



SOUTHSTART

The state of Australia's tech ecosystem

March 2024

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About the Tech Council of Australia

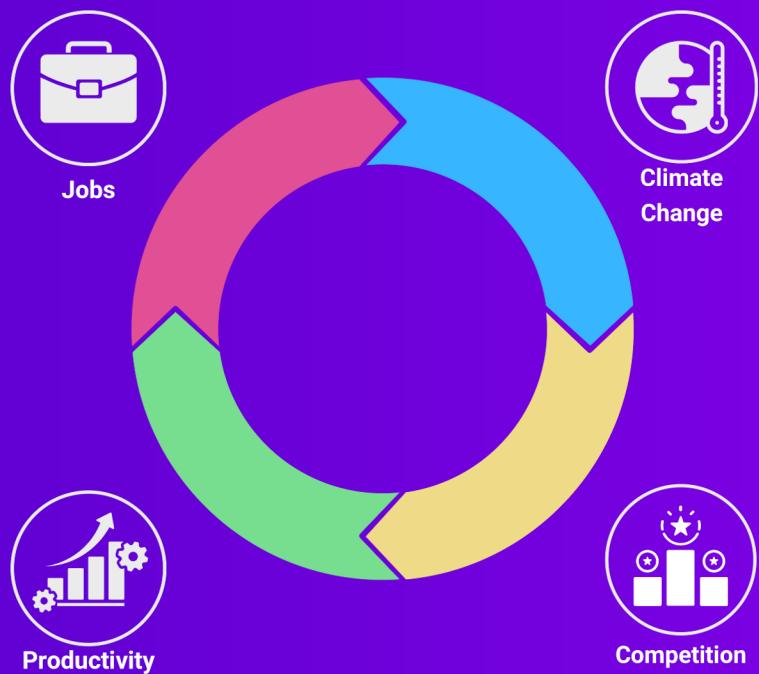
The Tech Council of Australia is the peak industry body for Australia's tech sector. Providing a trusted voice for Australia's technology industry the Tech Council comprises the full spectrum of tech companies.

We aim to advise and engage with Australian governments, businesses, and the wider community to help support the ongoing creation, development, and adoption of technology across industries. Our vision is for a prosperous Australia that thrives by harnessing the power of technology.



A growing tech sector is essential to Australia's future

Australia's tech sector will play a crucial role in addressing the major economic, societal and environmental challenges facing our country. The tech sector, via both tech companies and tech workers across the economy, helps create a more dynamic and competitive economy, with more high-skilled, high-wage jobs. Innovation and adoption of technology is important to help address issues like stagnating productivity, climate change and improving the health of our population



Source: Tech Council of Australia, Shots on Goal

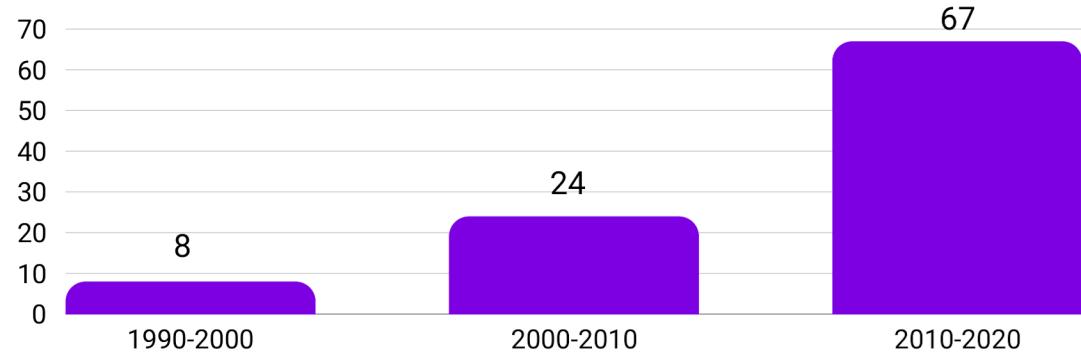
Australia has demonstrated the ability to grow global tech companies

Australia has demonstrated success at growing and attracting global tech companies in a variety of verticals such as Business Software, BioTech and PayTech. We have also seen Australia's startup ecosystem continue to grow over this period. Over the last 20 years, we have created at least 20 Australian tech unicorns (firms valued at over \$1bn) and over 100 tech companies valued at over \$100m, 67 of them since 2010.

Companies such as Canva, Afterpay, WiseTech, SEEK, REA, Airwallex, NearMap, SafetyCulture, Go1, CultureAmp and Employment Hero are just some of many Australian success stories which have delivered significant economic and jobs benefits to Australia. Some of the biggest global tech companies have also been attracted to our shores, like Google, Microsoft, AWS, IB, Salesforce and more.

