



# Harnessing the hidden value

How US tech workers boost the growth of Australia's tech ecosystem

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Commissioned by







#### Microsoft Linked in

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## Foreword

## **AMBASSADOR KENNEDY**

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United States Ambassador to Australia



America and Australia have always worked together to achieve a more prosperous and peaceful future, and as this report shows, cooperation in our nations' technology sectors is increasingly a part of that story.

This cooperation is already underway: U.S. investment is a critical factor in Australia's tech ecosystem, where 102,000 Australians work for U.S. tech firms in Australia, accounting for one in five Australian tech graduates.

The future offers exciting opportunities to build on this deep collaboration. Through AUKUS and other initiatives, we will develop artificial intelligence, quantum information science and biotechnology solutions to tomorrow's challenges.

Together we will innovate through the Climate, Critical Minerals and Clean Energy Transformation Compact announced in May 2023. We are working with Quad partners through the Quad Critical and Emerging Technology Working Group; and in numerous bilateral research exchanges, especially our annual Joint Commission Meetings on Science and Technologies.

We will promote the broader economic development of the Indo-Pacific as a free, open and stable region – one where individuals and families can lead better lives and communities can become prosperous and resilient.

This report offers valuable lessons on the important role U.S. tech firms play in sustainable workforce development, and the critical need to make STEM education available and attractive to girls and young women.

Our private sector partners have a critical role to play in fostering cooperation, and this report shows we are building on solid foundations. These efforts will be further supported by common values and practices like open ethics-based development, and data security – all of which are critical to developing a sustainable tech industry.

I commend *Harnessing the Hidden Value* to policymakers and private sector leaders looking to learn how U.S. investment is tangibly improving Australia's tech ecosystem and look forward to incorporating its recommendations to build an exciting future together.

> **Ms. Caroline Kennedy** United States Ambassador to Australia



## Foreword



**STEVEN WORRALL** 

Managing Director, Microsoft ANZ



Managing Director, LinkedIn ANZ

As Managing Directors of Microsoft and LinkedIn for Australia and New Zealand, we are excited to share with you the unique insights in this report on the ways in which US tech companies contribute to fostering a vibrant tech ecosystem in Australia. This report, based on LinkedIn Economic Graph data, reveals how US tech companies and their presence here in Australia are not only creating jobs and opportunities for Australians, but are essential to ensuring Australia has the experienced tech talent that is required if we are to diversify our economy and meet the opportunity outlined by the Tech Council of Australia's report – *The economic contribution of Australia's tech sector*.

It is estimated that the direct tech sector contributes 3.8% of Australian GDP which is significantly below the US (10.2%), UK (8.1%), and Canada (6.8%). As a result, Australia has a substantial opportunity to increase the economic contribution of the tech sector to catch up with its global peers.

We agree with Jennifer Westacott, Business Council Chief Executive when she says that "overseas investment is critical to create jobs, boost productivity and encourage innovation in Australia. We need to get the settings right to encourage and enable overseas investment if we want to be a top five digital economy by 2030."

We also know that we have a tech skills shortage in this country and that we will need more tech workers across every industry to meet that opportunity.

This report highlights that it is more than just a numbers game. Whilst we support all the efforts by industry and Governments to create new pathways and encourage people from different backgrounds into tech to build a new pipeline of talent – this report highlights that experience plays an outsized role in the tech sector, with 75% of jobs requiring more than three years of experience. The report also finds that on-the-job training is essential to gaining the necessary skills. US tech firms are a critical source of experienced tech talent in Australia, delivering productivity spillovers, fast-tracking junior employee development and creating a combined \$1.2b lift in productivity.

Microsoft is proud of our 40-year contribution to Australia's thriving tech community that includes many other US tech companies, as well as local start-ups, scale-ups, universities, research institutions and government organisations. Together, we are accelerating digital transformation across countless industries and sectors to build a more innovative and prosperous nation.

This report showcases the achievements of US tech company employees and alumni, who are upskilling coworkers, taking their talent and skills into new roles and building new Australian businesses. World leading digital economies comprise a diverse mix of both international and local firms and the continued growth of Australia's tech sector requires co-operation, collaboration and diversity.

We hope you enjoy reading it as much as we did and join us in celebrating the value and potential of Australia's tech ecosystem.



## **Executive Summary**



## **Executive Summary (1 of 2)**

## This report demonstrates the economic value of experienced talent within US tech firms operating in Australia

Australia has a \$1 trillion relationship with the US, significantly larger than its relationship with any other country. On a per-employee basis, US tech firms pay more, invest more and contribute more to Australia's GDP than both Australian-founded and other international firms<sup>1</sup>. This relationship has been particularly important for the tech sector as US firms have played a key role in developing the now \$167 billion<sup>2</sup> tech industry.

Large US tech firms are foundational to Australia's tech ecosystem by bringing global expertise and networks to help train and mentor local businesses, employees, entrepreneurs, professionals and government workers. These firms provide capital, technology and knowledge of processes and practices that can help support the growth of local tech firms and other firms in the value chain. These interactions result in spillovers of "technology, innovation, technical know how and management capability that lead to improved general productivity"<sup>3</sup>.

The experienced talent within US tech firms has significant value once they transition to new roles as these workers can transfer knowledge to other organisations. They also go on to create startups or support scaleups with domestic and global impact. This study is the first Australian study to utilise unique data sources such as LinkedIn in conjunction with other economic datasets to understand both the value and movement of experienced workers from US tech firms to other parts of the Australian tech ecosystem and evaluate their broader economic impact.

## Large US tech firms are an important supplier of experienced talent to the Australian tech sector



## US tech firms are critical for the supply of experienced tech talent in Australia, delivering productivity spillovers

The Australian tech ecosystem is characterised by a strong demand for experienced talent<sup>4</sup>. Currently 75% of tech jobs require more than 3 years of experience compared to just 58% for other professionals. Overall, the average tech worker requires 4 years of experience compared to only 3.1 years for workers in other professional occupations.

Currently US firms employ 102,000 tech workers in Australia, representing ~12% of the total tech workforce<sup>1</sup>. 77,000 of these workers are experienced, and experienced talent produce on average 6.1% more economic value relative to inexperienced peers in similar roles. This effect generates \$1.2 billion in productivity benefits each year.

In addition to their contributions as individuals, experienced tech talent can also fast-track the development of their junior co-workers by increasing their productivity. The experienced talent that operates within US tech firms can boost the productivity of junior workers by 2.6%.

US tech firms employ 18% of Australian tech graduates, providing career pathways for young Australians. Each year, an average of 25,000 junior workers in US tech firms benefit from fast-tracked development, resulting in an additional \$5,000 in value added per worker<sup>5</sup>.



Source: (1) Australian Bureau of Statistics (ABS) – International Investment Position, Australia: Supplementary Statistics; United States Studies Centre; Accenture analysis (2) Tech Council of Australia, Accenture (2021) '<u>The Economic Contribution of Australia's Tech Sector</u>', (3) Productivity Commission (2023) '5-year Productivity Inquiry' (4) LinkedIn & ADB (2022) '<u>Digital Jobs and Digital Skills: A Shifting Landscape in Asia and the Pacific</u>' (5) LinkedIn Economic Graph data; Lightcast; ABS Labour Force data; Tech Council of Australia, Accenture (2022) '<u>Getting to 1.2 million</u>'; Accenture analysis

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## **Executive Summary (2 of 2)**

## Tech talent that leave US firms create value in their new roles by upskilling colleagues in other industries or creating new firms

Each year, around 4,000 experienced tech workers leave US tech firms and take up new roles within Australia. 4 in 5 (3,200) take on prominent tech roles in Australian tech firms, the public sector, academia, or other industries. These US tech alumni create productivity spillovers amongst their new co-workers, who benefit from the knowledge, experience and leadership that has been developed within US tech firms. Each annual cohort of US tech alumni joining new firms contributes, on average, up to \$613 million in value added to the economy.

