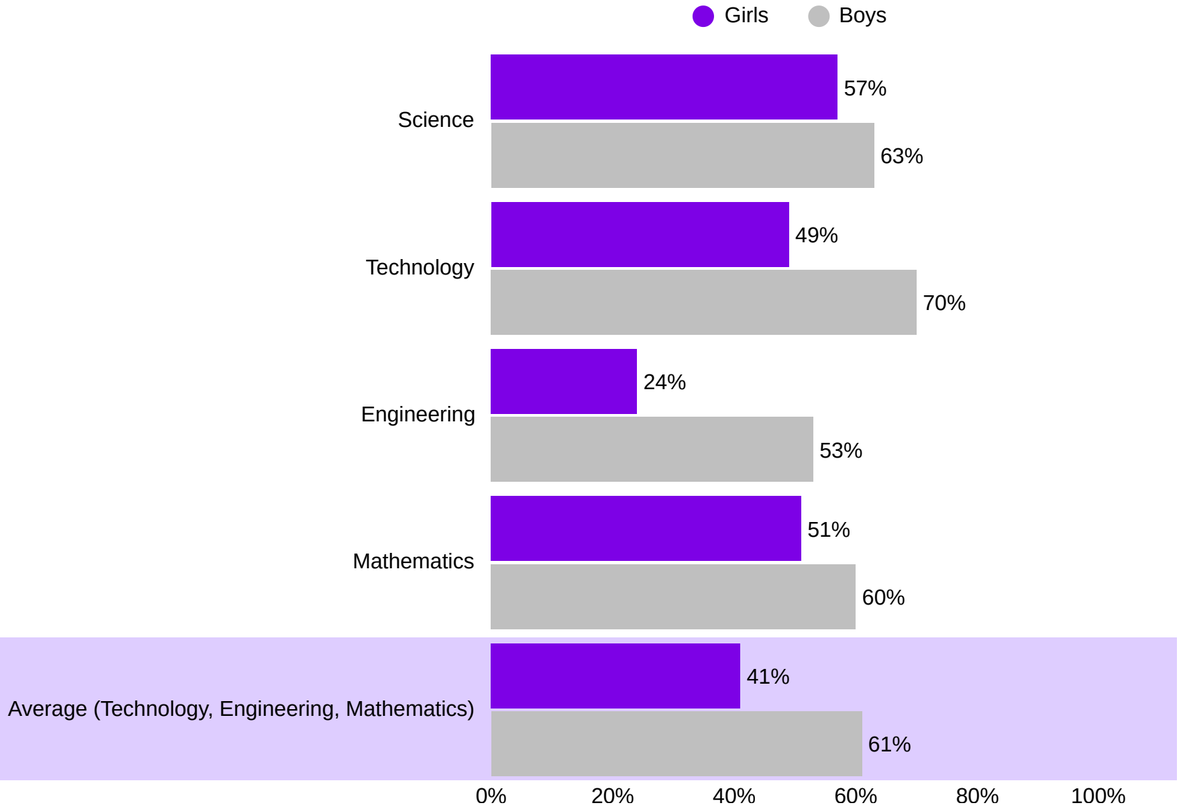
Only ~48% of 14-17 year-old women are confident in their ability to excel in technology, engineering and mathematics subjects

Percentage of students who were confident in their ability to study and get good results in STEM subjects



Only ~41% of 18-21 year-old women are confident in their ability to excel in technology, engineering and mathematics subjects

Percentage of students who were confident in their ability to study and get good results in STEM subjects



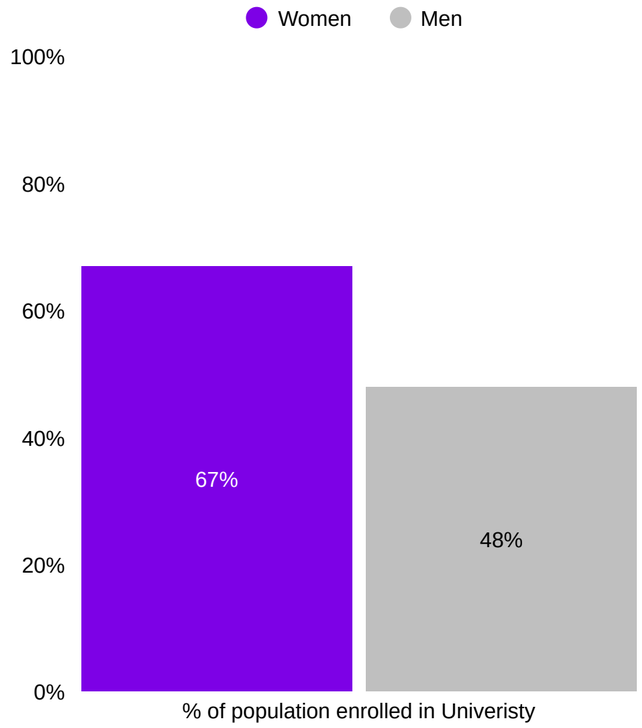
Sources: Department of Industry, Science and Resources (2025).

Career Preferences | Women choose degrees in Health, Society & Culture over Highly Technical degrees

Women have higher university enrolment

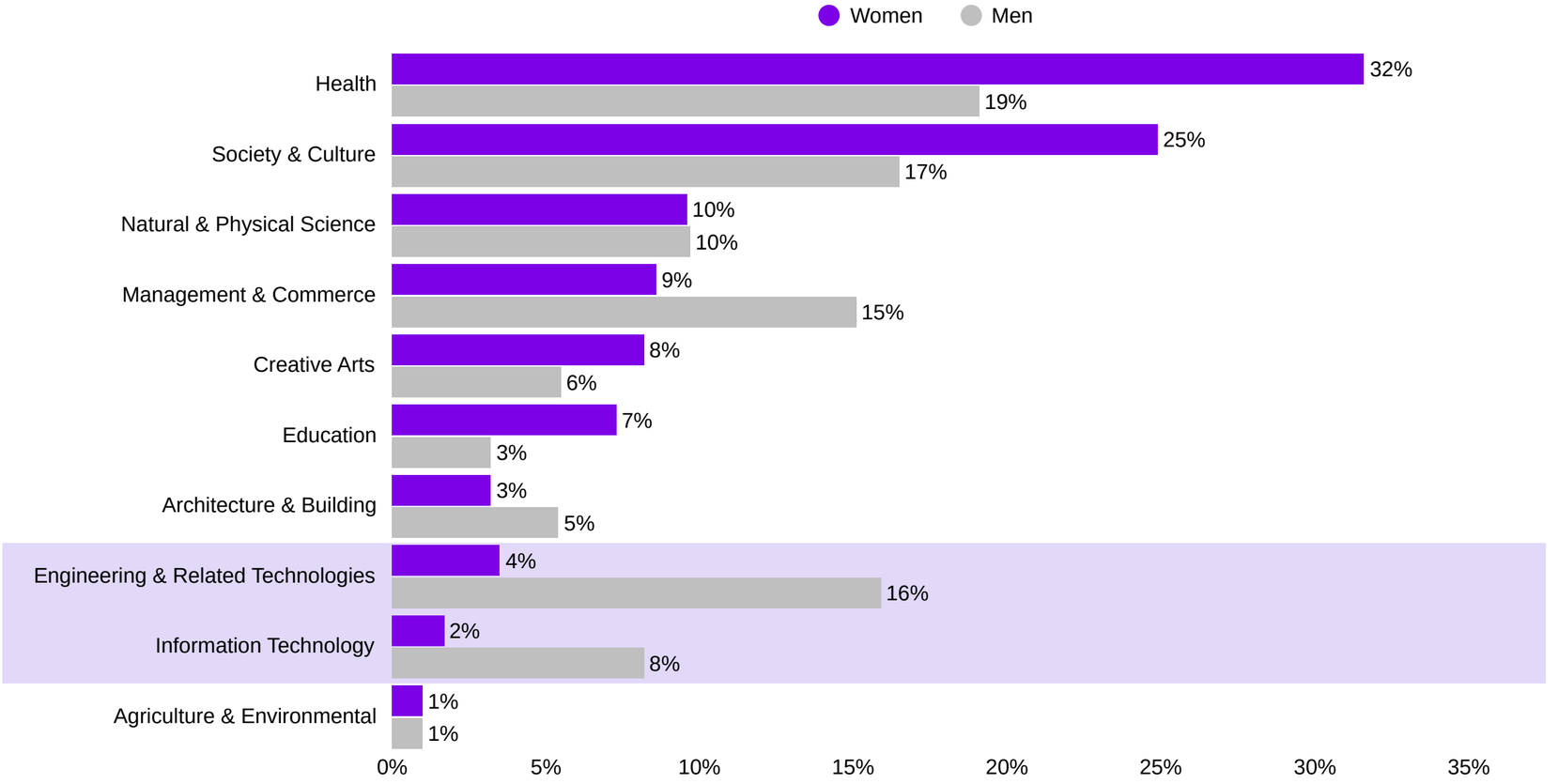
% of students who go to University within a 3-year window from Y12

40% greater share of year 12 women enrol in university vs. men



However, women are putting that academic ambition towards non-technical degrees

Allocation of first preferences for undergraduate university degrees 2022-2023, Assumption: NSW data used as proxy for all Australian students

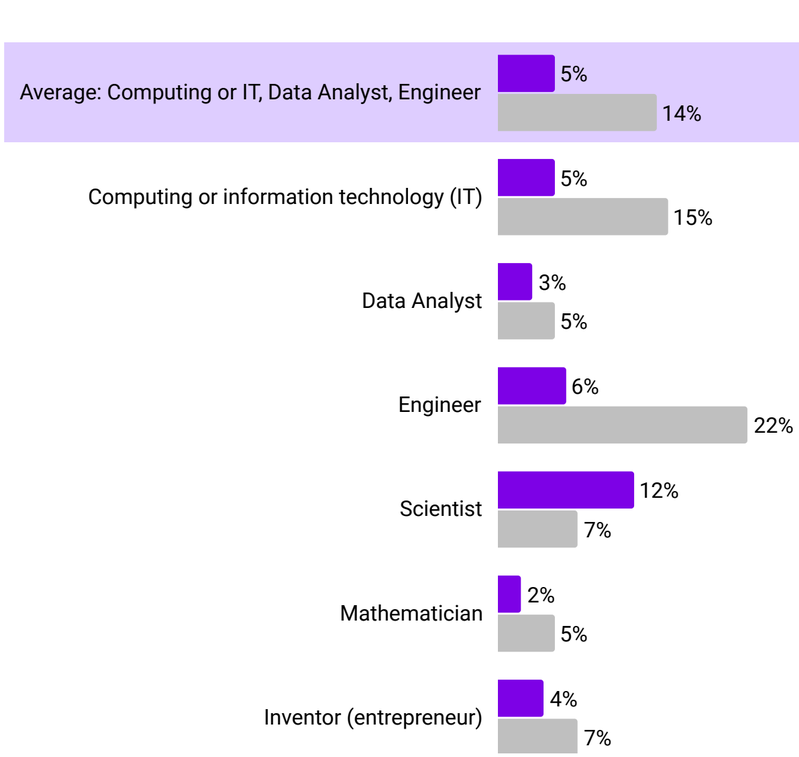


Sources: Australian Bureau of Statistics (2024a), UAC (2022).