High value Australian tech companies by year of founding

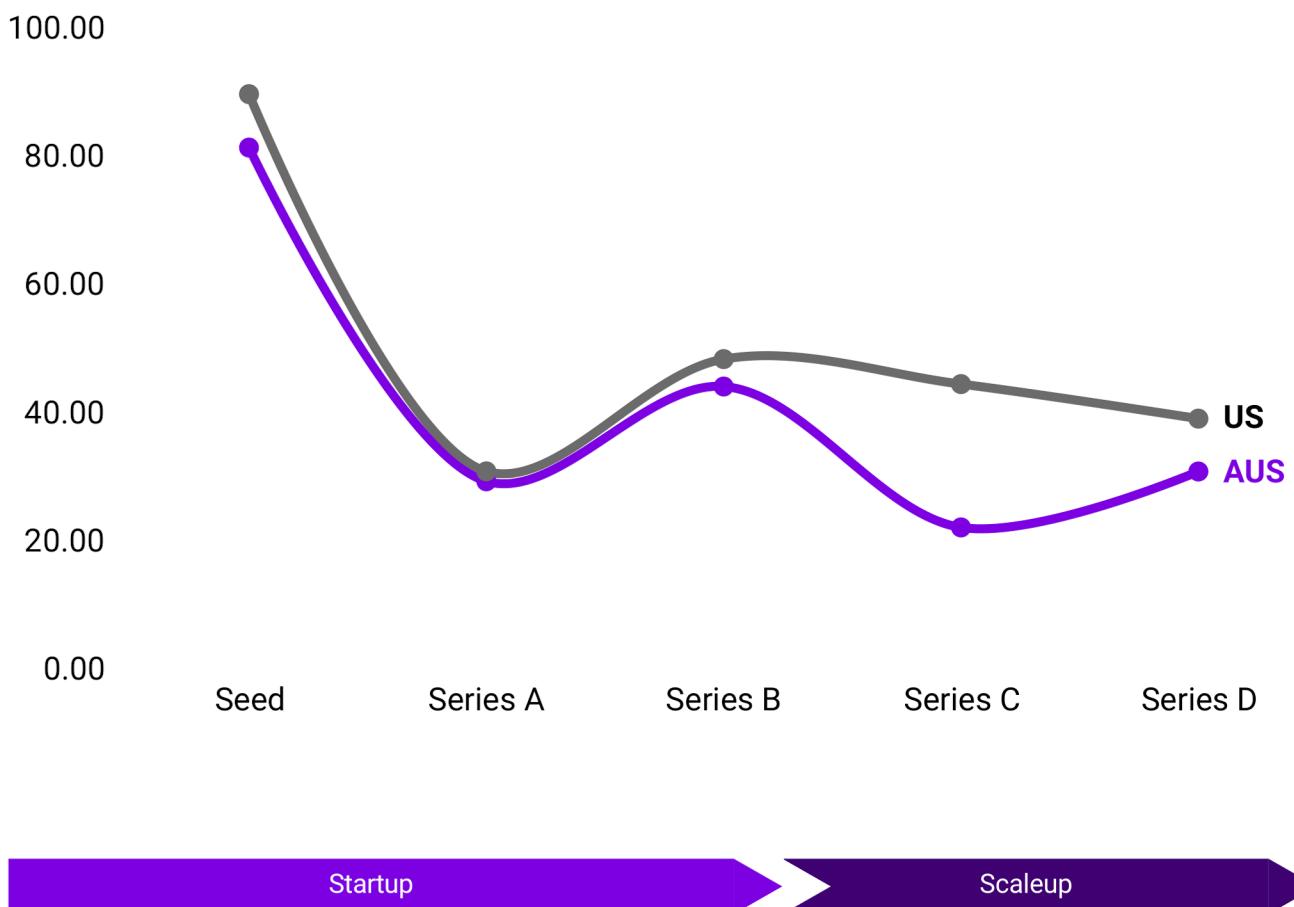
Number of companies valued >\$100m



But we know Australia can still be a challenging place to scale

Survival function for tech firms

Probability of achieving next funding round given previous one has been achieved for firms started in 2013-15



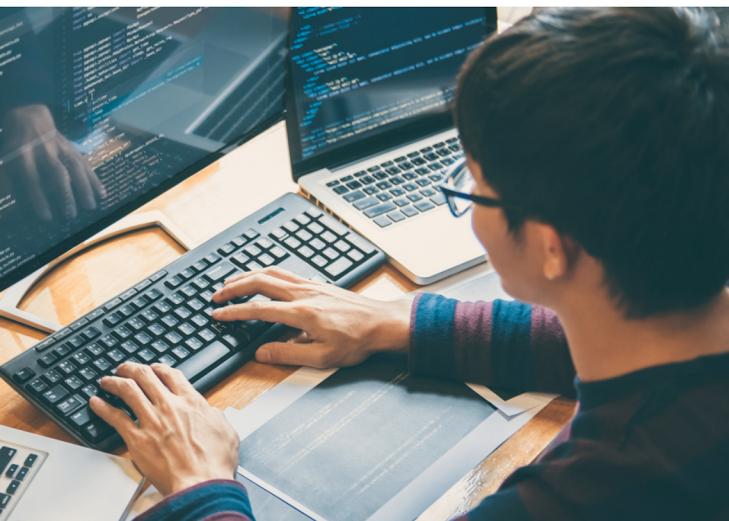
Despite demonstrated success in tech, Australia can still be a challenging place to scale. Beyond Series B, Australian startups experience lower survival rates compared to the US.

Fixing these challenges is crucial to ensure Australia can reap the significant economic benefits that scaleup firms produce, including a significant number of jobs.

Australia is a challenging place to scale for several reasons. In this report, we'll focus on two key areas that we need to address if we want to become the best place to start and scale a tech company: talent and funding.

Growth isn't just about scaling. Making Australia the best place to start and scale at tech company isn't just about growth. It's also about ensuring that the tech sector is more inclusive and leveraging some of the big technological shifts underway, for instance in quantum technologies.

This report focuses on understanding the key levers to unlock tech growth - funding, talent and regulation



1. TALENT

While Australia has some of the best tech talent in the world, we just don't have enough. Tech skills shortages are particularly acute in technical occupations, like software engineering, and it's especially hard to find experienced technical talent.

2. FUNDING

Access to scaleup funding is a critical challenge for Australia's tech sector. While we're becoming more competitive in early-stage financing, our funding ecosystem still has room to grow if we want to support more scaleups – particularly in deep tech areas including AI.

3. REGULATION

Regulation significantly impacts the health of the ecosystem in which startups and scaleups grow. A healthier ecosystem with the right kind of supporting regulation will make Australia's tech companies more competitive. This makes them better able to scale and compete in global markets.

TALENT

Becoming the best place in the world to start and scale a tech company will fuel tech jobs growth

Tech jobs are some of the most well-paid, secure and flexible jobs in the country. Australia has seen a rapid rise in tech jobs since the early 2000s. Over the last 20 years, growth in tech jobs has outpaced all other occupations by a factor of four.

This underscores the tech sector's position as an increasingly important employer of Australians and a significant source of well-paid, high-quality jobs.