On average, 800 individuals leave US tech firms each year to start or scale new firms in Australia, resulting in 150 new startups each year. 1 in 2 successful Australian startups have been founded or helped scaled by experienced talent from US tech firms. Over the last decade, US tech alumni have founded 50 successfully scaled businesses in Australia. Collectively, US tech alumni contribute \$2.25 billion to the Australian economy each year, supporting almost 12,000 jobs outside of US tech firms<sup>6</sup>.

US tech firms will be critical in addressing Australia's future tech workforce demands, particularly for experienced tech workers

The Australian Government is targeting 1.2 million tech jobs by 2030, requiring 653,000 new tech workers. 1 in 8 of the 653,000 new jobs will be created by a US tech firm. By 2030, 1 in 5 experienced tech workers in Australia would have gained their skills from a large US tech firm<sup>7</sup>.

#### US tech alumni have catalysed growth in Australia's tech sector

#### 1 in 2

of Australia's successful startups were started or scaled with US tech experienced talent

#### 4,000

US tech alumni transition to careers in Australian startups, industry or public service each year

#### \$2.2Bn

Economic contribution of US tech alumni to Australia each year



1 in 5

experienced tech workers will have worked at a US tech firm by 2030

## Supporting the AU-US relationship will be critical for the future success of Australia's tech sector

The United States and Australia have a unique and integrated relationship in the technology sector, characterised by close cooperation and collaboration. US technology firms have established a significant presence in Australia, investing in research and development, talent, and infrastructure.

World leading digital economies comprise a diverse mix of both international and local firms. The continued growth of Australia's tech sector requires a level playing field for all firms. A domestic environment that promotes fair competition as well as open and transparent markets enables US tech firms to continue playing a key role in developing talent, mentoring colleagues, suppliers and startups as well as collaborating across the ecosystem to innovate. These settings are critical for Australia to achieve its sector targets and contribute \$244 billion to the economy by 2030<sup>8</sup>.



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## Tech talent in US firms is critical to the growth of Australia's tech sector

Large US tech firms are an important supplier of experienced talent to the Australian tech sector



of tech jobs require more than 3 years of experience compared to just 58% on average for other professionals ARA 102,000

Large US tech firms employ 102,000 Australian workers, with 77,000 of these experienced



Additional productivity created each year **by experienced talent at US firms** 

Experienced talent from US tech firms have been a catalyst for growth and workforce development



of Australia's successful startups were **started or scaled with experienced US tech talent** 



US tech alumni transition to careers in Australian startups, industry or public service each year



**Economic contribution of US tech alumni** to Australia each year

US tech firms will be critical in addressing Australia's future tech workforce demand, particularly for experienced workers



**experienced tech workers** will have worked at a US tech firm by 2030



new tech jobs created by 2030 will be in US tech firms



**tech grads** will be employed at a US tech firm by 2030







The AU-US relationship has been critical to the progress of Australia's tech sector



### The US is by far the largest foreign investor in Australia; US-owned firms also pay employees more, spend more on capex and have higher rates of productivity

Australia has a \$1 trillion relationship with the US, significantly larger than other countries. This relationship translates to several benefits for Australian employees.

As a small open economy, many new ideas and technologies arrive in Australia from overseas. Strengthening relationships with international markets though trade and foreign direct investment is critical for technological advancement. Foreign investors are incentivized to extend their knowledge, technologies and expertise to Australian firms, which ultimately creates dividends for both investors and domestic industries<sup>1</sup>.

The US is by far the largest foreign investor in the country, contributing more than \$1 trillion to the Australian economy in 2021. The European Union and UK in comparison, invested \$763 billion and \$719 billion respectively.

On a per employee basis US owned firms in Australia also pay employees more, spend more on capital expenditure, and generate more industry value add for the economy. On average, US-owned firms pay employees \$71,300 compared to \$69,000 for non-US owned firms and \$49,400 for Australian-owned firms. They also have higher capital expenditure per employee (\$51,000), compared to non-US firms (\$42,000) and AU-owned firms (\$30,000). US-owned firms have higher rates of productivity on average, generating ~\$262,000 Industry Value Add (IVA) per employee, while non-US firms and AU-owned firms generate ~\$216,000 and \$84,000 respectively.



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Source: (1) Productivity Commission 2023, '5-year Productivity Inquiry' (2) Australian Bureau of Statistics (ABS) – International Investment Position, Australia: Supplementary Statistics; United States Studies Centre; Accenture analysis Notes: 1. Figures from 2014-15 as reported in the Australian Bureau of Statistics dataset on the economic activity of foreign-owned business in Australia in 2014-2015

## US tech firms play a critical role in Australia's tech ecosystem

Large US tech firms play a critical role in Australia's tech ecosystem by bringing talent, resources, capital and scale. As highlighted by the Productivity Commission's '5-Year Productivity Inquiry' (2023), inward FDI leads to interactions between multinational corporations and their domestic customers and suppliers. These interactions can result in spillovers of *"technology, innovation, technical know how and management capability that lead to improved general productivity for local firms"*<sup>1</sup>. This is particularly important in the Australian tech sector as the presence of US firms drive growth and productivity through:

**Sharing expertise**: bringing global expertise and networks to help train and mentor local businesses, employees, entrepreneurs, professionals and government workers<sup>1</sup>.

**Fostering collaboration**: working with local partners, researchers, universities, think tanks and policy makers to develop an environment that cultivates innovation and technological enhancement<sup>2</sup>.

**Facilitating access to resources:** provision of capital, technology and knowledge of processes and practices that can help support the growth of local tech firms and other firms in the value chain<sup>3</sup>.

**Supporting innovation**: large US tech firms can provide a market for innovative smaller firms through procurement of their products and services, as well support for entrepreneurs in startup hubs and incubators<sup>4</sup>.

#### Impact of US tech firms on the Australian tech ecosystem



Source: (1) Productivity Commission (2023) '5-year Productivity Inquiry'

Notes: (1) For example, see Microsoft's <u>partnership with Austrade to help</u> Australian businesses export (2) For example, see Google's <u>Australian</u> Research Hub or Microsoft's <u>partnership with CSIRO (3)</u> For example, see Meta's <u>Boost program in Australia</u> that provides free education and best practice to empower small businesses to start and grow online (4) For example, see <u>Amazon's Launchpad Innovation Grant</u>

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## **Case Study**

## **GENEVIEVE BELL**

#### **Current roles**

Director – School of Cybernetics, The Australian National University (ANU) Vice President & Senior Fellow, Intel Labs – Intel

#### **Key previous roles**

Researcher, Intel Architecture Lab – Intel Director, User Experience Research – Intel Vice President & Senior Fellow, New Technology Group – Intel

## Intel's desire to create a diverse environment of ideas drives their hiring decisions

Genevieve Bell began her career as an academic, completing her PhD in Anthropology at Stanford University. After a series of coincidental encounters with venture capitalists around the San Francisco Bay Area, Genevieve was persuaded to interview for a role as a researcher at Intel's Architecture Lab. The head of the lab was a strong believer in the need for an environment with a diversity of ideas and people in order to be successful. Genevieve accepted their offer, seeing this as an "extraordinary invitation to do something at a company that would let me take a risk… Intel was leading the way in technology and I knew there was an opportunity to do something great there".

#### "One thing I learnt at Intel was that I really wanted to build things, not just study them"

Genevieve was inspired by the competitive innovation that defines the research labs at Intel. In conjunction with a culture of "constructive confrontation", she also describes a practice of "disagree and commit", where after a conversation has reached its close, the entire team moves on to action, regardless of whether everyone agrees with the ruling decision. This culture fosters a marketplace of ideas, which is incredibly important when "most ideas that you have don't bear the fruit that you think they do. What makes success is the collisions of those ideas together and the things that are born out of that." This is fuelled further by a broader encouragement within Intel of deliberate but calculated risk taking, which is a crucial component in the formula for innovation. Genevieve also cites leadership and self assurance as core takeaways from her time in the US. This proved invaluable on her return to Australia, where she founded the School of Cybernetics at The Australian National University. Genevieve attributes many of the lessons and experiences that she gained during her time at Intel as the driving force of her career, which she and her team are now seeking to embed in future Australian leaders through their new Master of Applied Cybernetics at the ANU.