Career Preferences | Women in high school and university remain less interested in technical careers than men

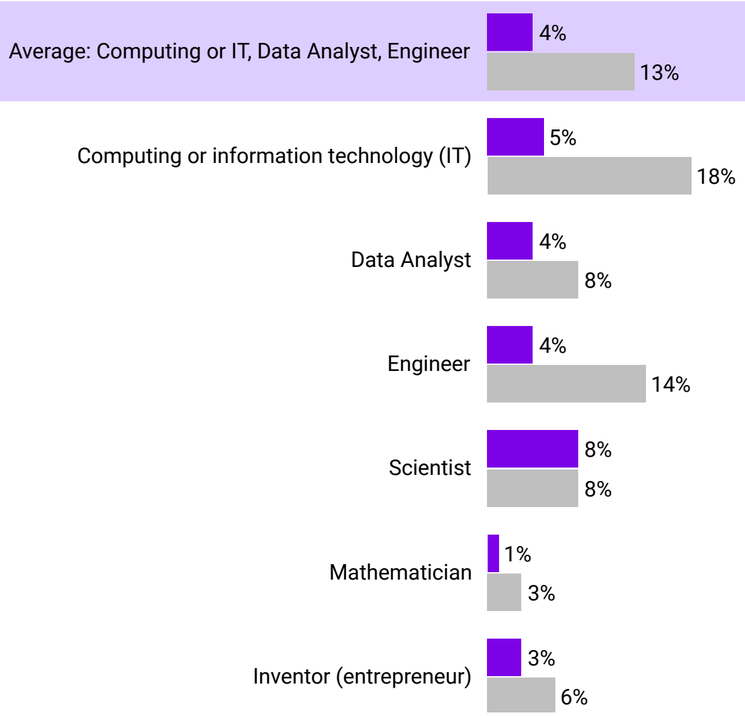
There is a gender gap in technical career aspirations of 9% in 14-17 year olds

Percentage of students who would choose to work in the following STEM careers, ages 14-17



This gap in aspiration remains unchanged at ages 18-21 years

Percentage of students who would choose to work in the following STEM careers, ages 18-21

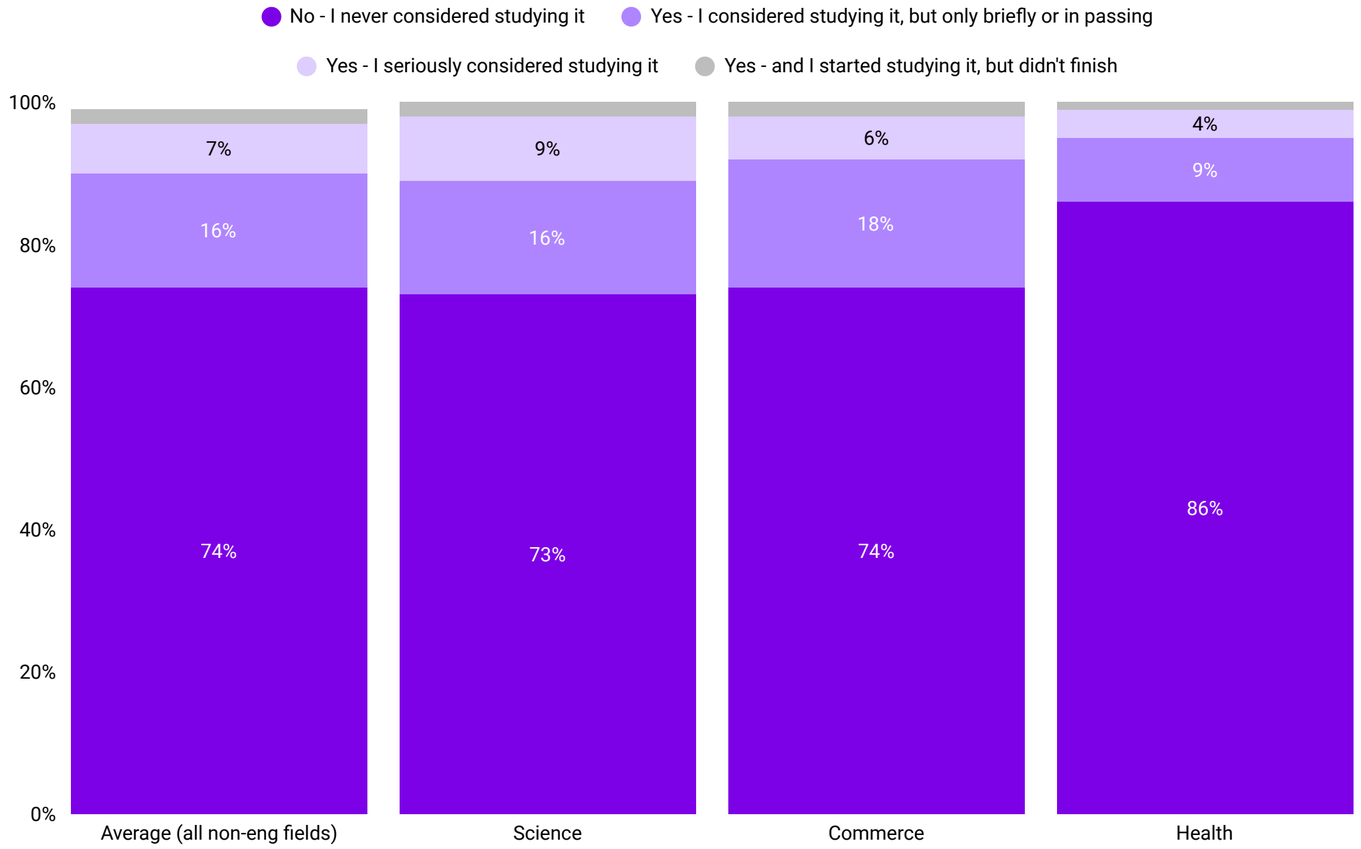


Source: Department of Industry, Science and Resources (2025).

Career Preferences | Many women do not consider technical degrees, and are often unaware of degrees and potential career pathways

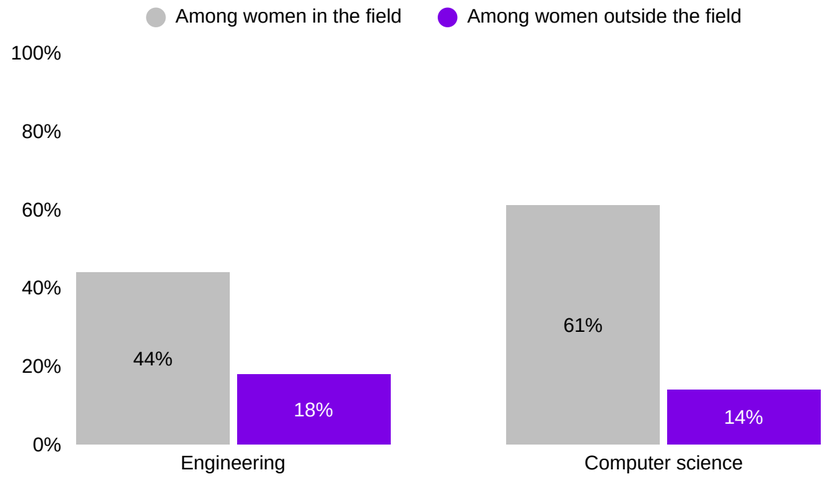
74% of non-engineering women said they never considered engineering

Considerations of studying engineering (%) among women who ultimately pursued degrees in non-engineering fields



Less than 20% of women outside of some highly technical fields are aware of technical degrees

Familiarity with fields of study, at time of applying to university (%) among women outside vs in the field



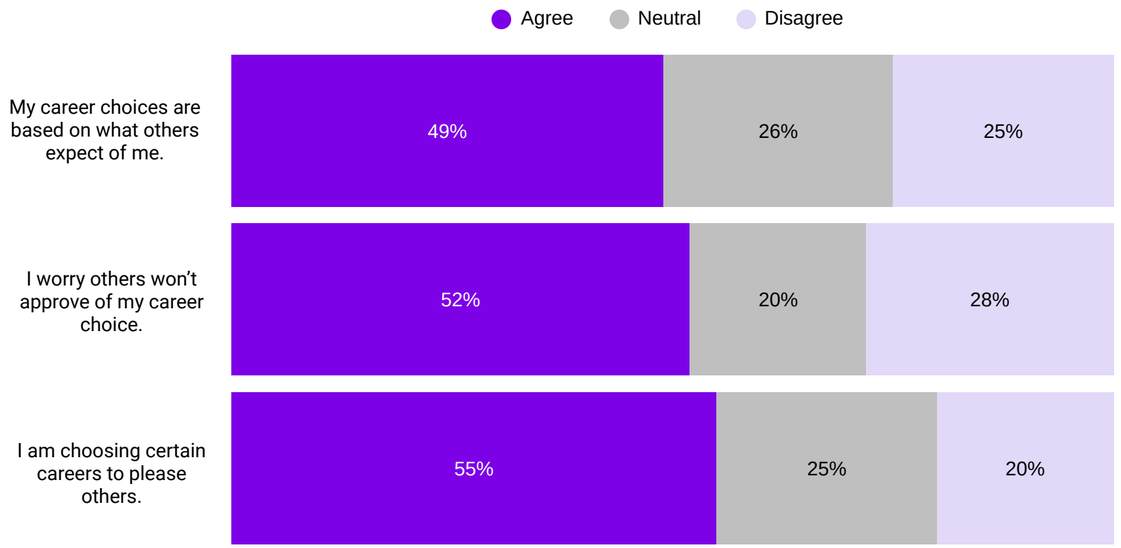
> *In hindsight… engineering actually would have been the perfect career for me! But I just didn't realise what an engineer did. It's hard to picture yourself in a profession that barely exists in your mind. I have no idea what an engineer's day-to-day would look like.*
>
> **Engineers Australia**

Source: Engineers Australia (2022).

Peer Expectations | A majority of women choose careers based on others' expectations

Career choices are heavily influenced by a desire to please others

Young women's perceptions of the extent to which others influence their career choices



Almost half (49%) of women in the study **based their career choices on what others expected** of them

More than half (52%) of women in the study said they **were worried that others won't approve** of their choices

More than half (55%) of women in the study reported that they **chose certain careers to please others**

> *"Girls' interests and self-efficacy in technology are affected by their exposure to peers with the same interests. Having friends who are passionate about STEM encourages girls' preferences in the field… Teachers and parents need to be aware of their significance in shaping students' attitudes and decisions for pursuing courses and future careers, particularly in fields where female role models are often lacking."*
>
> **Santa Maria College**

> *"The issue begins early, as societal and cultural biases put individuals, especially young girls, into predefined boxes. It really is those deep-seated bias that are such a huge challenge and why it's hard to get traction."*
>
> **Professor Mary-Anne Williams**

Sources: Australian Council for Computers in Education (2016), Gleeson, et al. (2022), Santa Maria College (2022).

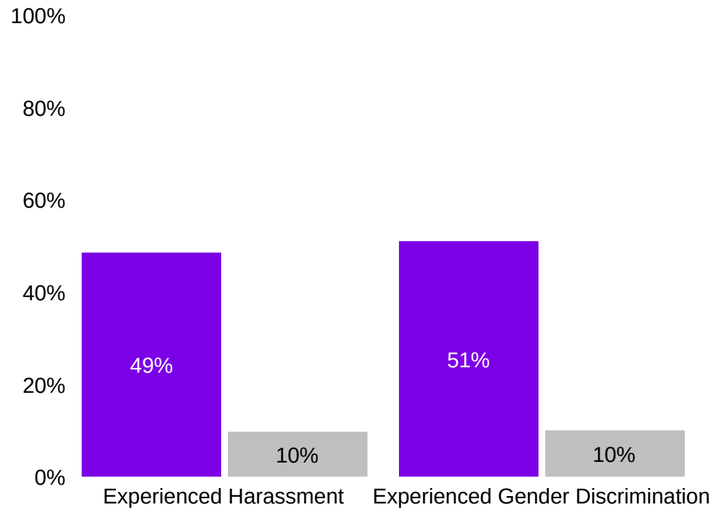
Drivers: Long-Term Career | Workforce Culture, Flexibility and Leadership Representation and Remuneration are key drivers behind the drop-off of women in highly technical occupations

I Workforce Culture

Women are 5x more likely to report experiencing discrimination and harassment

Discrimination in the STEM workforce

Share of respondents who have experienced harassment and discrimination in the workforce (%)

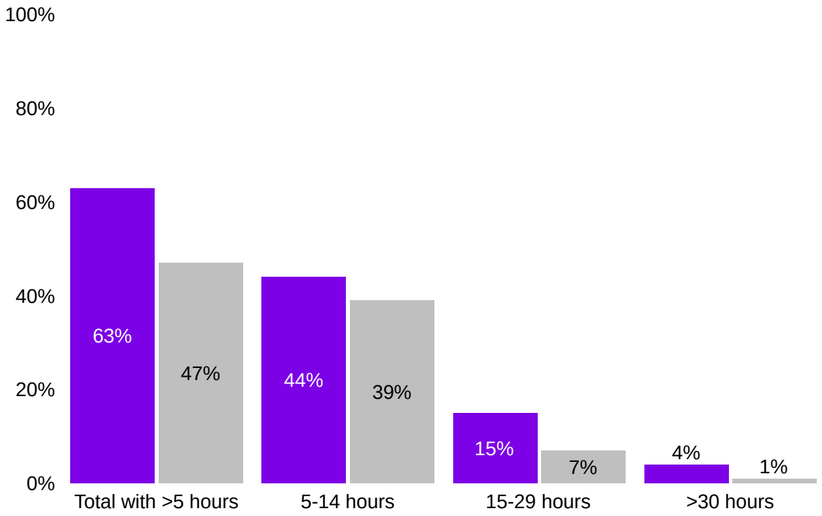


II Workplace Flexibility

Women require greater flexibility due to higher caring / family responsibilities

Domestic work performed

Percentage of university STEM qualified full-time workers with >5 hours of domestic work performed each week (%)

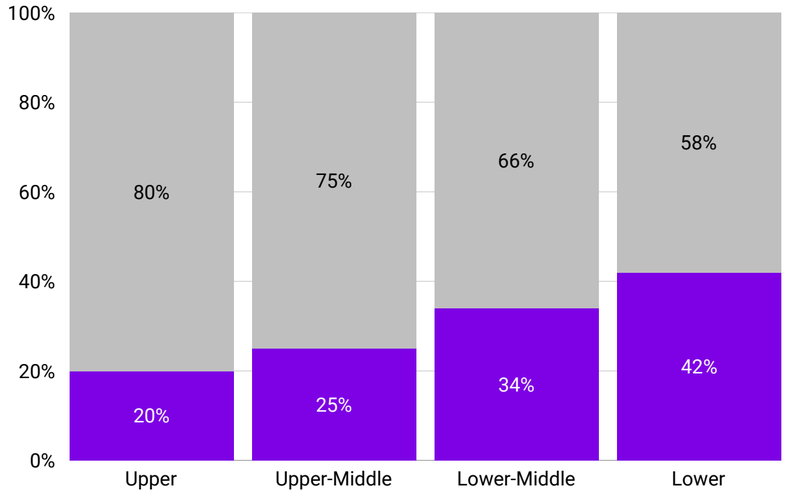


III Leadership Representation & Remuneration

Women are overrepresented in lower paying roles and have fewer leadership role models

Gender distribution by compensation quartile

Share of employees by total compensation quartile , technical industries (%) - avg of scores for Computer System and Design and Technical Services industry codes.