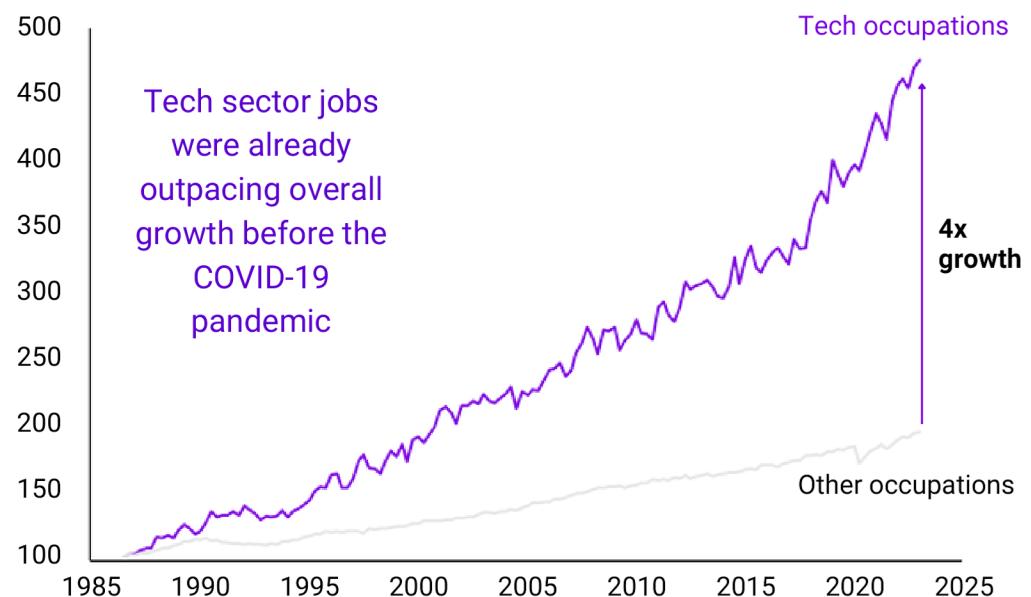
To support continued growth in tech jobs we need to ensure people are receiving the right training and education domestically, and that we're enabling companies to address any remaining gaps through migration. Having the right composition of skills that meets demand enables companies to grow and employ more tech workers across a range of occupations.

We also need to ensure that our workforce is more diverse and better represents the Australian community.



Long-term growth in tech occupations

Index, where number of workers in August 1986 is equal to 100.



Despite strong demand, domestic training pipelines have historically struggled to keep up

While tech jobs demand has been strong for several decades, our domestic training pipelines haven't been able to keep up.

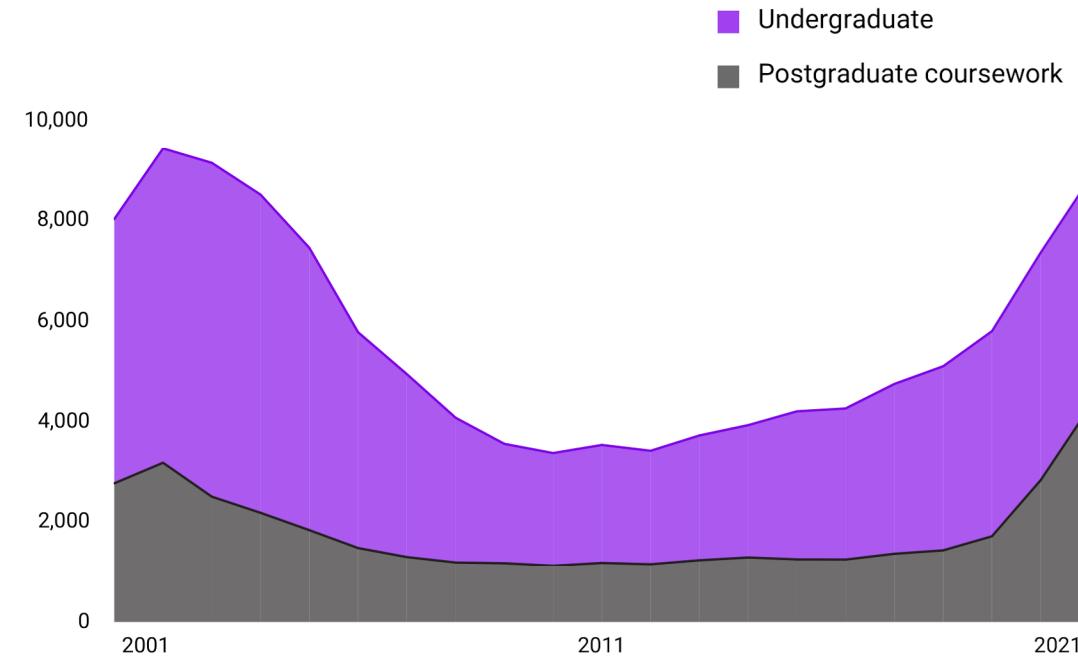
Persistent gaps in domestic training pipelines have made it difficult for the Australian labour force to meet growing demand for tech workers. This is because domestic students' uptake of tech degrees at university has not matched the sustained increase in demand over the last 20 years. While international students have been a significant source of growth in tech course completions at Australian universities, many international students (around half) typically return home after graduating – making this a very leaky talent pipeline.

The gulf in undergraduate tech training levels over the last 20 years means there is a generation of missing Australian tech workers. In fact, Australia is still graduating fewer domestic students in tech degrees compared to 20 years ago.

Vocational training should also be a reliable source of talent but training models and qualifications haven't kept pace with the tech sector. This contributes to issues with student outcomes from VET training, with less than 50% of IT VET students reporting improved employment status after receiving their qualification.