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I had a coach in the leadership ranks at Intel that helped fast track my development into a leadership position within a few years... I've since gone on to create the new School of Cybernetics at ANU, which equips Australians with skills for the future.











**Experienced talent from US firms creates value across the Australian tech sector through knowledge transfer, upskilling and innovation** 



#### The AU-US relationship in the tech sector has delivered significant economic dividends through skill and knowledge transfer, innovation and workforce development



## The AU-US relationship plays an integral role in the growth and development of the Australian tech ecosystem.

Large US tech firms invest significantly in Australia bringing global best practice, experience and capabilities to drive innovation. Specifically, this includes:

- 1. Attracting an experienced workforce that can upskill colleagues and bring skills and experience throughout the tech value chain
- 2. Each year, experienced tech workers trained in US firms go on to develop their career by:
  - A. Joining established local organisations and pass on their skill and experience to colleagues
  - B. Founding or scaling new Australian startups
- 3. Through these channels, the participation of US tech firms strengthens the Australian tech workforce

The closeness and contribution of the US tech sector plays an integral role in the growth and vibrancy of Australia's tech ecosystem. Harnessing this relationship will be key to the future of Australian tech and the prosperity of the broader economy.



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## Experienced talent is particularly important in the tech sector; 75% of tech jobs require more than 3 years of experience compared to just 58% for other professionals

#### The Australian tech sector is characterised by a strong demand for experienced workers.

Analysis of job ad data reveals that 75% of advertised roles for tech-related occupations require at least 3 years of industry experience. This is markedly higher than the share observed for other professional occupations<sup>1</sup>, of which 58% of ads require 3 or more years of experience. This difference is particularly pronounced at the highest end of the experience spectrum, where 21% of tech occupation ads require 6+ years of experience, relative to just 11% for other professionals. Overall, tech employees require 4 years of experience compared to 3.1 years for other professionals.

#### On the job training is critical for gaining the required levels of experience and skills to succeed in the tech sector

Comparing management roles in tech occupations against other professionals reveals that on average, ads for tech managers are 2.6x more likely to specify training and development skills as job requirements than ads for managers in other professional occupations.

In particular, skills like Program Management, Project Planning and Development, and Project Management are 3-6 times more likely to be specified on tech management job ads than for other professionals, while technical skills were 2 times higher<sup>2</sup>.

This observation highlights a key challenge for the future of the Australian tech ecosystem. Most tech sector reskilling programs are focused on supplying entry level workers. This evidence suggests that skills shortages in the tech sector will be highest for roles that require many years of industry experience. Thus, addressing shortages in experienced tech talent will be crucial for the future of the ecosystem.



#### Job ads by tenure for tech compared to other occupations

% (share) of job ads by required years of experience, FY 2022

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Source: Lightcast: Accenture analysis

Notes: 1. Professionals refer to the group of occupations classified under the ANZSCO Professionals category. This is comprised of a selection of higher skilled workers in industries such as finance, professional services, engineering, science and others. 2. See the Appendix for detailed analysis

## 02 | Experienced talent from US firms creates value across the Australian tech sector

### **Case Study**

## **AMY SCHULTZ**

#### **Current roles**

Global Head of Talent Acquisition – Canva

#### **Key previous roles**

Senior Director of Product Recruiting, San Francisco – LinkedIn Head of Talent Acquisition, APAC – LinkedIn

## US tech firms provide a source of experience that is invaluable for the development of effective leadership skills

Amy Schultz is a specialist recruiter with close to 20 years of experience in recruitment and talent development roles. Having undertaken management roles at recruiting specialists Hudson and LinkedIn, Amy has witnessed firsthand the value of US tech firms in their ability to grow talent. During her time with Hudson, Amy took up a role in Shanghai, describing it as "the best thing I ever did". After joining LinkedIn, she had similar opportunities to work in both Singapore and San Francisco. Amy described these moments as being critical for her career, enabling her to develop situational skills, cultural awareness, and adaptability as she worked alongside great communicators and advocates. These are key components required of an effective leader.

#### "Bringing a deep variety of experience is critical for the success of smaller firms that often overly rely on leaders that have grown up in that firm"

Having held recruitment positions in Australian firms too, Amy has found that leadership is one of the most valuable attributes in a new hire. At Canva, she is hiring more leaders than ever before, with a particular focus on people who have grown teams and worked for companies that have internet tech experience.

## While Amy strives to recruit from a diverse pool of backgrounds and experiences, she also acknowledges the value of the training programs that are offered by US tech firms.

Referring to LinkedIn's Associated Product Management Program: "I've seen what that type of program can do and the type of talent that it can develop".



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Recruiting product folks at a tech firm in Silicon Valley was incredibly valuable for my development of executive presence, communication and talent development skills









US tech firms are a leading employer of Australian talent, developing experienced workers that enhance productivity



## US tech firms employ 102,000 tech workers in Australia; 77,000 of these workers are experienced

12% of the Australian tech workforce (102,000 employees) is currently employed within a US firm<sup>1</sup>. Of these 102,000 workers<sup>2</sup>, 77,000 of them have at least 3 years of experience working in the tech sector<sup>3</sup>.

As a by-product of the development and upskilling opportunities that are provided by US tech firms, this subset of the workforce represents a highly skilled and experienced pool of tech talent in Australia. These workers drive output and innovation through individual contributions to their firms, while also generating productivity spillovers on their less experienced peers. This experienced workforce is critical for the provision of on the job training, mentoring and skill acquisition required in the tech sector.

Experienced talent is a key source of value across the Australian tech ecosystem. By virtue of their skill and experience, these workers have significant impacts both within their roles at leading US tech firms, and across other segments of the economy. The latter occurs when experienced talent departs US firms for roles in Australian tech firms, startups, the public sector, and other industries.

#### Breakdown of total workers employed by a US tech firm in Australia by level of experience

No. of workers, 000's





Notes: (1) The total size of the tech workforce (861,000) was sourced from Tech Council of Australia, Accenture (2021) <u>The Economic Contribution of Australia's Tech Sector</u>' (2) Accenture analysis of Linkedin Economic Graph data and TCA data. (3) Experienced workers are defined as workers with at least 3 years of experience working full time in the tech sector. (4) The number of experienced workers is derived from an average share of experienced workers within US tech firms from LinkedIn Economic Graph data and Lightcast.

## US tech firms employ 1 in 5 Australian tech graduates, providing world class career pathways for young Australian workers

## Tech graduates can benefit significantly from working in US tech firms under the guidance of experienced talent that bring international best practice.

US tech firms offer world class career pathways for young talent through their graduate programs. About 1 in 5 (18%) of Australian tech graduates are employed in a US tech firm.

US tech firms bring international exposure to best practices enabling graduates to broaden their skills. Graduates can access a global network of experienced employees and partners providing opportunities for mentorship and development.

The graduate programs offered by US tech firms provide quality training and development opportunities to budding talent. Of the top 50 graduate employers, 8% are US tech firms which hire the same number of domestic graduates as Australian tech firms<sup>2</sup>.

Breakdown of Top 50 employers by industry<sup>2</sup>

#### % % US-owned firms Other firms 14% Professional services 10% Banking 10% 18% Engineering 10% Other industry **Australian tech** 10% Other tech graduates by ownership 8% **US** tech location of employer 8% AU tech 8% Public sector 82% 6% Other finance 6% Management consulting 6% Consumer goods 4% Law

#### Share of Australian tech graduates employed by US firms<sup>1</sup>

03 | US tech firms are a leading employer of Australian talent, developing valuable experienced workers

# Experienced talent employed at US tech firms create \$1.2 billion of additional productivity benefits each year

#### Within US tech firms, experienced talent adds value through higher individual productivity and upskilling of junior workers.