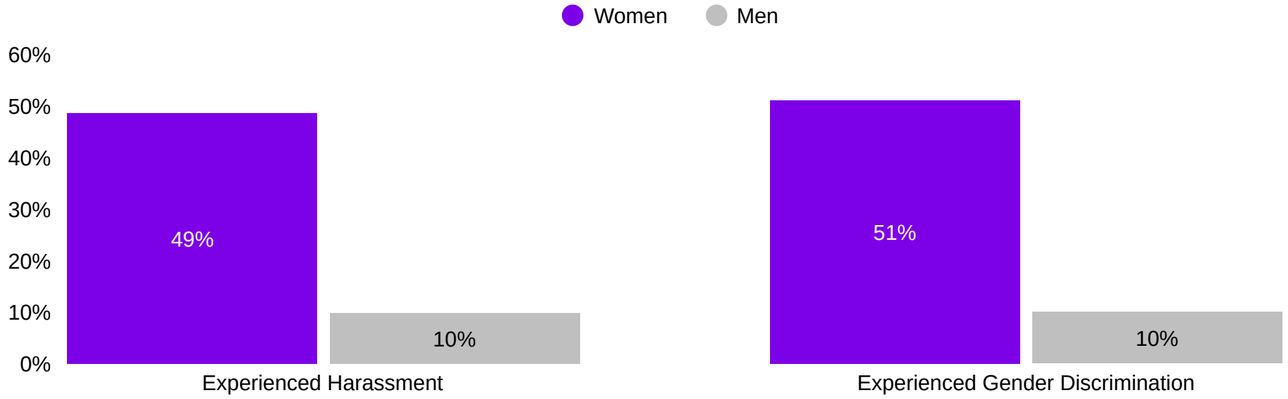


Sources: Australian Workplace Gender Equality Agency (2023), Engineers Australia (2022), Gleeson, *et al* (2022), UAC (2022).

Workplace culture | Women report experiencing discrimination and harassment 5x more than men

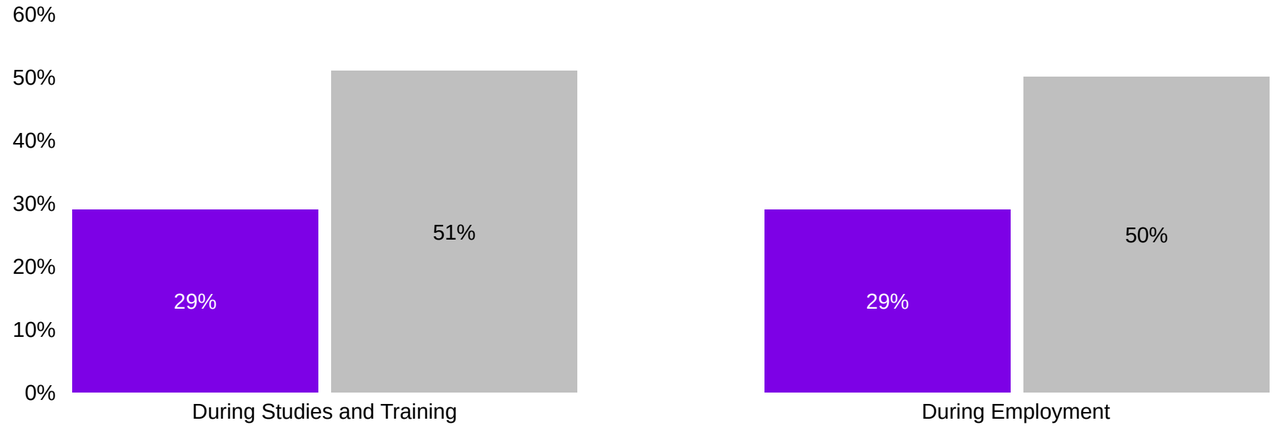
Women in STEM experience discrimination and harassment

Percentage of surveyed respondents, women in STEM workforce



Women in STEM lack senior role models and co-workers

Percentage of cyber security professionals reporting having a mentor of the same gender[3]



> *Research shows that workplaces that have an equal, or close to equal representation of men and women, have lower rates of sexual harassment . It is yet another example of why gender equity is important to Australian businesses,– achieving gender balance at all levels in the work force has far-reaching benefits for organisations.*
>
> **Workplace Australia**

> *I think there are more Andrews than women ASX listed CEOs. (As such) we need to talk to the boys about girls in STEM; when men sponsor and mentor women effectively it can help really drive outcomes.*
>
> **Dr Catherine Ball**

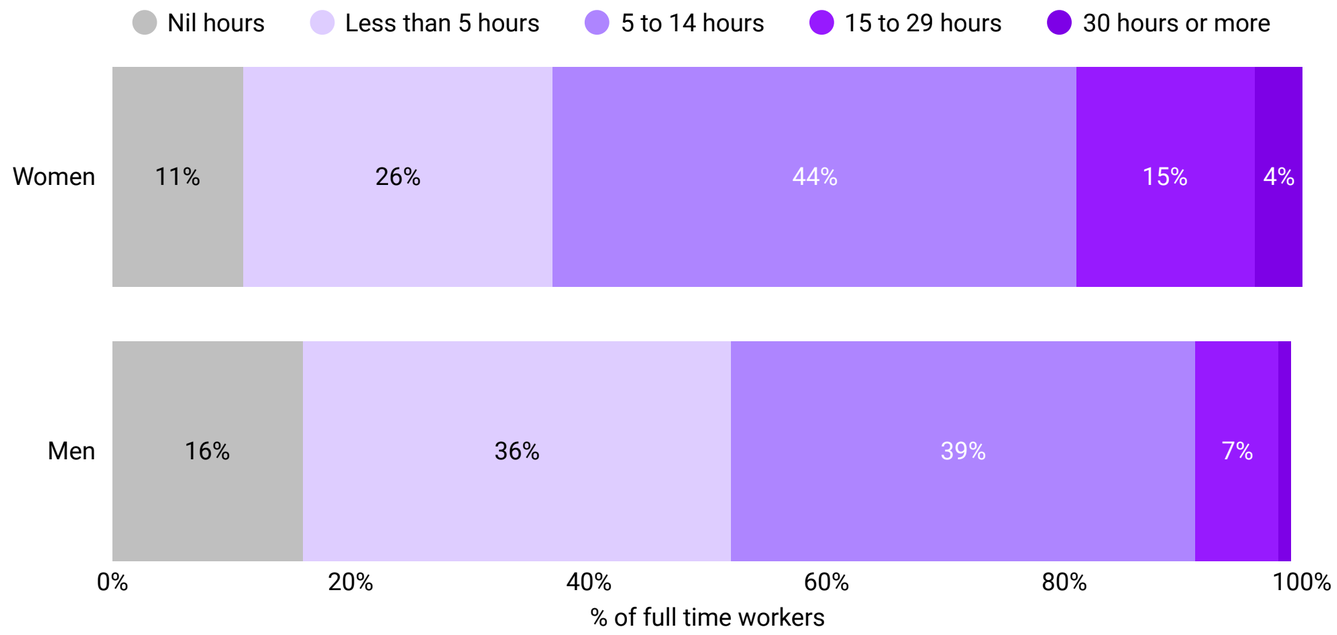
> *The overall culture created by this over-abundance of men was a concern for some women, with a need to be "one of the men" being expressed by several participants.*
>
> **RMIT - Investigating factors influencing the attrition of women in the cyber security workforce**

Sources: Science and Technology Australia (2019, 2024), RMIT (2024).

Workplace flexibility | Women have more carer responsibilities then men

Women are performing more domestic work than men

Number of hours of domestic work performed each week by university STEM qualified full-time workers



Lack of flexibility remains a challenge in highly technical occupations

> *In my organisation, there is no such thing as a part-time manager. I have been a software engineer with my current employer for 11 years and they won't even consider promoting me to senior software engineer.*
>
> **Professionals Australia: Women in STEM**

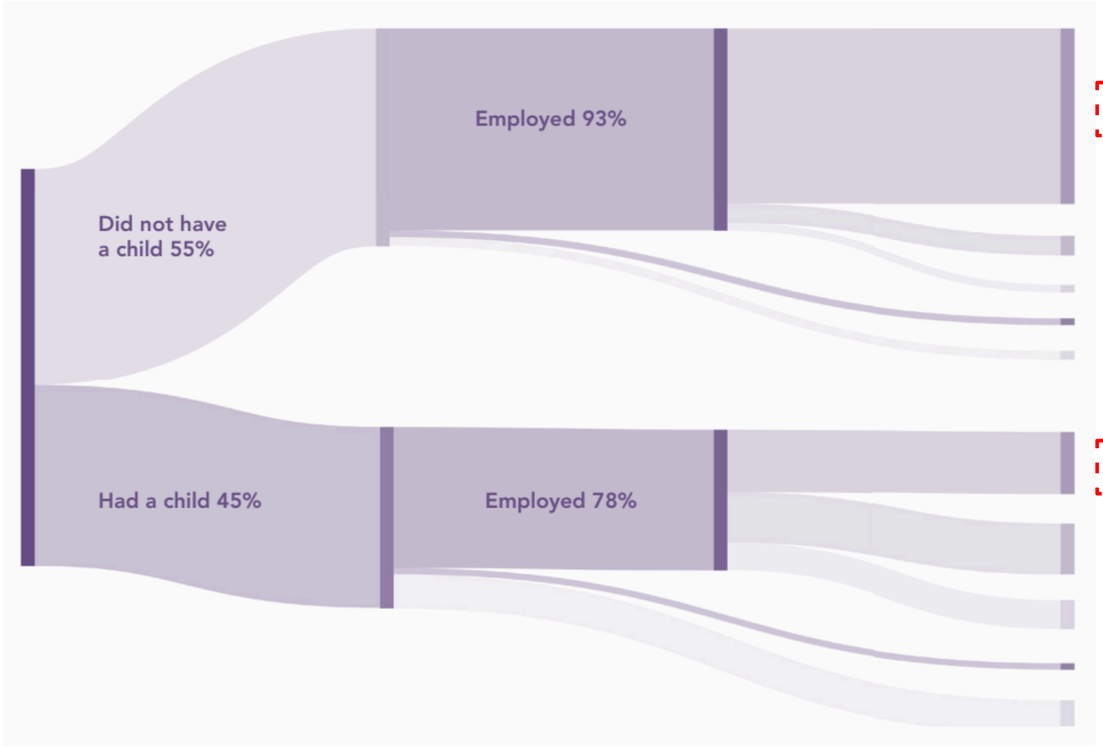
> *Job design and work commitments continue to make it difficult for women with domestic or child rearing responsibilities to achieve work-life balance, which is both a barrier for entry and a reason women may leave the sector.*
>
> **RMIT Director of Centre for Cyber Security Research and Innovation**

> *We notice a significant drop-off in women in their 30s and 40s balancing work and life…. however, we have had some success with internal programs including gender-neutral parental leave, paid superannuation on unpaid leave, and highly flexible work arrangements.*
>
> **Group Executive People, Culture and Capability – Leading Australian Telco**

Sources: Australian Office of the Chief Scientist (2020), RMIT (2024), Professionals Australia (2021).