Australian course completion rates, domestic students

Number of students graduating per year

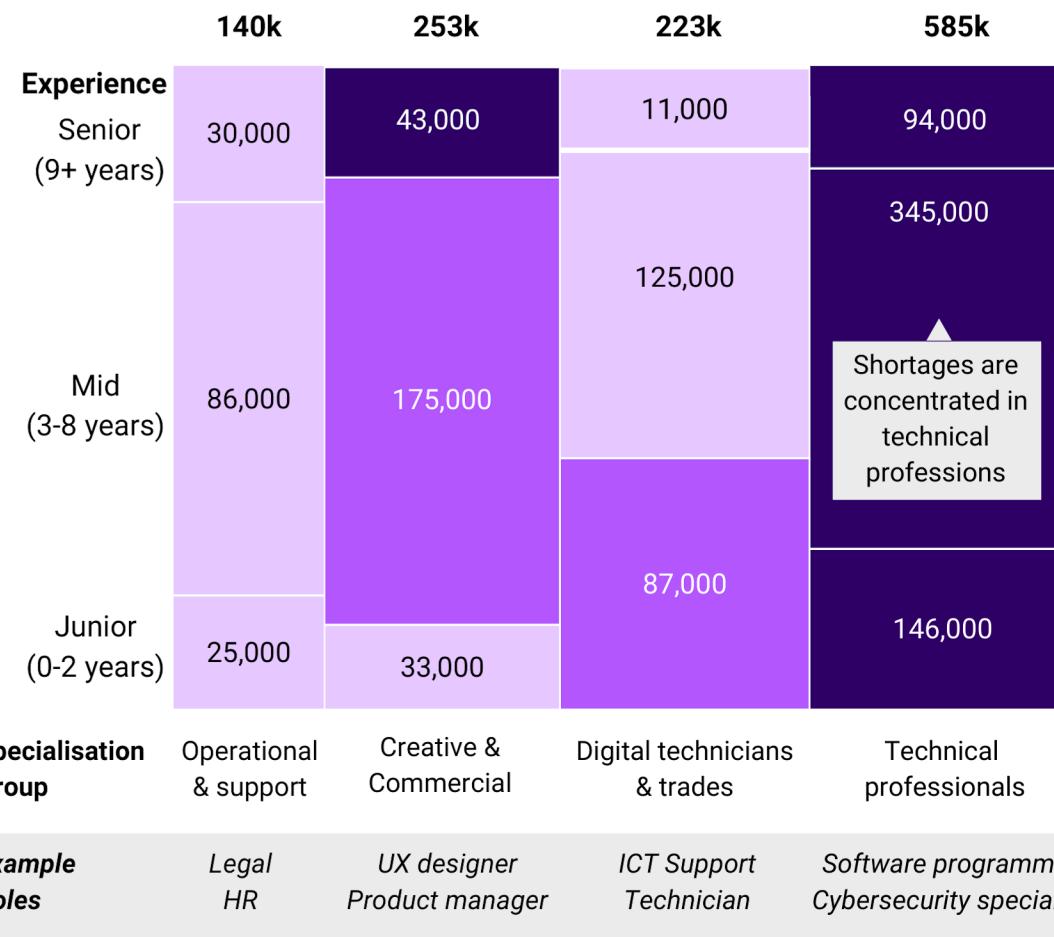


Demand for tech jobs by 2030 by experience and specialisation

Number of tech jobs in the tech sector, by degree of shortage, 2030

Forecast degree of shortage

- High
- Medium
- Low



Australia has some of the best tech talent in the world, but we just don't have enough to meet demand, especially in technical professions where barriers to entry are higher.

By 2030, we forecast that there will be 585,000 people, almost half of the tech workforce, in technical professionals. These roles are highly specialised, and generally require university qualifications. Many of these jobs also require at least three years of experience.

It will be challenging for Australia to meet demand for these roles in the short-term because there are few workers in other parts of the labour market with similar skills and experience. Skilled migration is crucial to meeting this demand for experienced, highly technical workers.

In the long term, we need a stronger pipeline of graduates to meet demand. This will require boosting domestic student uptake of tech degrees, and retaining international students in Australia.

It is also critical to broaden the pipeline and make the tech workforce more diverse

The direct tech sector* is relatively linguistically and culturally diverse, but we lack good representation of women or First Nations Australians

22%

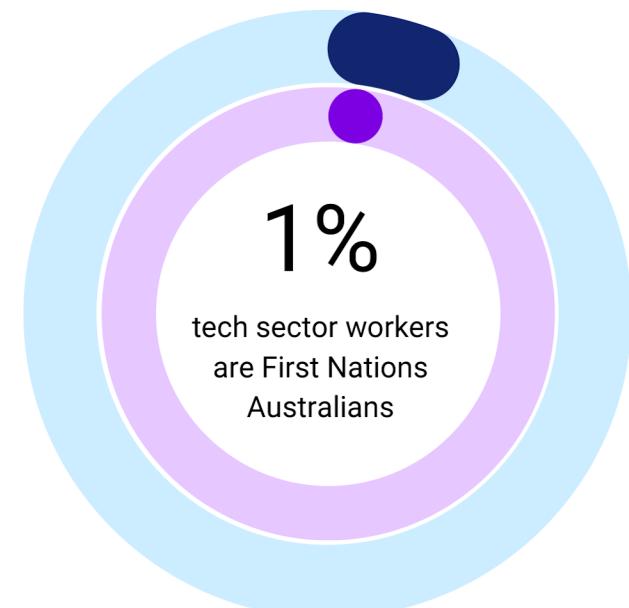
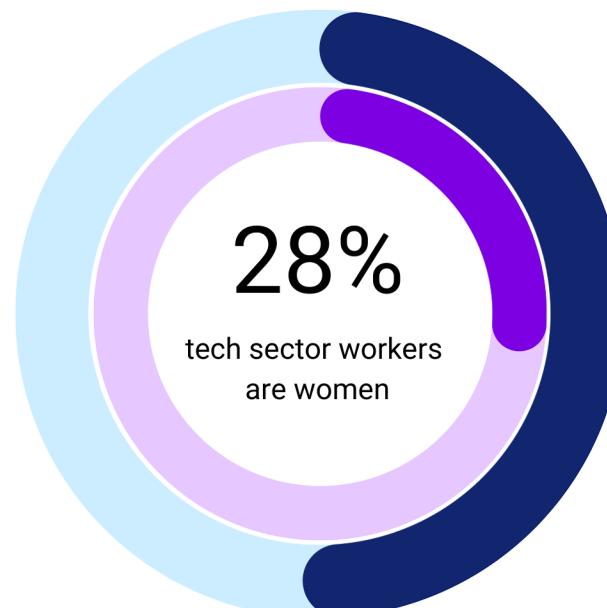
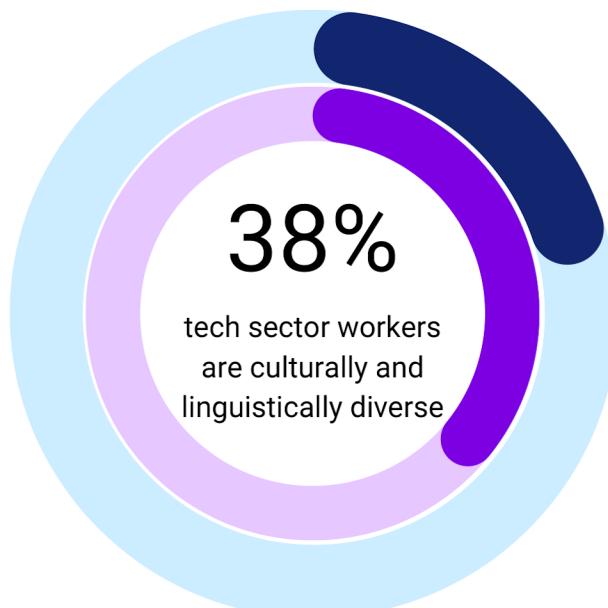
of the working age population is culturally and linguistically diverse