In Australia, an estimated 77,000 workers are employed at US firms with at least 3 years of tech sector experience. Experienced tech workers are estimated to produce 6.1% more value relative to inexperienced peers in similar roles by virtue of their experience.<sup>1</sup> On average, these experienced workers each contribute an additional \$11,000 in value above that of a junior each year.

Experienced talent also create productivity spillover benefits through the upskilling of junior colleagues.

#### Exposing a junior worker to experienced talent generates an estimated 2.6% boost in their annual productivity.<sup>2</sup>

In Australia, US tech firms employ around 25,000 junior workers, who are all surrounded by experienced talent. Each year, these juniors generate an additional \$5,000 per worker in value as a result of productivity spillovers created by their experienced colleagues.

In total, the additional productivity value created by experienced tech talent within US firms amounts to an estimated \$1.2 billion annually.







Source: LinkedIn Economic Graph data; Lightcast; ABS Labour Force data; ABS Australian Industry (2020-21); Serafinelli (2012); Mas & Moretti (2009); Palangkaraya et al. (2015); Accenture analysis

Notes: (1) Accenture analysis of Lightcast data. (2) Market scan of productivity effect sizes from the academic literature referenced above. (3) Refers to average annual labour productivity growth from FY2011 to FY2017 as reported in Bogaards (2019)





**Experienced talent from US tech firms also drive new business creation and raise tech capabilities across Australian industry** 



## 4,000 experienced workers leave US tech firms each year to create, improve, and scale Australian businesses and organisations



## 4,000

Experienced tech workers leave US tech firms each year to take up new roles across Australian businesses, public sector, and startups.<sup>1</sup> These experienced workers become US tech alumni.

#### Career path of US tech alumni in Australia<sup>1</sup>

No. of tech workers with at least 3 years of experience (% share of total), annual average from 2015-2021





Source: LinkedIn Economic Graph data; ABS Labour Force data; Accenture analysis Notes: (1) This analysis does not include movement of workers from one US tech firm to another US tech firm, or movement of workers from a US tech firm to a non-US or non-Australian tech firm

## **Case Study**

## **JULIE INMAN GRANT**

#### **Current roles**

eSafety Commissioner – Commonwealth of Australia Chair – Child Dignity Alliance's Technical Working Group Board Member – WePROTECT Global Alliance

#### **Key previous roles**

Director of Government Relations, APAC – Adobe Director of Public Policy, Australia & SE Asia – Twitter Global Director, Safety and Privacy Policy and Outreach – Microsoft

#### Julie's experience working at major US tech firms was critical in developing the experience required for her role as eSafety Commissioner

Julie started with Microsoft in 1995, where she spent 17 years learning from industry leaders like current Vice Chair and President Brad Smith. During this time, she took on senior public policy and safety roles, culminating in a position as Microsoft's Global Director for Safety and Privacy Policy and Outreach. Julie then brought her experience to Twitter, taking up a role in Australia as Director of Public Policy. Julie integrated many of Microsoft's global best practices into Twitter, driving the company's policy, safety and philanthropy programs across Australia, New Zealand and South-East Asia. In 2017, Julie took up her current role as eSafety Commissioner, leading the world's first government regulatory agency committed to keeping its citizens safer online. In 2021, she launched the global Safety by Design initiative, that has taken hold in legislation globally and has been recently hailed by President Joe Biden as a policy imperative in his recent State of the Union address.

#### "When it comes to regulation, we need to bring industry on the road with us, we have to do it with them, not to them"

Having gained experience working at Microsoft, Twitter, and Adobe, Julie has accrued a deep understanding of the nature of technology, but also what makes technology companies tick. In particular, seeing the issues that users, platforms and governments face has given her a rich understanding of online safety, and the healthy tension and balance that needs to be struck with privacy and security. "Without an understanding of technology, algorithms, and the legitimate limitations companies might face, I wouldn't be able to do the job that I do now." Julie also outlines how cooperation between tech industry and policy makers is necessary for success. "Technology is always going to move faster than regulation, in order to keep up, policy makers need to work alongside companies to anticipate and understand major technology changes and paradigm shifts."

#### With extensive experience in technology and safety, Julie is now creating positive impact across government, industry and NFP sectors

There is a significant gap in knowledge when it comes to technology for many members of both the public and the government. Julie is now sharing her experience and knowledge across government, industry and the NFP sector. As Commissioner, Julie also plays important roles as Chair of the Child Dignity Alliance's Working Group, as Board Member of the WePROTECT Global Alliance Board and serving on the World Economic Forum's Global Coalition for Digital Safety. Leaders in the tech space, like Julie, have a responsibility to educate people on these matters. "One of the things that I've done to help bring the public and policy makers along with the sector is our series of Tech Trends and Challenges papers. These strive to democratise information around things like decentralisation, immersive technologies, deepfakes and other technology trends." If Australia is to capture the economic opportunities that the tech sector has to offer while also promoting safety, it is crucial to have people in decision-making roles that understand the DNA of technology. There also needs to be a change of thinking about safety as a business imperative that can harness innovation rather than serve as a friction point or a cost centre. Progressive companies understand that a positive online environment and better user experiences will ultimately lead to customer retention now, and into the future.



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I don't think you could regulate the tech sector effectively if you didn't have significant experience working in tech at a major company







### US tech alumni that take up roles in Australian firms boost productivity, contributing \$613 million in value added to the economy per annual cohort

As they do in their roles within US tech firms, experienced tech talent produce significant value above that of a junior tech worker when they take up roles in organisations outside of US tech firms.

Each annual cohort of US tech alumni produces \$178m in value to the economy via individual contributions<sup>1</sup>.

In addition, US tech alumni also create productivity spillovers on their surrounding co-workers, who benefit from the experience and leadership of talent that has been developed within US tech firms. The Productivity Commission and Keller (2021) notes that innovation diffusion can occur through these spillovers:

"Local firms may observe foreign firms, or diffusion might occur from labor turnover as domestic employees move from foreign to domestic firms. A major potential channel for horizontal spillovers is the movement of workers between firms"

These spillovers are estimated to increase productivity per worker by 2.6%.<sup>2</sup> These benefits amount to \$435m in additional value added to the economy per annual cohort of US tech alumni.

Collectively, the individual contributions and productivity spillovers produced by US tech alumni create an estimated \$613m in value added per cohort.

#### Value added of US tech alumni over their tenure in new roles by sector

\$ millions, average economic value added of an annual cohort of US tech alumni taking up new roles





Source: LinkedIn Economic Graph data; Lightcast; ABS Labour Force data; ABS Australian Industry (2020-21); Serafinelli (2012); Mas & Moretti (2009); Palangkaraya et al. (2015); McCrindle (2020); Roche et al. (2022) Notes: (1) Accenture analysis of Lightcast data, see appendix for further details. (2) See appendix for details on the method.

### 1 in 2 successful Australian startups have been founded or helped scaled by experienced talent from US tech firms

#### 1 in 2 of Australia's successful startups have had leaders that have gained experience at US tech firms.

This highlights the significant contribution of US tech alumni in growing the startup and broader tech ecosystem in Australia.

An estimated 24% of major Australian startups have at least one founder who had previously accrued experience working in a US tech firm.<sup>1</sup>

In addition to this, a further 28% of startups were not founded by US tech alumni, but have had at least one US tech alum take on a critical leadership role at the business<sup>2</sup>, with most instrumental in the early stages of the business<sup>3</sup>. This demonstrates the critical role of US tech alumni in undertaking leadership roles that can enable startups to scale. Their experience and ability to attract and train world class talent are fundamental to the growth and success of many of Australia's startups.