Workplace flexibility | Workplace flexibility is paramount to retaining to STEM qualified women in the pipeline

Employment pathways for women with university STEM qualifications aged 15 to 35, by whether or not they had a child between 2011 and 2016



%	Type
80%	Full time
9%	Part time
3%	Away from work
3%	Unemployed
4%	Not in labour force
34%	Full time
28%	Part time
16%	Away from work
3%	Unemployed
19%	Not in labour force

> *Limited organisational support for returning mothers and a culture that penalises career breaks for parental leave were also noted. This lack of flexibility drives many women out of the sector.*
>
> **RMIT - Investigating factors influencing the attrition of women in the cyber security workforce**

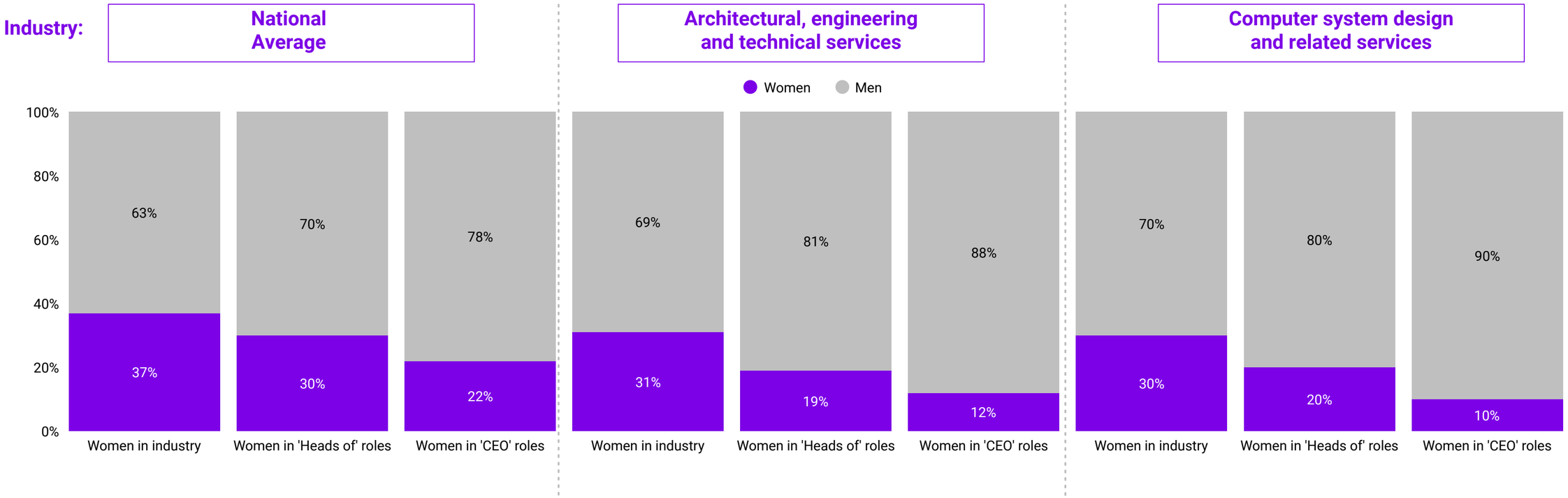
> *I have worked in organisations or divisions that are 95% men. Men were given more opportunities than women and rewarded for behaviours (such as) long hours that women with caring responsibilities cannot possibly replicate.*
>
> **Professionals Australia: Women in STEM**

Sources: Australian Office of the Chief Scientist (2020), RMIT (2024), Professionals Australia (2021).

Leadership Representation and Remuneration | Women's representation at senior levels in highly technical industries is half the national average

Gender imbalance worsens in technical industries with significant underrepresentation of women in 'Heads of' and CEO roles

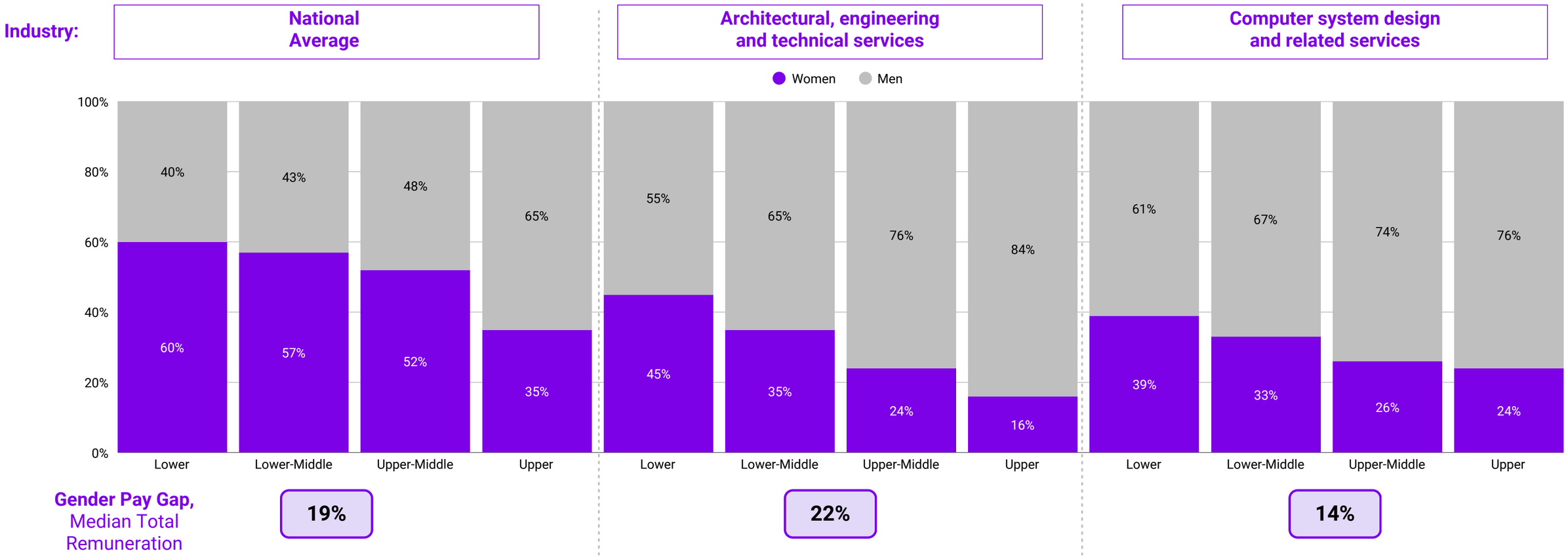
Gender distribution of positions across industries (%)



Source: Australian Workplace Gender Equality Agency (2023).

Leadership Representation and Remuneration | Women's representation in top-paying roles in highly technical industries is about 43% below the national average

Share of employees by total compensation quartile , technical industries (%)

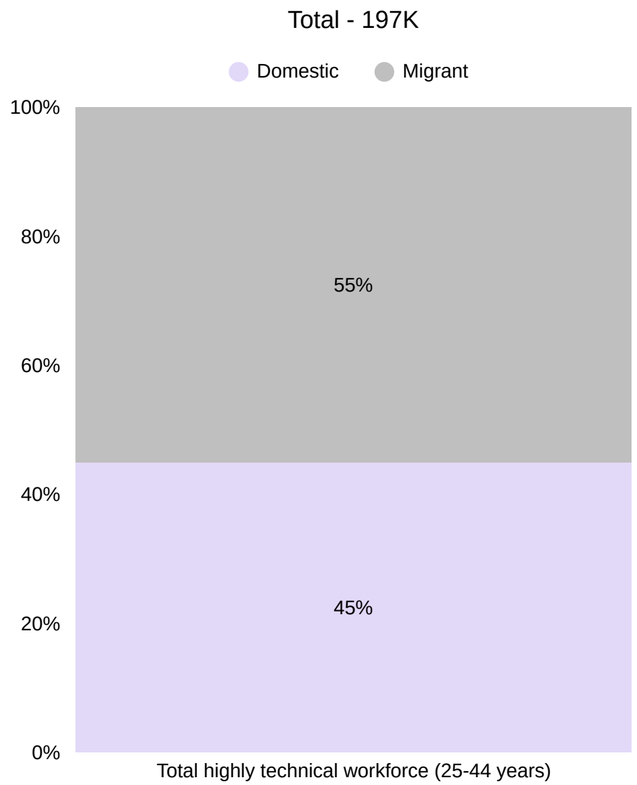


Source: Australian Workplace Gender Equality Agency (2023).

International Talent | In highly technical occupations, women account for 24% of international workers and a starkly lower 14% of the domestic cohort

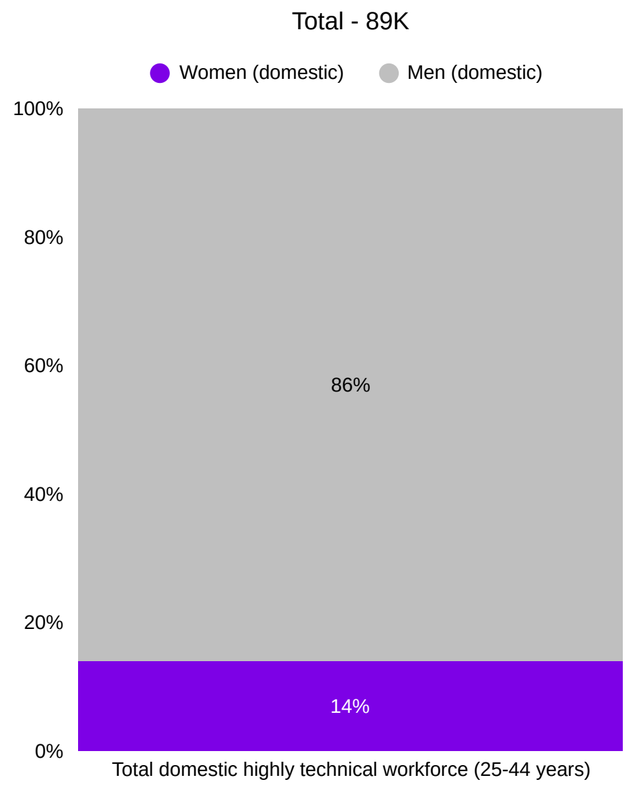
Skilled international workers comprise over half of the Australian highly technical workforce

Employment in highly technical occupations, domestic & international[1], 25 – 44 years old



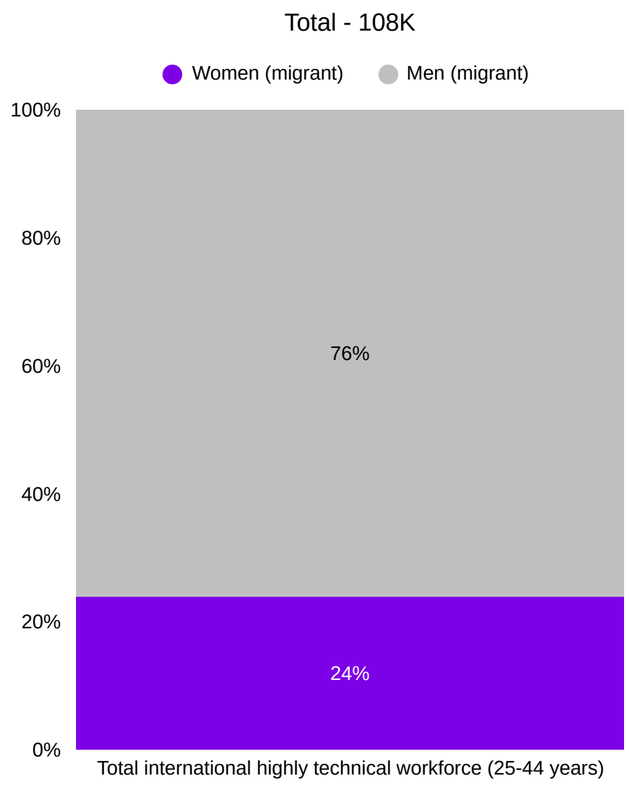
14% of the domestic highly technical workforce are women

Domestic employment in highly technical occupations, split by gender, 25 – 44 years old



24% of the international highly technical workforce are women

International employment in highly technical occupations, split by gender, 25 – 44 years old



1. Domestic population - anyone in the workforce who came to Australia before they were 18 years old. International population - anyone who came to Australia after they were 18 years old (and did not go through Australian school system).