51%

of the working age population are women

8%

of the working age population are First Nations Australians



*The direct tech sector includes workers in technology companies across all occupations. These figures do not include tech workers in non-tech firms who are also included in the broader tech workforce definition.

Australia currently has 935,000 people working in tech jobs. To reach our shared goal with the Australian Government of 1.2m tech workers by 2030, Australia needs 600,000 more tech workers. There are three critical sources of additional workers.

1) Entry level through university and VET

By 2030, Australia would expect an additional 122,000 entry-level tech workers through university and VET pathways. This will need to grow by a further 39,000 to put us on track to reach the jobs goal.

2) Upskilling and reskilling existing workers

The main source of future tech workers will come from people transitioning from other parts of the economy. We forecast this will bring in around 198,000 additional workers. However, we also need the most uplift from these workers, with an additional 97,000 workers required to transition into tech roles.

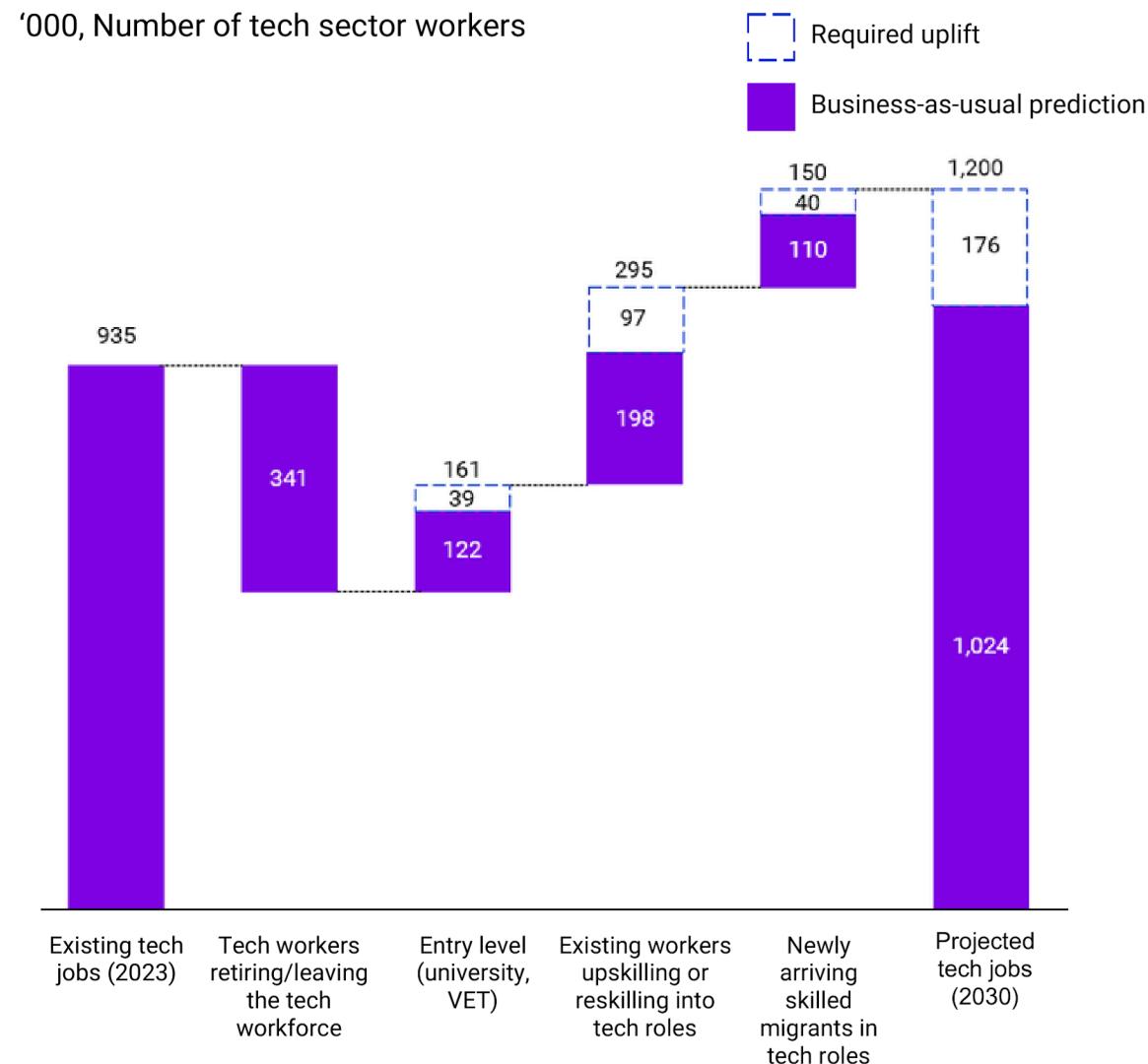
3) Migration

Migration will play a critical role in providing highly specialised and experienced workers, who can bring highly demanded skills and manage and mentor junior staff and people reskilling into the tech sector. Around 40,000 skilled migrants are needed on top of a forecast of 110,000 under a business-as-usual scenario.

 Sources: ABS, Tech Council of Australia, Getting to 1.2 million

Our tech workforce is growing, but not at the pace needed to meet demand – we need 600,000 more tech workers by 2030

Projected tech sector jobs in 2030



FUNDING

Early-stage funding is lower than competitor markets but has been growing rapidly between 2013 and 2021

In 2021, there was \$12 in angel and seed funding invested per working age Australian, approximately 30% less than Canada.