## Share of successful AU startups supported by US tech alumni %

Share of startups with founders that are US tech alumni
 Share of startups with leaders (excl. founders) that are US tech alumni
 Other





Notes: (1) This statistic was retrieved from desktop research on a shortlist of notable Australian startups. The sample was composed of businesses that were founded in or after 2010 and had an estimated valuation of at least \$100m AUD according to AirTree (2021). The sample was not collectively exhaustive and also included some startups that have been acquired by existing corporations. (2) Critical leadership roles are defined as non-founder executive management positions (e.g., CEOs, CFOs, CIOs, Head of Technology, etc.) (3) Two-thirds of US tech alumni with leadership positions in startups take up roles within the first five years of the business' inception

## **Case Study**

## **TRENT INNES**

#### **Current roles**

SiteMinder – Chief Growth Officer

#### **Key previous roles**

Chief Executive Officer – Compono Managing Director, Australia and Asia – Xero National Sales Manager, Business Applications – Microsoft Australia

#### The development of people management and leadership skills at firms like Microsoft are key assets that can be exported to new businesses

Towards the start of his career, Trent spent 8 years in a range of roles with Microsoft Australia where he witnessed firsthand the ability of technology to grow businesses. He's since put this knowledge to use, first helping to scale Xero into a major multinational firm with 1 million subscribers and then taking his experience to Compono, a people insights platform for Australian SMB's wanting to make better hiring and development decisions. Trent has recently joined SiteMinder, a leading open hotel commerce platform, in their leadership team as Chief Growth Officer focussing on their accelerated growth path as reopening of travel extends into 2023. Trent points to the people management and leadership skills that he developed at Microsoft as one of the driving forces of his career. *"They invest in their people and development, making sure they are setup for success in their role as managers."* Trent also cites the sense of entrepreneurial and creative spirit that can be fostered in certain divisions as another key characteristic of US tech firms.

#### Management and leadership is crucial in order to scale a startup into a successful and self-sustainable businesses

When a startup scales, management and leadership becomes key. There is a need for people, systems and processes that are both able to manage a larger workforce and maintain the dynamism needed to grow. Many Australian startups fall short at this point. *"There are not enough firms like Atlassian and Canva in Australia, the pool of talent that have tech experience or startup experience is small"*. This lack of talent can have a spiral-like effect, where founders move overseas in pursuit of larger talent pools, thereby worsening the existing skills shortage in Australia. Talent and ideas lost overseas are benefits going to other countries. Supporting and investing in strategies that can support the development of experienced tech talent in Australia will be vital for the ecosystem to overcome these issues.



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A lot of startups can get stuck at the scaleup phase because they can't find the talent and leadership to help put the right systems and processes in place







# US tech alumni have founded 50 successful businesses in Australia over the last decade

#### Economic impact of successful businesses created by US tech alumni



~50 successful businesses<sup>1</sup>



**7,000** employees supported<sup>2</sup>







Each year, new startups founded by US tech alumni create an additional \$220m in value, planting the seeds for unicorns of the future

- On average, around 150 new startups are founded each year in Australia by US tech alumni, creating jobs and adding value.
- While every startup doesn't achieve scale and become successful, they increase the diversity of products and solutions in the market as well as the vibrancy and dynamism of the ecosystem. This lays the foundation for more talent, innovation and investment.



~150

new startups founded each year<sup>4</sup>



1,600

employees supported<sup>2</sup>



**\$220 million** value added p.a.<sup>3</sup>



Source: ABS Australian Industry (2020-21); ABS Australian Business Counts (June 2010 and 2021); ABS Labour Force Data; LinkedIn Economic Graph data; Accenture Analysis Note: (1) These are prior startups that are now medium (20-199 employees) or large firms (200+ employees) that were founded on or after 2010. These were estimated using ABS Business Counts of medium and large tech firms, subtracting those that entered prior to 2010. Lastly, the number of firms founded by former US tech talent was derived using the share of successful startups founded or scaled by said talent retrieved from LinkedIn Economic Graph data and applying that to the count of medium and large firms. (2) Employees supported was calculated as the product of average employees per firm (by firm size) and number of businesses founded by US tech alumni (split by firm size). (3) Value added is calculated as GVA per worker (by firm size) multiplied by the number of employees supported (split by firm size). (4) New startups founded each year is proxide by the number of employees to firme US tech talent based on LinkedIn Economic Graph data.

### Collectively, US tech alumni contribute \$2.25 billion to the Australian economy each year, supporting almost 12,000 jobs outside of US tech firms

#### In 2021, US tech alumni contributed \$2.25 billion in value added to the Australian economy.

Collectively, these contributions support an estimated 12,000 tech sector jobs outside US tech firms. This highlights the importance of experienced talent to the vibrancy of the tech ecosystem.

Experienced talent is a driver of productivity and innovation, enabling Australia's tech sector to grow and compete with peers across the globe. This is also validated by the strong demand observed for experienced talent across the Australian tech sector<sup>1</sup>. Pursuing policies that encourage increased participation in the economy by US tech firms will allow Australia to expand its pool of experienced tech workers over the next decade. This will be key to enabling the long-term growth, attractiveness, and resilience of the broader tech ecosystem in Australia.

#### Annual value added by US tech alumni to the Australian economy outside of US tech firms

\$ million, economic value added, 2021<sup>2</sup>





Source: (1) LinkedIn & ADB (2022) 'Digital Jobs and Digital Skills: A Shifting Landscape in Asia and the Pacific' (2) Accenture analysis of LinkedIn Economic Graph and ABS data Notes: (1) This represents the sum of each component of economic value produced by US tech alumni in the previous pages of this report. Each of these components can be interpreted as annual contributions to the Australian economy each year. Within the period of one year, the individual contribution and productivity spillover components constitute the sum of contributions made by departing US tech talent from 2021, 2020, 2019 and the end of 2018, since each annual cohort is assumed to remain in their new roles of an average of 3.3 years (as per McCrindle research). (2) Jobs impact is estimated as jobs supported by successful businesses and startups founded by US tech alumni, plus the annual value added by individual contributions and productivity spillovers divided by the average GVA per tech worker

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## **Case Study**

## **MINA RADHAKRISHNAN**

**Current roles** Co-Founder – Different

#### **Key previous roles**

Product Manager, San Francisco – Google Head of Product, San Francisco – Uber



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I found a tonne of value in working at an established tech firm like Google as a product manager... I could take a lot of things that I learned – like making roadmaps, getting executive buy-in – and take them with me elsewhere



With a background in software engineering and computer science, Mina began her career in investment banking with Goldman Sachs in New York. However, a strong desire to work at a firm where technology was the core product drove Mina towards a product management role at Google in San Francisco. After spending three years at Google, Mina "caught the startup bug" and left to pursue product roles at ModCloth.com, Uber and others. Accruing 6 years of startup experience, Mina eventually moved to Australia where she co-founded :Different, a product-led scaleup that provides innovative property management solutions to the real estate industry.

#### "The opportunity to work on products with a significant user base was integral in accruing valuable experience"

During her time at Google, Mina had the opportunity to work on a range of interesting projects across multiple areas of the company. She reflects on her time as an immense period of learning that enabled her to export some of Google's ways of working elsewhere. One major source of experience was the immense scale of Google's user base. For example, it introduced her to ideas like localisation (how people from different regions will think about different things) and experimentation (testing new features on a sample of existing users). These ideas are relevant to any tech firm that wants to scale to a global market. In addition to technical experience, Mina also cites the cultural aspects of US firms like Google as a major advantage. A defining feature of US tech firms are the way they write and communicate. "Communicating with people all across the world teaches you a lot... while US tech firms might move slower day-to-day relative to startups, the effectiveness of communication in startups is often not at the level."