Source: Australian Bureau of Statistics (2021).

04 Initiatives

What policies and programs are tackling the problem?

Tech Council of Australia

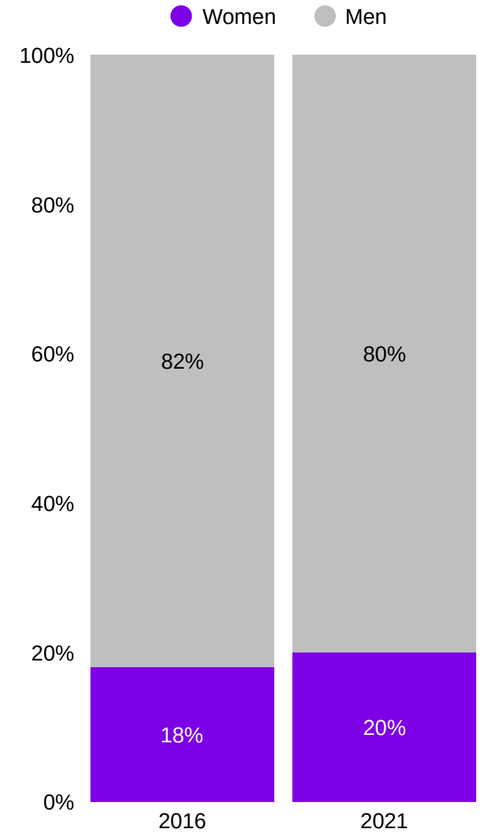
Existing Programs | With just 2% change in five years, initiatives will need greater scale, targeted at key intervention points, and longer timelines to achieve meaningful impact

Opportunity to drive coordinated, scaled approach at key intervention points

Life-stage	Illustrative overview of existing programs
Technical Subject Choices	• **Workshops and Bootcamps** (e.g., Robogals) • **Guest speakers & exposure events** (e.g., SASI STEM Club SciWorld) • **Mentorship Programs** (e.g., RMIT WomenG, Khuda Family Endowment) • **School career planning process** (n/a – school by school approach)
Technical Degree Enrolment	• **Career fairs & events** (e.g., UNSW Women in Engineering Pathways) • **Mentorship Programs** (e.g., Superstars of STEM) • **Scholarships** (e.g., Monash Women in IT Scholarships) • **Peer engagement events** (e.g., CSIRO STEM Professionals in Schools) • **School career planning process** (n/a – school by school approach)
Long-Term Career	• **Long-Term flexible work policy & parental leave** (e.g., T-EDI Standards) • **Career re-entry / transition support** (e.g., EY Women in Technology) • **Mentoring & sponsorship** (e.g., CyberS050) • **Pay Disparity Tools** (e.g., Workplace Gender Equality Agency)

2% increase in 5 years

Share of 'technical occupations'[1] in 2016 and 2021 by gender



1. These technical occupations differ to the highly technical occupations used elsewhere in this presentation as 2016 census data did not have the 6-digit level OCCP Occupation level readily available to align with the highly technical roles defined in the appendix
2. Combined total is as per selected 6-digit OCCP occupation codes included in definition of highly technical occupations (list in appendix) for ages 25 – 44 years. The observed growth rate in available 4-digit OCCP Occupation level codes between 2016-2021 (2pp) assumed for all highly technical roles

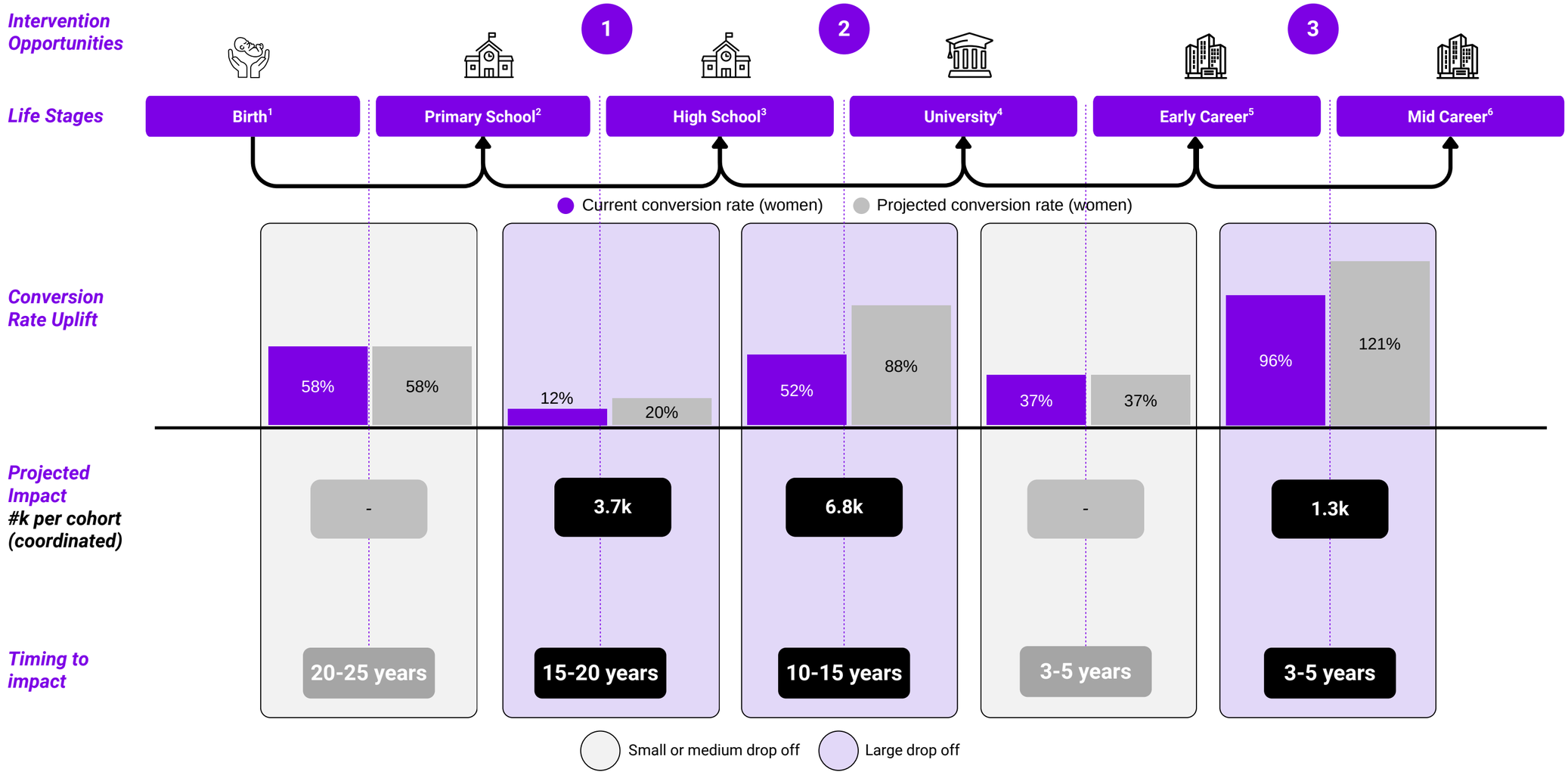
Sources: Australian Bureau of Statistics (2016, 2021).

05 Interventions

What is the potential impact?

Tech Council of Australia

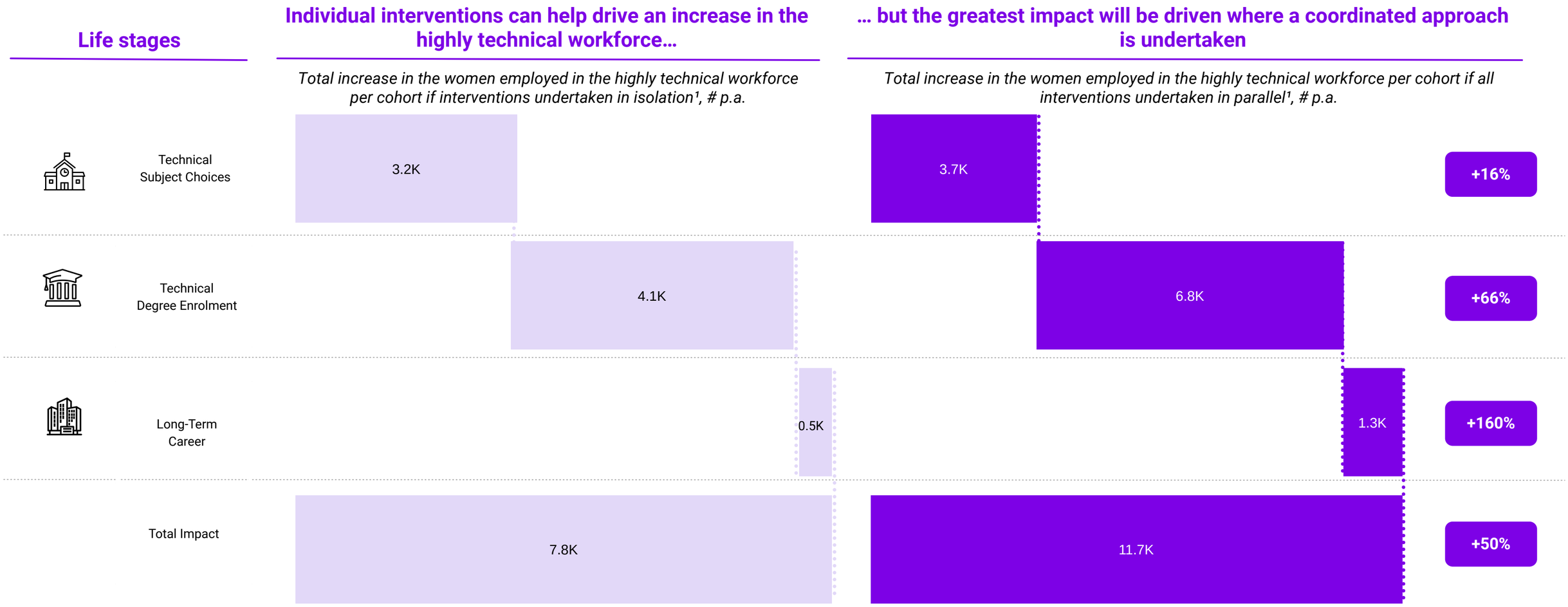
Generational Strategy | Achieving gender parity requires generational strategy, with some interventions needing 15–20 years to have a substantial impact



1. Calculated based on ratio of domestic and internationals employed in highly technical workforce between 35-44 years old, multiplied by cohort size of employed in highly technical workforce between 35-44 years old. Highly technical roles defined in appendix.

Sources: Australian Bureau of Statistics (2021, 2023), Australian Department of Education (2024a, 2024b), Australian Department of Industry, Science and Resources (2025), New South Wales Department of Education (2024), UAC (2022).