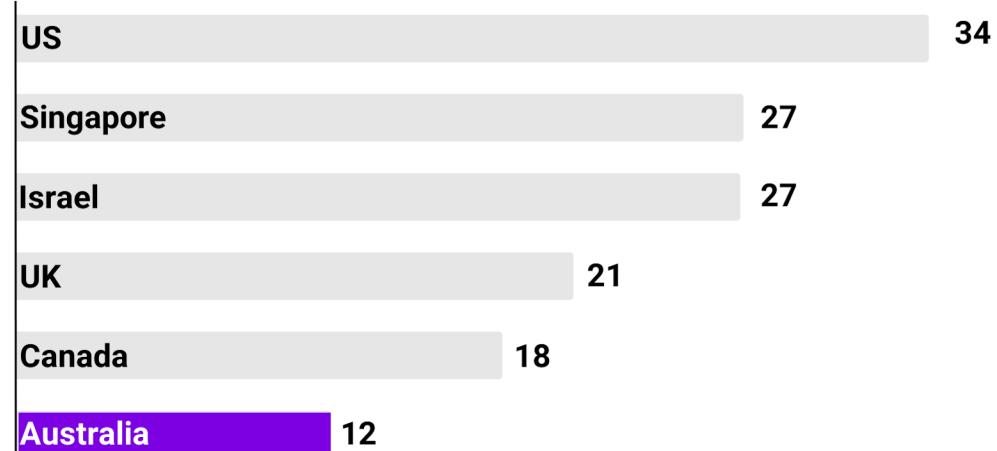
However, Australia has seen some of the strongest growth in seed funding in recent years, with the second-fastest growth in seed funding between 2013 and 2021, just behind Singapore.

The challenge will be ensuring this growth continues despite worsening macroeconomic conditions. To do this, we need to ensure that we are supporting continued growth in early-stage funding.

It is critical that Australia does not lose our advantage in early-stage funding we are close to obtaining.

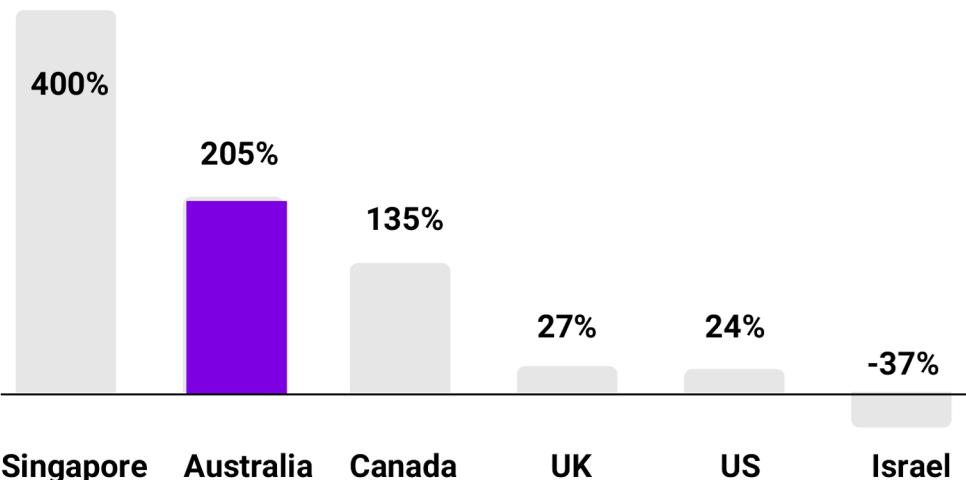
Angel and seed stage funding per capita

\$ per capita, February 2021



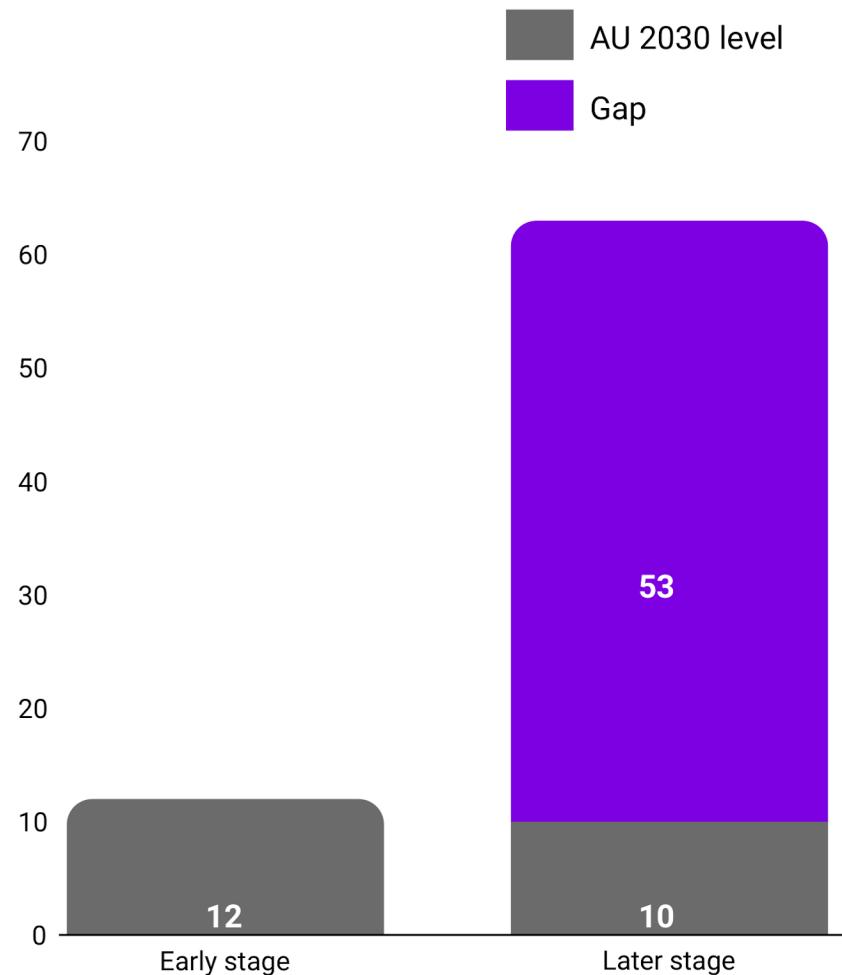
Growth in angel and seed funding

2013 - 2021



Uplift in VC funding required to match US per capita funding

Billions, 2030, per working age person



If this growth continued, Australia would be on track to have a globally competitive early-stage funding environment, though scaleup funding remains a challenge

Based on recent growth trends, by 2030, Australia could reach the same amount of early stage VC funding as the United States on a per capita basis – though this may be affected by broader macroeconomic conditions or policy changes

The trends in scaleup funding suggest a more challenging future. Based on Australia's historical performance, we forecast a \$53 billion scaleup funding gap by 2030. This suggests we will continue to see significantly less scaleup funding in Australia than the United States, on a per capita basis.