US tech firms will be critical in addressing Australia's future tech workforce demand, particularly for experienced tech workers



## 1 in 8 of the 653,000 new tech sector jobs will be created by a US tech firm

If Australia is to be successful in achieving the target of 1.2 million tech jobs by 2030, an estimated 653,000 additional workers will need to be trained.

These workers will be sourced from three key pathways: university and VET graduates, skilled migration, and reskilled and upskilled workers from other sectors of the labour market.

## US tech firms play a major role in facilitating the flow of workers from each of these pathways into the industry.

US tech firms are estimated to create one fifth of graduate positions in the tech sector<sup>2</sup>. They are also responsible for employing an estimated 12% of tech sector migrants<sup>3</sup> and 8% of workers who reskill into the tech sector from other industries<sup>4</sup>. Overall, US tech firms will introduce about 1 in 8 (or 78,000) of the 653,000 new workers into the Australian tech ecosystem by 2030.

#### **Contribution of US tech firms to new tech jobs** required by 2030 by pathway

\$ Additional new tech jobs required in 2030, thousands ('000); (% share of pathway)





Source: Tech Council of Australia, Accenture (2022) 'Getting to 1.2 million'; Lightcast; LinkedIn Economic Graph data; Accenture analysis; Notes: (1) Total US tech share of new workers was assumed to remain at its constant share of 12%, based on LinkedIn Economic Graph data. (2) Based on Lightcast data that shows that 31% of tech job ads requiring 0-2 years experience and an IT related degree are for roles in US tech firms. (3) The number of workers moving from a US tech firm overseas to one in Australia is used to approximate the share of skilled migrants based on LinkedIn Economic Graph data. adjusting for the US firm share of Australian tech employees. This approximation may include Australian citizens repatriating to Australia from overseas. Numbers have been adjusted to reflect the share of workers not on LinkedIn. (4) Reskilled workers were calculated as the difference between total US tech workers and those entering via university or migration.

## By 2030, 1 in 5 experienced tech workers in Australia would have gained their skills from a large US tech firm

Of the 1.2 million Australian tech jobs that are targeted for 2030, 909,000 will need to be filled by employees with at least 3 years of industry experience.

This implies that 76% of the 1.2 million tech jobs in 2030, will require considerable prior experience in the sector.

#### US tech firms will play a sizeable role in supporting the employment and development of this experienced tech workforce.

If the current level of participation of US firms is maintained, an estimated 107,000 experienced workers will be directly employed at a US tech firm in 2030. In conjunction to this, a further 62,000 workers will have developed experience in a US tech firm before moving into other roles in the tech sector. Altogether, this brings the total contribution of US tech firms to the pool of experienced talent to 169,000, representing about 1 in 5 experienced tech workers by 2030.



## >

Source: 'Getting to 1.2 million', Tech Council of Australia, 2022; ABS Australian Census Longitudinal Data 2011-2016; LinkedIn Economic Graph data; Accenture analysis

Notes: (1) Share of experienced tech workers employed by a US tech firm is based on LinkedIn Economic Graph data. (2) Share of experienced tech workers that developed experience in US tech firm is based on - (a) longitudinal ABS census data of workers moving from the tech sector to other industries between 2011 and 2016; (b) the number of workers in "ICT Managers" and "ICT Professionals" occupations in other industries.

## **Case Study**

## **ANDREW STEVENS**

#### **Current roles**

Chairman – Industry Innovation and Science Australia (IISA) Chair - Data Standards Body, Consumer Data Right Australia Non Executive Director -Stockland Non Executive Director - oOh!

#### **Key previous roles**

Managing Director, Australia and New 7ealand – IBM COO, Asia Pacific - PwC



#### 66

My experience at IBM helped me to see the possibilities for the future... and the possibilities for positive differentiation in business models enabled by technology





#### IBM unveiled the immense possibilities that technology driven business solutions unlock

\_\_\_\_\_

Graduating with a Commerce degree in Accounting, Finance and Systems, Andrew started his career with PwC before moving to IBM through the acquisition of PwC in 2002. He spent the next 12 years in various leadership roles at IBM and served as the ANZ Managing Director from 2011-14. Andrew's understanding of business and technology was shaped at IBM, where he realised the power of "predict and act" decision making and the potential for artificial intelligence and machine learning to enhance the predictive power of decisions. Andrew sees this core understanding of the capabilities that technology can unlock as a major driver of businesses innovation, and critically, is something that is missing from many corporate environments across Australia.

#### Building an understanding of the capabilities of digital innovation will be crucial to driving growth in the Australian economy

Currently, there is a shortage of experienced tech talent at the top of many leading Australian firms, and Andrew at least in part, attributes this shortage to "a lack of understanding of the power and importance of this talent." He notes that while leaders in this space in Australia are hiring talent at an immense rate, many businesses lag. University and VET education are important avenues to get more tech workers in the economy over the long term, however, they are just the first stage in building tech talent. "The buck doesn't stop at university and VET, so much more starts within roles in the tech sector ... you develop the skills but moreover the capability to see the possibilities that technology enables". Andrew also notes that while there is a significant focus on regulating technology like AI in Australia, there is far less on the value and benefits that can be unlocked by these technologies, which is an equally important concern. Experienced tech talent will be critical in delivering these technological opportunities for Australia and it's crucial for businesses and the public sector to recognise and understand the value that this talent can provide.



## Conclusion

## The unique and deeply integrated AU-US economic relationship is foundational to Australia's tech sector success

The United States and Australia have a unique and integrated relationship in the technology sector, characterised by close cooperation and collaboration. This relationship has been built on strong business commitment to innovation and growth in the tech sector. One of the key elements of this relationship is the significant level of investment by US firms in Australia's technology sector. US technology firms have established a significant presence in Australia, investing in research and development, talent, and infrastructure. This report has demonstrated that this presence has been a foundation for Australia's tech sector success:

- US tech firms employ 102,000 Australian tech workers. 77,000 of these are experienced bringing global best practice and linkages to expert networks. These employees are essential for developing the next generation of the Australian tech workforce delivering \$1.2 billion in productivity benefits each year through upskilling, mentoring, and training.
- 4,000 experienced tech workers leave US tech firms completely to take up important roles in Australia's tech ecosystem each year. 4 in 5 (3,200) take on prominent tech roles in Australian tech firms, the public sector, academia, or other industries.
- 800 individuals leave US tech firms each year to start or scale new firms in Australia, resulting in 150 new startups each year. 1 in 2 successful Australian startups have been founded or helped scaled by experienced talent from US tech firms. Over the last decade, US tech alumni have founded 50 successfully scaled businesses in Australia.

## A world leading digital economy requires a level playing field for domestic and international firms

The Federal Government has a goal for Australia to be a 'world-leading digital economy and society by 2030'. In an increasingly competitive digital global marketplace, the transmission of knowledge, ideas and innovation is critical. Becoming a world leading digital economy will be driven by the continued strength of the AU-US relationship, where there is a level playing field for both international and local firms. The Productivity Commission notes that Governments typically use business tax concessions, grants and procurement policies to stimulate innovation. However, such measures can stifle diffusion meaning the gains from widespread transfer of best practice spillover are lost. Therefore, it argues "a benign regulatory environment for foreign investment not only increases access to financial capital but is a conduit for adoption of best practice from businesses that often operate globally."<sup>2</sup>. By making Australia a place where large US firms continue to locate high value-added activities and jobs delivers the following mutually reinforcing benefits across the ecosystem:

- US tech firms continue investing in Australia, developing talent, mentoring colleagues, and supporting suppliers, industry, and startups.
- Collaboration across the tech ecosystem combines global best practice with local startups, industry and research institutions to catalyse innovation and productivity.
- Small innovative Australian firms can scale through the knowledge, capital, and talent of large US firms as well as access to global markets, driving export and business growth for the Australian economy.