Potential Impact | The greatest impact will be driven by a coordinated approach to interventions across identified life-stages



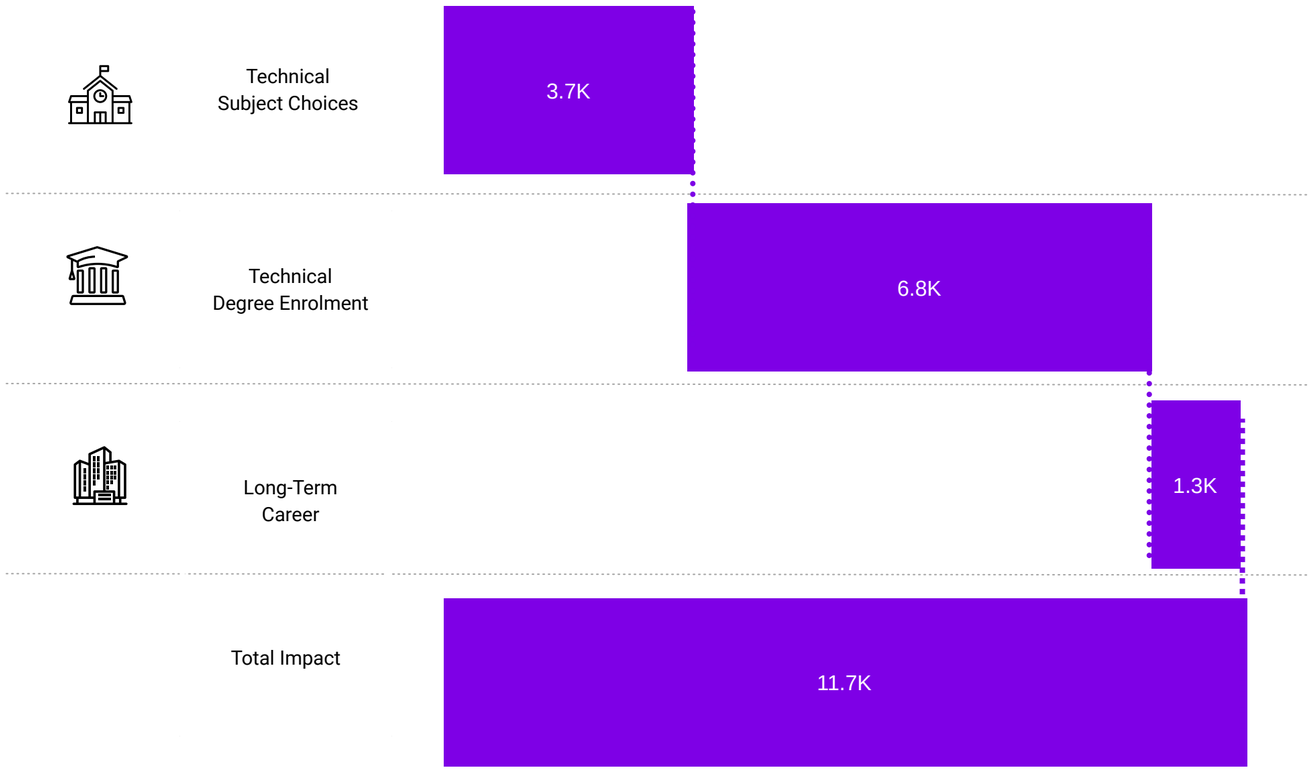
Note: Illustrative impact of increased conversion of 1 cohort, based 2023 births; numbers may not add up due to rounding.
1. Impact on highly technical workforce between ages 25 - 44 when women conversion rates are aligned to men conversion rates at this stage in the pipeline, all other conversion rates remaining the same.

Potential Impact | We can triple the number of women in highly technical occupations through coordinated actions across the three life-stages

Life stages

Total Uplift in Women in Technical Workforce through Coordinated Approach

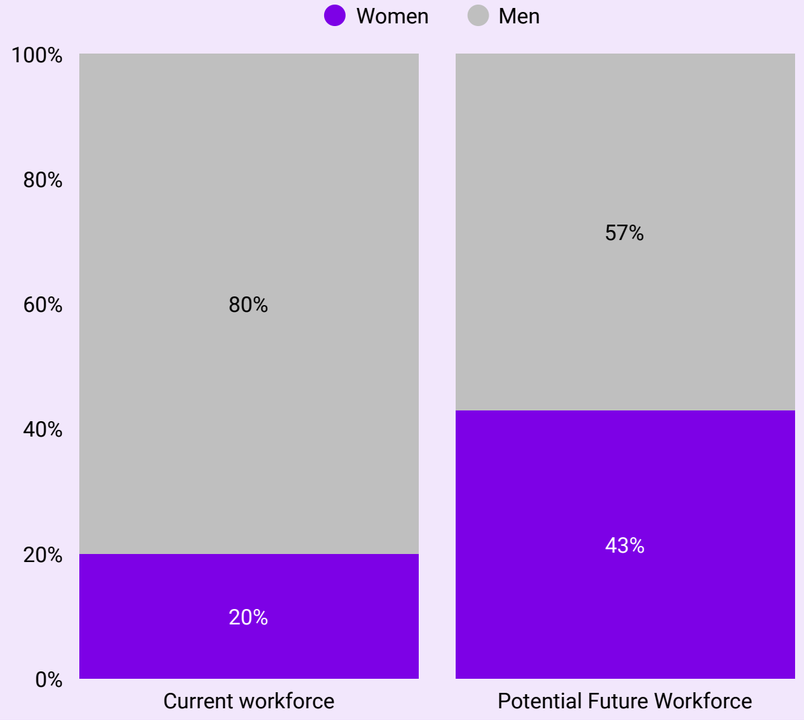
Total increase in the women employed in the highly technical workforce per cohort, assumes women conversion reach current rate for men[1], # p.a.



Grow women's participation whilst increasing total workforce

Share of persons employed in total workforce and in highly technical roles, 25 - 44 years old

Current - 29K; Potential - 41K.



Note: Illustrative impact of increased conversion of 1 cohort, based 2023 births; numbers may not add up due to rounding.
1. Impact on highly technical workforce between ages 25 - 44 when women conversion rates are aligned to men conversion rates at this stage in the pipeline, all other conversion rates remaining the same.

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Appendix

Existing and Planned Initiatives (illustrative) focusing on fixing the leaky pipeline

Highly Technical Occupations – roles in scope

Highly Technical Pipeline – methodology

Illustrative examples / Non-exhaustive

Initiatives: Technical Subject Choices | Illustrative list of Australian initiatives that focus on drivers of drop off at this stage (I/II)

Driver	Initiative Name	Focus	Description	Link
Confidence	**Girl Power in Engineering & IT (UniMelb)**	Building confidence and connection	Multi-year mentoring and hands-on program for year 9-12 women, with campus visits, industry projects, and opportunities to connect with women engineering/IT students and professional	Link
	Women Programming Network (GPN)	Exposure & building confidence	Free peer-led coding workshops and events for years 8-12 women on university campuses, focusing on exposure to computer science and growing technical confidence in a supportive environment	Link
	RMIT WOMENG	Building confidence & connection	School engagement program for years 9-12 women, offering hands-on engineering projects, mentoring, and showcasing women in construction and engineering	Link
	SASI STEM Club (SciWorld)	Encouraging subject uptake & confidence	After-school club in South Australia for years 8-12 women that encourages STEM subject selection through inquiry, guest speakers, and exploration in a supportive, all-women environment	Link
	Design STEM	Build skills & confidence	In-school program delivered in partnership with selected schools through a series of workshops in which students tackle real-world problems through creative STEM challenges that help build skills and confidence	Link
	Menzies Pathways (Indigenous)	STEM engagement & confidence	Mentoring for Indigenous women (years 7-12) in Northern Territory, with university and TAFE/VET pathway mapping and local projects focused on building confidence, skills, and community relevance	Link
	CSIRO's Young Indigenous Women's STEM Academy	Inclusion in STEM pipeline and connection	National program offering mentoring, support, and educational opportunities for Indigenous high school and university women, advancing Indigenous women inclusion in science and tech pipelines	Link
Interest	**Robogals**	STEM interest	Workshops delivered by university volunteers for years 5-12 women, building robotics and coding skills, aimed at making engineering and tech tangible, inclusive, and fun from a young age	Link
	CyberSET (Curtin University)	Exposure, Interest and Confidence	Provides a range of industry-linked courses at four different levels, aimed at introducing students in Western Australia between years 7 and 10 to the field of cybersecurity	Link
	Go Girl, Go For IT	Exposure to real IT/tech opportunities	Large-scale Victoria conference connecting years 5-12 women with IT professionals, featuring panels, expo exhibitors, and interactive sessions showcasing diverse IT pathways	Link
	STEM X IMPACT	Interest and confidence	Project-based, in-curriculum program for year 7 and 8 students aims to increase women' and teachers' interest and confidence in Engineering and IT with projects on cyber security, drone technology, automation and data analytics	Link
	School Career Planning process	Awareness and pathways	State by state process which includes students creating career action plans, career counsellor conversations and subject selection guidance to link to career options and post-school pathways	**Deep dive in next slides**

Illustrative examples / Non-exhaustive

Initiatives: Technical Subject Choices | Illustrative list of Australian initiatives that focus on drivers of drop off at this stage (II/II)

Driver	Initiative Name	Focus	Description	Link
Interest	**Future You (8-12 years old)**	Awareness and Interest in STEM	National awareness-raising initiative through online resources, trainings, and career pathway information to get 8-12-year-olds interested in STEM	Link
	Questacon Smart Skills	Making STEM relatable/fun	STEM solutions workshops for years 9-11 in Australian Capital Territory, engaging students through hands-on, engineering- and tech-focused problem-solving activities and local relevance	Link
Peer Perception	**Women in STEM Toolkit (GiST)**	STEM exploration for students, teachers, parents	An online platform for students, parents, and teachers with career stories, degree explainer videos, and tools to map STEM pathways for women aged years 5-12	Link
	Quantum Victoria	STEM pathways and career exploration for students	On-site STEM challenges and workshops in Victoria for years 7-12, demonstrating pathways from high school through to science and engineering degrees and careers	Link
	Women in STEM - Ballarat Tech School	Awareness and career options	Four two-day workshops across the year for students to make connections with each other, meet STEM professionals, and visit local businesses using STEM in their work	Link
	UQ Women in Engineering Outreach	Raising ambition for engineering	Mentoring, school visits, and university events for years 7-12 women in QLD, driving up the proportion of women in engineering at UQ via strategic encouragement and telling real stories	Link
	CSIRO STEM Professionals in Schools	Awareness and development	National volunteer program matching STEM professionals with schools to co-design STEM activities, boosting teacher knowledge, student engagement, and career awareness. Supported by CSIRO and the Australian Government	Link
	EmpowerHer Pathways: See what you can be	Exposure to STEM options	New South Wales based high school and TAFE/VET mentoring for women, offering role models, peer mentoring, and links with local employers to broaden exposure to STEM/tech possibilities	Link

Illustrative examples / Non-exhaustive

Initiatives: Technical Subject Choices | Career planning differs by states and schools, with varying support for year 10 students in defining careers and choosing subjects

Illustrative high-level process that year 10 students follow to inform year 11/12 subject choices

	Career Action / Pathway Planning	Work experience	Subject selection counselling
Activity:	Students **develop a personalised Career Action Plan / Individual Pathway Plan** with guidance from teachers and/or career counsellors	Students complete **work experience in a real workplace** aligned with a student's career interests (usually 1-2 weeks)	Students receive **individualised subject and pathway counselling** to align their year 11/12 subject choices with their future education and career goals
Pain Points:	⊗ **Inconsistent processes** in schools / states ⊗ **Limited guidance** from teachers / counsellors ⊗ **Limited time** per child & unequal allocation ⊗ **Limitations in teacher's and counsellors' awareness** of career options ⊗ Often **focus on 'traditional' careers**	⊗ **Not mandatory** for all schools / states ⊗ **Inconsistent processes** in schools / states ⊗ **Often happens post career choices** / subject selection ⊗ **Limited guidance** for workplaces to target ⊗ **Limited access** to workplace opportunities ⊗ Experience **often not aligned** with career ⊗ **Short duration & low engagement** often provides limited view on experience	⊗ **Inconsistent processes** in schools / states ⊗ **Limited subject choices** in schools ⊗ **Limited time** per child ⊗ **Limitations in teacher's and counsellors' awareness** of options / pathways ⊗ Outdated information and **misalignment with future job** market demands

Key takeaway: No consistent approach across states / territories, therefore effectiveness varies

Sources: South Australian State Government (n.d.), Queensland State Government (2021), Victorian State Government (2024a, 2024b), Western Australian State Government (n.d.).