But funding (in terms of dollars and deals) has slowed significantly since 2021 which presents a new challenge for the health of our startup ecosystem

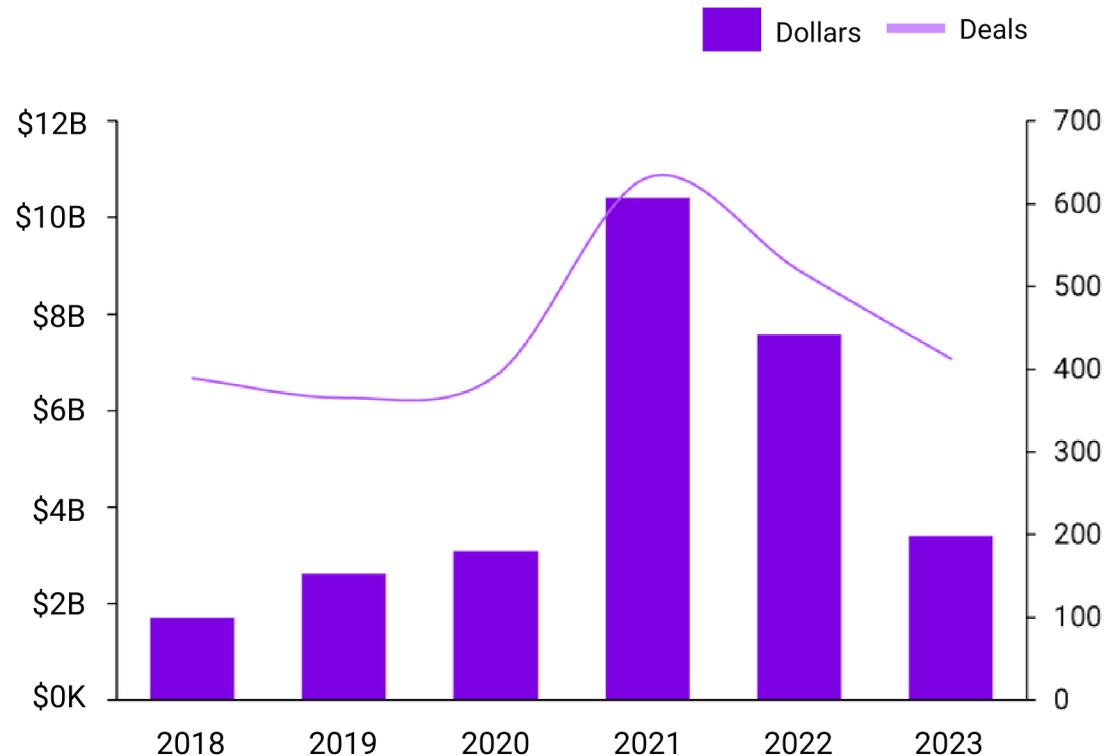
Research from Cut Through Venture and Folklore Ventures shows that funding has slowed significantly since 2021. This was a period of rapid growth during the COVID pandemic when interest rates were significantly lower in Australia and globally. This wasn't a one-year blip in 2021, with funding declining by 54% between 2022 and 2023.

The fall in overall funding suggests Australia is becoming a more challenging place to start and scale a tech company.

This fall in overall funding suggests a more challenging funding environment to start and scale a tech company, albeit funding remains above pre-COVID levels.

Startup funding in Australia

2018 - 2023, \$bn, number of deals



Source: Cut Through Venture & Folklore Ventures, The State of Australian Startup Funding 2023

Mobilising VC in deep-tech areas, including AI, as well as later stage companies has been a challenge with Australian VC funds

Greater innovation in deep tech areas is critical to solving complex challenges like climate change and our lackluster macroeconomic productivity. Concerningly, Australia is under-investing in deep tech areas, including AI, compared to the rest of the world. AI accounts for 10% of global venture capital funding, but only 5% of domestic venture capital funding.

Understanding funding skews by segment helps us identify drivers of the scaleup challenge. Skews away from deep tech areas, like AI and Biotech, imply a skew away from more capital-intensive areas. This likely contributes to the \$53 bn scaleup gap forecast for 2030.

Encouragingly, we're seeing greater interest from investors in many of these deep tech areas. Research from Cut Through Venture and Foklore Ventures shows that investors are most excited by opportunities in AI/Big Data in 2023.