## Continuing to strengthen the AU-US relationship will deliver dividends to the tech ecosystem

Ongoing enhancement of the AU-US relationship enables Australia to compete with our global peers, develop international recognition for Australian tech firms and secure the prosperity associated with a world leading digital economy. If Australia can continue to cultivate the AU-US tech relationship it is projected that by 2030-31:

- 1 in 8 of the 653,000 new jobs will be created by a US tech firm.
- 1 in 5 experienced tech workers in Australia would have gained their skills from a large US tech firm.
- Developing a world-leading digital economy like the US could contribute \$244Bn to GDP<sup>1</sup>.

To achieve this requires a domestic environment that promotes fair competition as well as open and transparent markets, where there is equal opportunity for US and domestic firms to interact and thrive.







## Glossary

#### A note on definitions

For the purposes of this report, US tech firms are defined as those that are headquartered in the United States. The tech sector, also known as the technology industry, refers to firms that produce and provide technology products and services. This includes companies that design, develop, manufacture, and distribute technology products, as well as companies that provide services, such as software development, information technology (IT) consulting, cloud services and other related services. The tech sector encompasses a wide range of products and services, including computers, electronics, software, telecommunications equipment. For example, this would include companies like Microsoft, Google, Meta, Apple and Amazon.

The report focusses on the operations of US tech firms in Australia and the associated economic value created.

Terminology	Definition
Experienced tech worker	Refers to anyone who has accrued at least 3 years of experience working either in a tech role, or within any role at a predominately tech firm. Also referred to interchangeably as experienced tech talent.
US tech firm	Refers to a company which offers technology as its primary good or service and is headquartered in the United States (see note on left for more details). Also referred to interchangeably as a US tech firm.
US tech talent	Refers to anyone who has accrued at least 3 years of experience working in a US tech firm. This can be experience gained in Australia or overseas. The role of the individual does not have to be tech specific (e.g., Legal, HR or Ops roles within a US tech firm).
US tech alumni	Refers to someone who has accrued at least 3 years of experience working in a US tech firm that has since left to take up a role in another organisation that is not a US tech firm.
Junior tech worker	Referred to as anyone who has not yet accrued 3 years of experience either in a tech role or within a tech firm. Also referred to interchangeably as an inexperienced tech worker.
Australian tech firm	Refers to a company which offers technology as its primary good or service. This is an Australian based or founded company, that operates predominately within Australia.
Australian tech startup	Refers to a company which offers technology as its primary good or service and was founded in Australia on or after 2010.
Australian tech ecosystem	Refers collectively to all tech related businesses that operate and employ workers in Australia. This includes US tech firms, non-US tech firms, Australian tech firms, AU tech startups, and any organisation that exists on the boundary or intersection of any of these definitions.



## References

- AirTree (2021) Australian tech companies valued at \$100M+, <u>https://www.airtree.vc/open-source-vc/australian-tech-companies-valued-at-100m</u>
- Ali-Yrkkö, et al. (2021) Knowledge Spillovers From Superstar Tech-Firms: The Case of Nokia
- AWS re/Start (2022) Preparing unemployed and underemployed individuals for cloud careers through classroom-based training, <u>https://aws.amazon.com/training/restart/</u>
- Australian Information Industry Association (2022) Digital State of the Nation 2022, <u>https://35hddx2cwawgt701l2sq0v5c-wpengine.netdna-ssl.com/wp-content/uploads/2022/04/AIIA-</u> <u>Member-Survey-Digital-State-of-the-Nation-2022-1.pdf</u>
- Australian Bureau of Statistics (ABS) International Investment Position, Australia: Supplementary Statistics
- Bogaards, R (2019) Australia's productivity challenge, <u>https://www.aph.gov.au/About\_Parliament/Parliamentary\_Departments/Parliamentary\_Library/pubs/Bri</u> <u>efingBook46p/ProductivityChallenge</u>
- GradAustralia (2022) Australia's Top 100 Graduate Employers, <u>https://gradaustralia.com.au/top-employers</u>
- Keller, W (2021) "<u>Knowledge Spillovers, Trade, FDI</u>", NATIONAL BUREAU OF ECONOMIC RESEARCH
- LinkedIn & ADB (2022) Digital Jobs and Digital Skills: A Shifting Landscape in Asia and the Pacific, <u>https://www.adb.org/sites/default/files/publication/829711/digital-jobs-digital-skills.pdf</u>
- Mas, Alexandre & Moretti, Enrico (2009) Peers at Work
- Matray, Adrien (2020) The Local Innovation Spillovers of Listed Firms
- McCrindle (2020) Job mobility in Australia, <u>https://mccrindle.com.au/uncategorized/job-mobility-in-australia/</u>
- Mulla, Zubin (2008) Wage and Industry Characteristics: The Impact of Value Added per Employee, Establishment Size and Industry Growth
- Palangkaraya et al. (2015) Does Innovation Make (SME) Firms More Productive?
- Productivity Commission (2023), '<u>5-year Productivity Inquiry: Innovation for the 98%</u>', Inquiry Report volume 5
- Roche et al. (2022) (Co-) Working in Close Proximity: Knowledge Spillovers and Social Interactions
- Santisteban et al. (2017) Critical success factors for technology-based startups
- Serafinelli, Michel (2012) Good Firms, Worker Flows and Productivity
- Stone, Ian (2012) Upgrading Workforce Skills in Small Businesses: Reviewing International Policy and Experience
- Tech Council of Australia, Accenture (2022) The Economic Contribution of the Tech Sector, <u>techcouncil.com.au/wp-content/uploads/2021/08/TCA-Tech-sectors-economic-contribution-full-</u> <u>res.pdf</u>
- Tech Council of Australia, Accenture, and Digital Skills Organisation (2022) Getting to 1.2 million, https://techcouncil.com.au/wp-content/uploads/2022/08/2022-Getting-to-1.2-million-report.pdf
- United State Studies Centre, The role of US innovation in securing Australia's economic future, https://www.ussc.edu.au/analysis/the-role-of-us-innovation-in-securing-australias-economic-future



## A review of academic literature indicates that experienced talent can both drive improvements in existing businesses and accelerate the creation of new ones



#### **Literature review**

A significant amount of academic literature examines the impact of experienced talent that take up roles in new firms. Ali-Yrkkö et al. (2021) leverages an interesting quasi-natural experiment to quantify the impact of departing tech talent from a closed department of a global tech firm. Local firms that hired this experienced talent saw statistically significant increases in both employment and value added, compared to those who did not hire any.

While experienced tech talent is a source of value creation in and of itself, there is also evidence to suggest that **skilled and experienced workers can create productivity spillovers for their colleagues**. Serafinelli (2012), Mas & Moretti (2009) and Palangkaraya (2015) all demonstrate evidence that the introduction of an experienced worker or improved management practices to a new organisation have positive effects on the productivity of existing workers. **Our analysis finds that tech managers have both more experience and greater management skills compared to other professionals, indicating that they are likely candidates for generating productivity spillovers when joining a new firm.** 

Experienced tech talent also plays a major role in the creation and scaling of new businesses. Santisteban et al. (2017) identify 21 statistically critical factors for successful IT startups. Six of these<sup>1</sup> relate directly to key characteristics of startup founders that have worked at major technology firms. This supports anecdotal evidence that **successful startups often seem to be co-founded by individuals with considerable tech experience**.

In short, fostering the development of experienced tech talent can have resounding impacts on the economy that extend beyond the scope of the direct tech sector in and of itself.



Source: Ali-Yrkkö et al. (2021); Serafinelli (2012); Mas & Moretti (2009); Palangkaraya et al. (2015); Santisteban et al. (2017) Notes: (1) IT industry experience, academic education, technological capabilities, R&D experience, management experience, and leadership.