Illustrative examples / Non-exhaustive

Initiatives: Technical Degree Enrolment | Illustrative list of Australian initiatives that focus on drivers of drop off at this stage (I/II)

Driver	Initiative Name	Focus	Description	Link
Confidence	**Girl Power in Engineering & IT (UniMelb)**	Building confidence and connection	Multi-year mentoring and hands-on program for year 9-12 women, with campus visits, industry projects, and opportunities to connect with women engineering/IT students and professional	Link
	Monash Women in IT Scholarships	Confidence and connection	Scholarships plus mentoring and peer networks targeting year 12 women into IT and data degrees, promoting inclusion and retention through the university journey	Link
	UNSW Women in Engineering Pathway	Women progression to engineering	Five-week alternate entry and mentoring program for year 11-12 women, building skills and confidence, and creating a supportive peer network for future engineering students	Link
	Curtin GET (Women+ Engineering Tomorrow)	Awareness, degree choice & confidence building	Curtain University's 10-week course and mentoring program for year 11-12 women interested in engineering to build skills, confidence, and pathways with university staff/expert support	Link
	She Codes Plus (NT/Wide)	Career exposure and awareness	Coding bootcamps and workshops for year 10-12 women and young women in NT & WA, providing exposure to IT careers in a 'beginner-friendly' environment; focuses on long-term learning	Link
Ambition to Make a Difference	**START QUT (STEM Intensive)**	Motivation for STEM degree pathways	Multi-day Queensland based camp for years 10-12 women focused on STEM design challenges, university course exploration, industry experience, and team-based projects	Link
	Sydney Quantum Academy (SQA)	Motivation for Quantum pipeline	Offers scholarships and tailored mentoring for women quantum computing researchers, as well as outreach to school students, with proven impact on increasing women's engagement in the field	Link
	School Career Planning process	Awareness and pathways	State by state process in which students update career action plans in year 11/12 and may include career counsellor conversations regarding career options and post-school pathways	**Deep dive in next slides**
	Khuda Scholars Initiative	Pipeline management and career aspirations	Program at University of Sydney creating a 20-year talent pipeline through scholarships, guaranteed uni places, and tailored mentoring for women (especially from underserved communities) to enter and thrive in STEM	Link
	QUT Women in Engineering	Inspiring engineering applications	Program to boost women participation in engineering, robotics, and advanced materials with scholarships, mentorship and role models inspiring and supporting next-gen women into advanced engineering careers	Link

Illustrative examples / Non-exhaustive

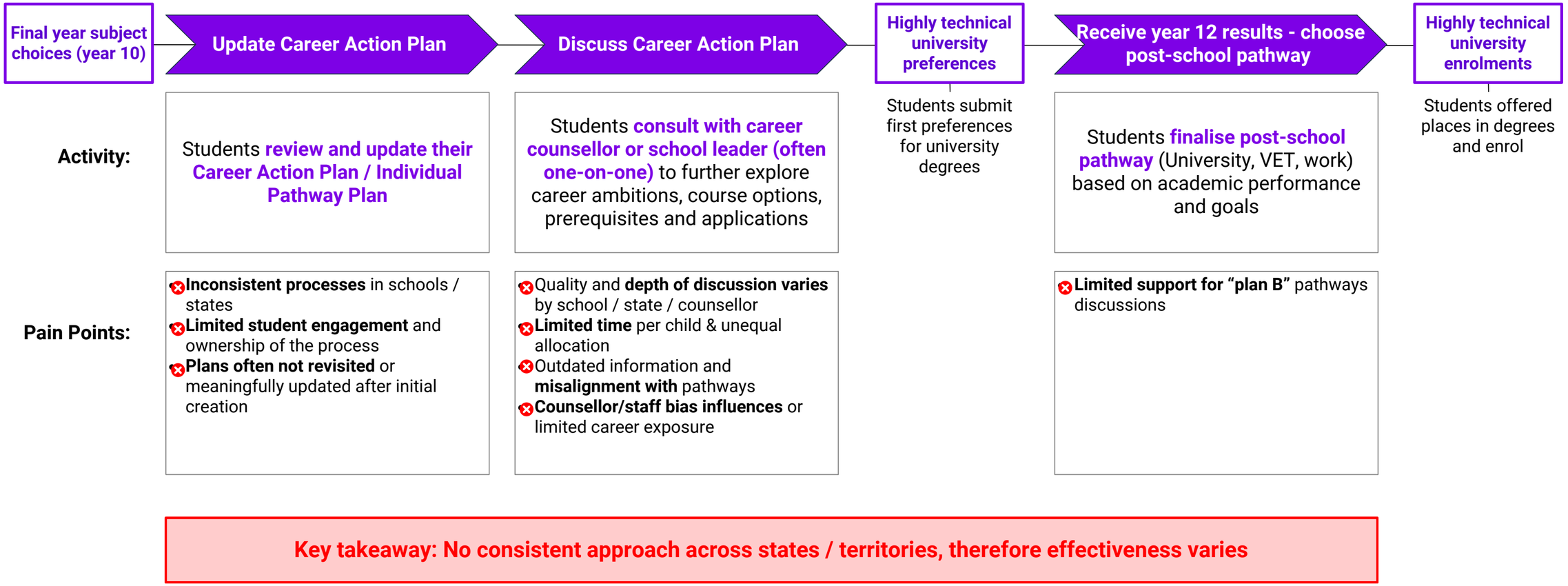
Initiatives: Technical Degree Enrolment | Illustrative list of Australian initiatives that focus on drivers of drop off at this stage (II/II)

Driver	Initiative Name	Focus	Description	Link
Peer Expectations	**NYSF year 12 Program**	STEM/engineering career awareness	National immersion program for year 11 students providing university STEM engagement, career info, hands-on labs, and personal guidance from professionals and researchers	Link
	Engineering Summer School (NSW)	Understanding careers and Awareness	Multi-day program for year 11-12 students, with university and industry exposure, panels, and infrastructure projects to raise awareness of engineering degrees and careers	Link
	CSIRO STEM Professionals in Schools	Awareness and development	National volunteer program matching STEM professionals with schools to co-design STEM activities, boosting teacher knowledge, student engagement, and career awareness. Supported by CSIRO and the Australian Government	Link
	Superstars of STEM	Awareness and development	National initiative connecting high-profile women in STEM with schools through talks and events, providing role models who share personal pathways and careers, and challenging stereotypes	Link
	PACTS (Parents As Career Transition Support) program	Awareness and parent development	Interactive workshops providing parents with up-to-date info on post-school pathways, career conversations, and communication skills to assist youth in making informed decisions	Link
	Parent Information Nights (school-led)	Awareness and parent development	School-hosted information nights and workshops designed to raise parental awareness of STEM study and career opportunities, enabling parents to better encourage and guide their children	-

Illustrative examples / Non-exhaustive

Initiatives: Technical Degree Enrolment | Career Planning Process differs by states and schools, with varying support for penultimate and final year students in career awareness and defining career pathways

Illustrative high-level process that ~year 11/12 students follow to choose their post-school pathway



Key takeaway: No consistent approach across states / territories, therefore effectiveness varies

Sources: South Australian State Government (n.d.), Queensland State Government (2021), Victorian State Government (2024a, 2024b), Western Australian State Government (n.d.).

Illustrative examples / Non-exhaustive

Initiatives: Long-Term Career | Illustrative list of Australian initiatives that focus on drivers of drop off at this stage (I/III)

Driver	Initiative Name	Focus	Description	Link
Workplace culture	**Women in Tech with Together Australia**	Women placement & mentoring	Career placement and upskilling initiative placing women in tech roles; focuses on providing industry mentoring, matching with employers, and leadership skills for mid-career transition	Link
	Women in STEM Decadal Plan	Sector-wide inclusion & retention	10-year national roadmap to address barriers at all stages (school to senior STEM), promoting visibility, pipeline programs, workplace inclusion, retention, and systemic change	Link
	STEM Women (ATSE)	Visibility, networking & mentorship	National directory/profile site giving visibility to women in STEM, supporting connections for mentorship, career opportunities, speaking, and leadership development at all career stages	Link
	Superstars of STEM (STA)	Visibility, mentoring & leadership	National science ambassador and advocacy program raising the media visibility of mid-career women in STEM, providing media training, mentoring, and leadership development	Link
	SAGE Athena SWAN Charter	Workplace reform	Sector-wide accreditation program that supports universities and research organisations to remove systemic and cultural barriers to gender equity and foster career progression in STEM	Link
	Elevate: Boosting Women in STEM (ATSE)	Transition and retention in workforce	Scholarship, mentoring, and industry placement program for university and early-career women in STEM, designed to support transition into and retention in the technical workforce	Link
	Blackbird Ventures' Support Women Founders	Pipeline, mentoring and community	Leading VC backing women-led deep tech startups (e.g., Canva, Inventia) with the Giant Leap Fund, providing mentorship, capital, and community to develop a pipeline of women tech leaders	Link
	CSIRO's ON Program	Mentorship, networks, support	National science accelerator that provides mentorship, funding, and networks to commercialize research, supporting women scientists, especially in quantum and biotech, to overcome sector barriers	Link
	SheEO Australia	Support, networks	Delivers funding, mentorship, and business networks to women-led ventures using innovative financial models, helping women scale businesses and entrepreneurship across tech, including deep tech	Link
	Women Founders Program (Tech Ready Women)	Career support	NSW Government program supporting women's employment in emerging tech through skills training, mentoring, and network building, targeting those at the start of their tech journey or moving into entrepreneurship.	Link
	Women in STEM Ambassador Program (now concluded)	Mentorship	Federal government initiative that used sector strategy, advocacy, and high-visibility role models to boost status and retention of women in STEM/tech sectors nationwide.	Link
	Springboard Enterprises Australia (SBE Australia)	Women acceleration	Accelerator driving women founders in tech and life sciences with mentoring, acceleration, and investor access to increase commercial impact and tech startup success.	Link

Illustrative examples / Non-exhaustive

Initiatives: Long-Term Career | Illustrative list of Australian initiatives that focus on drivers of drop off at this stage (II/III)

Driver	Initiative Name	Focus	Description	Link
Workplace culture (cont.)	**PwC's She's Here in Cyber & Technology**	Corporate culture, retention	Corporate group offering mentoring, networking, uni outreach, and diversity campaigns for women in STEM, aiming to improve retention and visibility in cyber and tech	Link
	Deep Tech Incubator (DTI)	Women in Deep Tech support	Startup hub supporting diverse founders, especially women in deep tech (AI, biotech, quantum), with targeted support, resources, and tailored mentorship to foster entrepreneurship	Link
	Australian Women in Quantum (AWiQ)	Quantum sector retention	Professional network increasing visibility, community, and peer support for women in quantum technology fields, helping boost retention and progression within quantum research and industry	Link
	BlueChilli's SheStarts	Advanced support, network	Concluded leading accelerator for women-founded deep tech startups, providing funding, mentorship, and a high-profile network, supporting many successful women-led companies	Link
	EY Women in Technology	Leadership, networking in tech	Advocacy and professional network at EY, offering women in tech internal networking, peer support, and opportunities for advancement and sector change	Link
	EBridges Barriers: Women in non-traditional roles	Non-traditional role retention	National retention/support initiative for women from non-traditional backgrounds, boosting long-term participation and confidence in tech/engineering roles	Link
	Rise & Build: Empowering Women's Careers	Workforce participation / transition	Training and mid-career employment transition support for women entering digital tech, targeting both skills and broader social/economic change for greater workforce participation	Link
	STEMPower CyberThrive	Visibility & sector advocacy	National advocacy, media, and sector outreach designed to empower women in STEM, with emphasis on digital/cyber sectors and improving visibility of successful career pathways	Link
	Women's rates of application and success	Advancement/promotion in academia	Systemic university reforms to remove gendered barriers in academic promotions, with targeted support, mentoring, and policy change driving increased rates of women application and success. (La Trobe University)	Link
	WATTLE (Women & Leadership Australia)	Networking and support	Inclusive professional development suite for women in STEM, offering scholarships, leadership programs, networking, and flexible upskilling for existing and aspiring technical leaders	Link
	SBE Australia	Supporting and networks	Accelerator supporting women entrepreneurs in STEM, deep tech, and life sciences with direct mentoring, peer networks, and links to investors and commercial markets	Link
	Cicada Innovations' Deep Tech Incubator	Mentoring and support	Sydney-based incubator supporting women in deep tech, with cohort-based programs, especially MedTech, offering tailored mentoring and commercialization support for scaling challenges	Link
	Addressing sexual misconduct	Addressing sexual misconduct	University-wide reforms improving sexual misconduct reporting, culture, and safety systems, directly supporting safe, inclusive workplaces essential for long-term women retention in STEM/tech. (University of Melbourne)	Link

Illustrative examples / Non-exhaustive

Initiatives: Long-Term Career | Illustrative list of Australian initiatives that focus on drivers of drop off at this stage (III/III)

Driver	Initiative Name	Focus	Description	Link
Workplace flexibility	**Career Revive**	Workforce re-entry/flexibility	Targeted program to help STEM-qualified women who have taken a long career break return to the highly skilled workforce through flexible roles, upskilling, mentoring, and employer partners	Link
	Work180 partner employers	Flexible work opportunities & retention initiatives	Network of employers endorsed for their commitment to supporting women's careers and flexible work through policies and benefits that advance gender equity, including flexible hours, job sharing, parental leave, and career progression	Link
	Increasing flexible work opportunities	Flexible work opportunities	Western Sydney University's award-winning implementation of sector-best flexible work (remote/part-time), supporting staff wellbeing, retention, and leadership progression for women in STEM.	Link
Leadership Representation and Remuneration *(including transition)*	**WGEA (Workplace Gender Equality Agency)**	Gender Pay Disparity	Government agency that promotes improving gender equality in the workplace through providing data visibility on key pain-points (e.g., gender pay disparity, women in leadership roles)	Link
	CyberS050	Tech workforce entry from other fields	Upskilling and reskilling initiative for women from other industries into cyber and tech, focusing on job-readiness, entry support, and industry mentoring	Link
	RMIT's Free IT Diploma	Non-traditional pathway to IT/tech	Inclusive, free diploma program offering upskilling and pathways for women/gender-diverse people into IT and deep tech roles, bridging school to vocational/tertiary and workplace transitions.	Link
	The Next Wave: Women's Tech Transitions	Career conversion to tech	Pathways program helping women switch to tech and digital fields from other industries, emphasizing mid-career transition, job matching, and tailored careers support	Link
	FemTech: Building Women's Careers in Digital & Tech	Cross-sector upskilling to tech	Training and leadership program enabling women—from health, trades, and other sectors—to transition into digital and tech careers with the support of industry experts and educators.	Link
	Women in Digital Tech Training (Flinders University)	Entry/career change in digital tech	Career entry and change program offering skill development and job-readiness for women moving into digital and tech fields, including tailored mentoring	Link