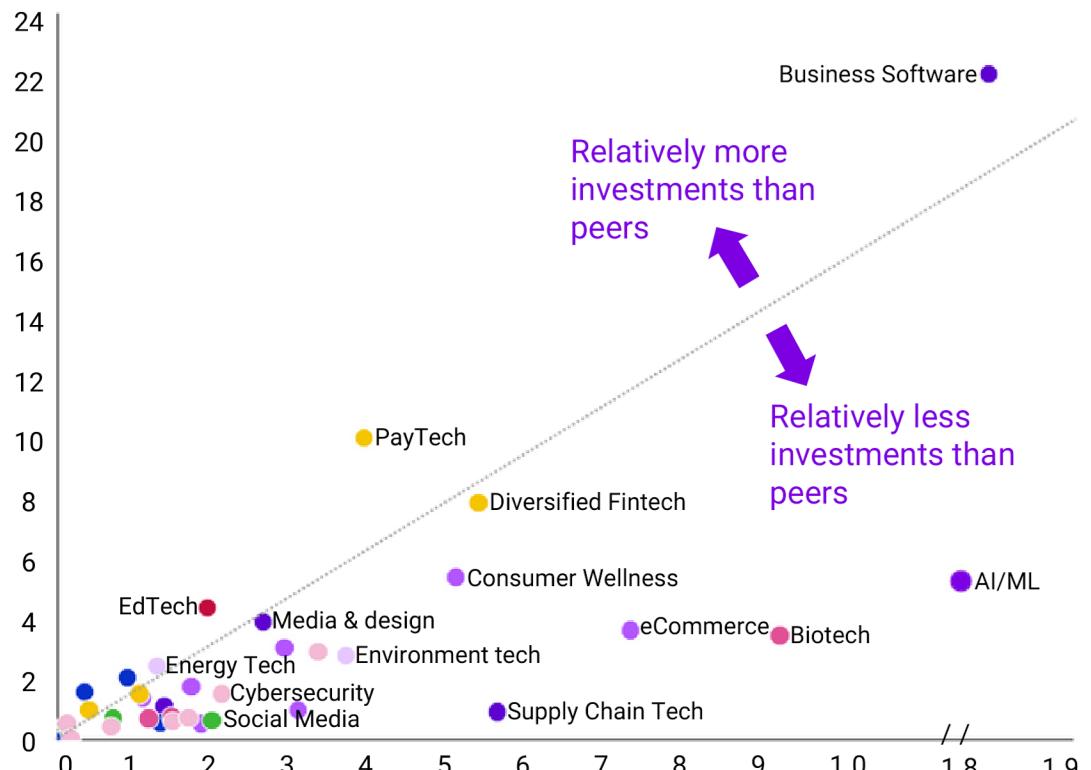
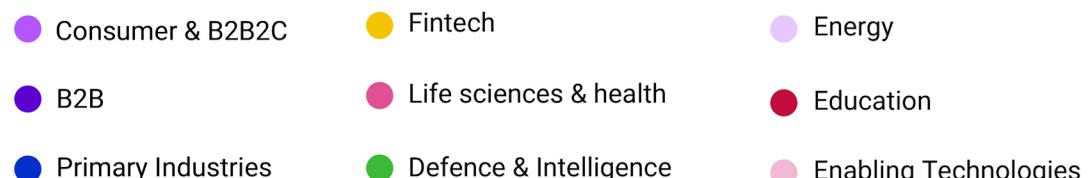
 Source 1: Tech Council of Australia, Turning Australia into a regional tech hub, Pitchbook

Source 2: Tech Council of Australia, Shots on Goal, Dealroom

Comparison of VC funding in Australia and globally¹

AUS VC funding 2020-2021, % of total funding

Subsectors



Note: Early stage funding includes pre-seed through to Series A; Later stage funding includes Series B through to D,

REGULATION

Well-designed tech regulation should follow 5 guiding principles



Informed and coordinated: sufficient time, stakeholder input and expertise is required to make informed policy decisions. Rigorous analysis and industry engagement helps avoid the pitfalls of technical infeasibility and enhances regulatory compliance.



Proportionate: a risk-based approach targeted at clearly defined problems enables regulation to achieve its objectives, while avoiding unintended consequences.



Timely: premature regulatory intervention can disproportionately impact emerging startups, business models and technologies.



Consistent and interoperable: the technology industry is global. Regulation should consider and align, where appropriate, with domestic and global regulation.



Supports innovation and growth: becoming a leading digital economy means that Australia should aim to encourage responsible and early introduction and deployment of technology, avoiding prescriptive technical requirements.



Case Study	AI Regulation	Cybersecurity
Problem	 AI Regulation <p>Safeguards are necessary to manage the risks and harms that can emerge from certain AI applications and use cases.</p>	 Cybersecurity <p>Improving national cybersecurity readiness and resilience is necessary for economic security and the growth of our digital economy.</p>
TCA Position	<p>Leverage existing tech neutral and product / industry specific laws, provide improved reg guidance through a new expert coordination and advisory model, and identify genuine gaps that require amendments or new laws.</p>	<p>Australia needs a clear cyber strategy with improved coordination, a strong pipeline of cyber talent and tech capabilities, better use of technologies and a modernised legal framework. Secure software requirements should be aligned internationally.</p>
International Examples	<p>UK's "pro-innovation approach" to regulating AI. US President Biden's Executive Order on safe, secure and trustworthy AI.</p>	<p>US NIST Secure Software Development Framework (standards) and government procurement/contracting requirements. US state-based cyber safe harbour regimes.</p>

How regulatory reform can create a more competitive tech landscape in Australia



Improving the productivity of the skilled migration system, by streamlining arrangements for visa holders and ensuring the administration of the skilled migration program is internationally competitive.



An ambitious plan for improving competition and consumer outcomes in Australia's payments system, with regulation that supports greater innovation, access and positions Australia as a global leader in the FinTech sector.



Ensure privacy reform is interoperable and coherent with international frameworks like GDPR to uplift protections while reducing costs for tech businesses that are already complying with global frameworks.

03



Copyright and IP law requires further clarity in the context of the development and deployment of AI technologies, as it will have a significant bearing on our capacity to take advantage of the economic opportunities of AI. AI developers should have access to high-quality, broad and diverse inputs and datasets.

04



To seize our tech opportunity, we need to address three key drivers of growth

Talent

- New entrants through university and VET
- Workers transitioning and reskilling from other sectors
- Skilled migration
- Improving diversity

Funding

- Venture capital
- Foreign direct investment
- Government funding, tax settings and procurement
- Business investment in tech across the whole economy

Regulation

- Modernise existing regulation in line with best-practice regulatory principles for a digital economy
- Ensure new regulation is proportionate, risk-based, interoperable and facilitates growth of new markets (e.g. AI, digital assets)



Australia needs to address three key drivers of growth to seize our tech opportunity.

First, we need to address tech talent shortages by growing the university and VET tech pipelines, promoting worker transitions, enhancing diversity and improving the productivity of the skilled migration system.

Second, to compete globally, Australia must increase tech investment. This includes promoting venture capital, encouraging foreign direct investment, government funding, tax reforms and fostering broader business investments in tech.

Lastly, Australia needs a modernised regulatory system. This involves modernising existing regulation and adopting best practices, particularly in setting regulations for emerging assets like AI, where Australia is already a significant player.



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