Highly Technical Occupations - Roles in scope | 46 occupations in scope

Highly technical occupations - roles from the ABS Census that are considered in this report

Occupation (6-digit) [1]	
261200	Multimedia Specialists and Web Developers
261212	Web Developer
261300	Software and Applications Programmers nfd
261311	Analyst Programmer
261312	Developer Programmer
261313	Software Engineer
261314	Software Tester
261399	Software and Applications Programmers nec
262100	Database and Systems Administrators, and ICT Security Specialists nfd
262111	Database Administrator
262112	ICT Security Specialist
263000	ICT Network and Support Professionals nfd
263100	Computer Network Professionals nfd
263111	Computer Network and Systems Engineer
263200	ICT Support and Test Engineers nfd
263211	ICT Quality Assurance Engineer
263212	ICT Support Engineer
263213	ICT Systems Test Engineer
263299	ICT Support and Test Engineers nec
313100	ICT Support Technicians nfd
313199	ICT Support Technicians nec
263300	Telecommunications Engineering Professionals nfd
263311	Telecommunications Engineer

Occupation (6-digit) [1]	
263312	Telecommunications Network Engineer
233200	Civil Engineering Professionals nfd
233211	Civil Engineer
233212	Geotechnical Engineer
233214	Structural Engineer
233215	Transport Engineer
234211	Chemist
234914	Physicist
224112	Mathematician
310000	Engineering, ICT and Science Technicians nfd
313000	ICT and Telecommunications Technicians nfd
233311	Electrical Engineer
233411	Electronics Engineer
233500	Industrial, Mechanical and Production Engineers nfd
233511	Industrial Engineer
233512	Mechanical Engineer
233911	Aeronautical Engineer
233913	Biomedical Engineer
233914	Engineering Technologist
233915	Environmental Engineer
233100	Chemical and Materials Engineers nfd
233111	Chemical Engineer
233112	Materials Engineer

1. Based on Australian and New Zealand Standard Classification of Occupations (v1.3) and 2021 ABS Census data

Highly Technical Pipeline – Methodology | Detailed methodology (I/II)

Stage	Births in given year	Interest in relevant school subjects (Yr6)	Interest in relevant school subjects (Yr 7-9)	Enrolment in technical Y12 school subjects	First preference technical degree	Enrolment in technical degree
Data Point used in funnel	Number births in 2023	% of population interested in relevant subjects at 12-13 years old	% of population interested in relevant subjects at 14-17 years old	% of population who enrol in relevant year 12 subjects	% of population who first preference relevant undergraduate University degrees	% of population who enrolled in relevant undergraduate University degree
Reference point	• Nationwide • Statistic	• Nationwide • Survey	• Nationwide • Survey	• NSW - used as proxy • Statistic	• NSW & ACT - used as proxy (Select NSW & ACT Universities) • Statistic	• NSW used as proxy • Statistic
Source	• Australian Bureau Statistics – 2023 Births, Australia (source)	• STEM Equity Monitor - Youth perceptions and attitudes to STEM 2023 - 2024 (Source)	• STEM Equity Monitor - Youth perceptions and attitudes to STEM 2023 - 2024 (Source)	• NSW Government - 2024 HSC course enrolments - (source) • Australian Bureau Statistics - Schools - 2024 (source)	• University Admissions Centre - Domestic undergraduate application statistic - 2022 - 2023 (source) • Australian Government – Department of Education - Key findings from the 2023 Higher Education Student Statistics (source) • Australian Bureau Statistics - Schools - 2024 (source) • NSW Government - 2024 HSC course enrolments - (source)	• Australian Government – Department of Education - Student Enrolments Pivot Table 2023 (source) • Australian Government – Department of Education - Key findings from the 2023 Higher Education Student Statistics (source) • Australian Bureau Statistics - Schools - 2024 (source) • NSW Government - 2024 HSC course enrolments - (source)
Methodology / Logic	Logic of data point used in funnel: • Number of women and male births in 2023	Logic of data point used in funnel: • Average of the percentage of students who were interested in technology, engineering and mathematics subjects for ages 12-13, across all diversity groups Average of the percentage of students who were interested in relevant subjects: • Calculated as the summation of the individual percentages of interest across the 3 subjects (technology, engineering and mathematics) by 3 (number of subjects)	Logic of data point used in funnel: • Average of the percentage of students who were interested in technology, engineering and mathematics subjects for ages 14-17, across all diversity groups Average of the percentage of students who were interested in relevant subjects: • Calculated as the summation of the individual percentages of interest across the 3 subjects (technology, engineering and mathematics) by 3 (number of subjects)	Logic of data point used in funnel: • % of student enrolments in relevant Y12 subjects, multiplied by the retention rates of students from Y10 to Y12 Relevant subjects: • Mathematics Advanced, Mathematics Extension 1, Mathematics Extension 2, Physics, Engineering Studies, Industrial Technology, Information Processes and Technology, Software Design and Development % of students enrolments in relevant subjects: • Calculated as number of enrolments in related subjects, divided by total enrolments in all subjects Retention rates of students from Y10 - Y12 • National rates - Australian Bureau Statistics - Schools - 2024	Logic of data point used in funnel: • % first preference in relevant undergraduate University degrees , multiplied by the % of students who go to University within a 3-year window from Y12, multiplied by the retention rates of students from Y10 to Y12 Relevant undergraduate degrees: • Information Technology, Engineering & Related Tech. Universities included: • Australian Catholic University, Australian College of Physical Education, Australian National University, CQUniversity, Macquarie University, University of Newcastle, University of New England, University of Tasmania, University of Technology Sydney, University of Wollongong, UNSW and Western Sydney University) % of students who go to University within a 3-year window from Y12 • National % students who enrol in university immediately after finishing Y12 • Plus National % students who don't enrol immediately after Y12 that go to University before 21 • Calculated individual women and male % based on NSW ratios of women and men enrolled in University and NSW ratios of women and men enrolled in Y12 Retention rates of students from Y10 - Y12 • National rates - Australian Bureau Statistics - Schools – 2024	Logic of data point used in funnel: • % of enrolments in relevant undergraduate University degree, multiplied by the % of students who go to University within a 3-year window from Y12, multiplied by the retention rates of students from Y10 to Y12 Relevant undergraduate degrees: • Information Technology, Engineering & Related Technologies % of students who go to University within a 3-year window from Y12 • National % students who enrol in university immediately after finishing Y12 • Plus National % students who don't enrol immediately after Y12 that go to University before 21 • Calculated individual women and male % based on NSW ratios of women and men enrolled in University and NSW ratios of women and men enrolled in Y12 Retention rates of students from Y10 - Y12 • National rates - Australian Bureau Statistics - Schools – 2024
Commentary	-	-	-	• Conversion rate includes subject selection and Y10 – Y12 drop off rates • Higher % of and more women enrolled in Y12 • NSW used as proxy for Australia as no national database at detailed subject level (NSW is largest Year 12 group, NSW and Victoria rates largely aligned)	• Conversion rate includes degree first preferences, Y12 to university drop off rates and Y10 – Y12 'drop off' rates • Domestic population only • NSW & ACT used as proxy for Australia as first preference data not available at national level • Higher % of women go to university	• Conversion rate includes degree first preferences, Y12 to university drop off rates and Y10 – Y12 drop off rates • Domestic population only • NSW used as proxy to align with first preferences data • NSW enrolment rate in highly technical degrees slightly higher than other states and national average • Higher % of women go to university

Highly Technical Pipeline – Methodology| Detailed methodology (II/II)

Stage	First year technical degree	Graduate technical degree	Early-career (25-29) in highly technical role	Mid-career (30-34) in highly technical role	Established career (35-44) in highly technical role
Data Point used in funnel	% of population (Domestic & International) who enrolled in relevant undergraduate University degree	Weighted average graduation rate from relevant undergraduate University degrees	% of population in 25-29 years age group employed in highly technical occupations	% of population in 30-34 years age group employed in highly technical occupations	% of population in 35-44 years age group employed in highly technical occupations
Reference point	• Nationwide • Statistic	• Nationwide • Statistic	• Nationwide • Statistic	• Nationwide • Statistic	• Nationwide • Statistic
Source	• Australian Government – Department of Education - Student Enrolments Pivot Table 2023 (source)	• Australian Government - Department of Education – Student Enrolments Pivot Table – 2019 (source) • Australian Government – Department of Education - Student Enrolments Pivot Table 2023 (source)	• Australian Bureau Statistics – 2021 Census - Employment, income and education - TableBuilder (source)	• Australian Bureau Statistics – 2021 Census - Employment, income and education - TableBuilder (source)	• Australian Bureau Statistics – 2021 Census - Employment, income and education - TableBuilder (source)
Methodology / Logic	Logic of data point used in funnel: • Calculated the % increase to the number of domestic enrolments in related undergraduate university degrees by comparing the total number of enrolments in related undergraduate university degrees including international enrolments • Used this ratio to increase the number of enrolments in related degrees from the previous step of the funnel and increase the population size by the pro-rata total international undergraduate University enrolments Relevant undergraduate degrees: • Information Technology, Engineering & Related Technologies	Logic of data point used in funnel: • Calculated the weighted average graduation rate based on the number of Domestic and International graduations from relevant undergraduate degrees in 2022, divided by number of Domestic and International enrolments in relevant undergraduate degrees in 2019 Relevant undergraduate degrees: • Information Technology, Engineering & Related Tech.	Logic of data point used in funnel: • Number of people in 25-29 years age group employed in highly technical occupations, divided by total population in age group Highly technical occupations: • 46 codes at the 6 Digit OCCP Occupation level as defined for highly technical occupation (in Appendix) Employed: • Using ABS available data, employed included all those marked as “Employed, worked full-time”, “Employed, worked part-time” and “Employed, away form work” Population in age group • Using ABS definitions, includes all those “Employed, worked full-time”, “Employed, worked part-time” and “Employed, away form work”, “Unemployed, looking for full-time work, “Employed, looking for part time work”, “Not in the Labour force”, “Not stated”, “Not applicable”	Logic of data point used in funnel: • Number of people in 35-44 years age group employed in highly technical occupations, divided by total population in age group Highly technical occupations: • 46 codes at the 6 Digit OCCP Occupation level as defined for highly technical occupation (in Appendix) Employed: • Using ABS available data, employed included all those marked as “Employed, worked full-time”, “Employed, worked part-time” and “Employed, away form work” Population in age group • Using ABS definitions, includes all those “Employed, worked full-time”, “Employed, worked part-time” and “Employed, away form work”, “Unemployed, looking for full-time work, “Employed, looking for part time work”, “Not in the Labour force”, “Not stated”, “Not applicable”	Logic of data point used in funnel: • Number of people in 35-44 years age group employed in highly technical occupations, divided by total population in age group Highly technical occupations: • 46 codes at the 6 Digit OCCP Occupation level as defined for highly technical occupation (in Appendix) Employed: • Using ABS available data, employed included all those marked as “Employed, worked full-time”, “Employed, worked part-time” and “Employed, away form work” Population in age group • Using ABS definitions, includes all those “Employed, worked full-time”, “Employed, worked part-time” and “Employed, away form work”, “Unemployed, looking for full-time work, “Employed, looking for part time work”, “Not in the Labour force”, “Not stated”, “Not applicable”
Commentary	• Includes domestic and international students	• Includes domestic and international students • Assumed an average of 4 years for graduation rates of a relevant degree, remainder deemed to have not-graduated / dropped off • Higher % of women graduate than men	• Includes domestic and international workforce	• Includes domestic and international workforce	• Includes domestic and international workforce

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