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## Methodology: Data sources used for this report

<b>LinkedIn</b>	<ul> <li>Source:</li> <li>LinkedIn Economic Graph data</li> <li>Information: <ul> <li>Aggregate data provided by LinkedIn</li> <li>Lists of AU, US and global companies by industry and location</li> <li>List of Australian businesses founded on or after 2008 by industry</li> <li>Total number of workers on LinkedIn with various levels of experience in tech, by US vs Australian firms</li> <li>Tabulates the annual flow of global tech workers who change roles each year by country and by new industry<sup>1</sup></li> <li>Talent Insights Portal: Total number of employees in tech startups</li> </ul> </li> </ul>
Academic Literature	<ul> <li>Source: Various</li> <li>Information: <ul> <li>Conducted a rigorous review of academic literature, focussing particularly on the effect of productivity and knowledge spillovers generated by experienced or skillful workers</li> <li>Journals referenced include but are not limited to the American Economic Review and the Journal of Labor Economics</li> </ul> </li> </ul>
Lightcast	<ul> <li>Source: Lightcast Labour Insights Portal</li> <li>Information: <ul> <li>Provides data on Australian job ads listed on a range of online platforms</li> <li>Enabled analysis on the demand for experience across the tech sector and share of tech occupation advertisements placed by US vs Australian tech firms</li> </ul> </li> </ul>
Secondary research	<ul> <li>Source:</li> <li>Public data sources</li> <li>Information: <ul> <li>ABS sources:</li> <li>Australian Census Longitudinal Data 2011-2016</li> <li>Labour Force Data</li> <li>International Investment Position, Australia: Supplementary Statistics</li> <li>Australian Industry (2020-21)</li> <li>Australian Business Counts (June 2010 and 2021)</li> <li>Economic Activity of Foreign Owned Businesses in Australia</li> <li>Statistics Canada: Presence of foreign multinationals in Canada</li> <li>OECD AMNE Databases – Activity of Multinational Enterprises: Presence of foreign multinationals in the UK</li> </ul> </li> </ul>



## Methodology: Overview of method to measure the economic value of experienced talent that leave US tech firms

Economic value generated by experienced talent that leave US tech firms
(US tech alumni)

Approach	Method
<b>A</b> Value from successful businesses founded	<ol> <li>Calculate the number of businesses founded since 2010, that have gone on to become medium or large businesses</li> <li>Measure the share of medium-large tech businesses created by US tech alumni</li> <li>Estimate the average number of employees in medium-large businesses created by US tech alumni</li> <li>Estimate the GVA (Gross Value Added) per worker by business size</li> <li>Calculate the total economic value created by these businesses by multiplying no. of employees with GVA per worker</li> </ol>
<b>B</b> Value from new startups founded	<ol> <li>Calculate the number of new tech startups founded each year in Australia</li> <li>Measure the share of new startups founded by US tech talent each year</li> <li>Estimate the average number of employees in new startups founded by US tech talent</li> <li>Estimate the GVA per worker in new startups</li> <li>Calculated the total economic value added by new startups that are founded by US tech alumni each year</li> </ol>
C Value from additional individual contribution in new roles at other firms	<ol> <li>Calculate the additional individual value that an experienced tech worker adds relative to an inexperienced one</li> <li>Estimate the number of experienced workers that depart US tech firms (US tech alumni) for other roles in Australia each year</li> <li>Calculate the total value added that is made by US tech alumni via individual contributions in their new roles</li> </ol>
Value from productivity spillovers to new co-workers in other firms	<ol> <li>Calculate the average magnitude of productivity spillovers that is generated by an experienced worker onto new co-workers</li> <li>Estimate the number of experienced workers that depart US tech firms for other roles in Australia each year</li> <li>Estimate the GVA per worker in Australian tech firms, new startups, public sector, academia and other industries</li> <li>Calculate the total value added of productivity spillovers that are generated by US tech alumni</li> </ol>



# Methodology: Measuring the economic value from successful businesses founded by US tech alumni

US tech alumni			
	Metric	Calculation	Source
1	Number of Australian founded tech businesses since 2010	<ul> <li>Total # of large [medium]<sup>1</sup> tech businesses – estimated # founded before 2010 – # of US tech firms operating in Australia</li> </ul>	<ul> <li>ABS Business Counts</li> <li>LinkedIn Economic Graph data</li> </ul>
2	Number of tech businesses founded by US tech talent	<ul> <li>Share of large [medium] successful tech startups founded by US tech alumni x # of large [medium] AU tech businesses founded since 2010</li> </ul>	<ul> <li>Previous outputs</li> <li>Desktop research</li> <li>Airtree</li> <li>LinkedIn Economic Graph data</li> </ul>
3	Number of employees in businesses founded by US tech talent	<ul> <li>Average # of employees in sampled large [medium] successful tech startups</li> </ul>	<ul> <li>LinkedIn Economic Graph data</li> </ul>
4	GVA per worker	<ul> <li>Industry value added / number of employees in ANZICs 57, 58, 59 and 70<sup>2</sup> for medium sized businesses</li> <li>For large businesses, GVA per worker (medium) x economy wide GVA of large businesses / economy wide GVA of medium businesses</li> </ul>	• ABS Australian Industry (20-21)
5	Economic value added of successful businesses scaled by US tech alumni	<ul> <li># of large [medium] businesses founded by US tech alumni x # of employees per large [medium] business x GVA per worker for large [medium] tech businesses in Australia</li> <li>Total economic value added = value added from large businesses + value added from medium businesses</li> </ul>	• Previous outputs



Notes: (1) Large businesses are defined as those with 200+ employees. Medium businesses are defined as having 20-199 employees. (2) This ANZICs correspond to: 57 - Internet publishing and broadcasting 58 - Telecommunications services 59 - Internet service providers, web search portals and data processing services 70 - Computer system design and related services;

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# Methodology: Measuring the economic value from new startups founded by US tech alumni

<b>B</b> Economic value from new startups founded by US tech alumni			
	Metric	Calculation	Source
1	Number of new tech startups founded each year in Australia	<ul> <li>Total # of small businesses<sup>1</sup> entering the tech sector each year</li> </ul>	<ul> <li>ABS Business Counts</li> </ul>
2	Number of new startups founded by US tech talent	<ul> <li>Estimated % of Australian startups founded by US tech workers with 3+ years of experience each year (LinkedIn) x # of new tech startups founded each year</li> </ul>	<ul> <li>Previous outputs</li> <li>LinkedIn Economic Graph data</li> </ul>
3	Number of employees in new startups founded by US tech talent	<ul> <li>Average # of employees in small businesses<sup>1</sup></li> </ul>	<ul> <li>ABS Business Counts</li> </ul>
4	GVA per worker	<ul> <li>GVA per worker (medium) x economy wide GVA of small businesses / economy wide GVA of medium businesses</li> </ul>	<ul> <li>ABS Australian Industry (20-21)</li> </ul>
5	Economic value added of new startups founded by US tech alumni each year	<ul> <li># of new startups founded by US tech talent each year x # of employees per startup x GVA per worker for small tech businessess<sup>2</sup></li> </ul>	• Previous outputs



# Methodology: Measuring the economic value from additional individual contributions from US tech alumni



	Metric	Calculation	Source
1	Additional individual value added of experienced talent per worker	<ul> <li>(Weighted average wage of tech job ads requiring more than 3 years experience – average wage of tech job ads requiring 0-2 years of experience) / average wage of tech job ads requiring 0-2 years of experience = % difference in wage</li> <li>% difference in wage x GVA per worker (large firm) = additional value add of experienced talent<sup>1</sup> via individual contributions</li> </ul>	<ul> <li>Lightcast</li> <li>ABS Australian Industry (20-21)</li> </ul>
2	Number of experienced workers departing US tech firms for other roles in Australia each year	<ul> <li># of workers with 3+ years of tech experience changing jobs from a US tech firm to another Australian organisation (LinkedIn)<sup>2</sup> x # of experienced workers employed in US tech firms in Australia<sup>3</sup> / # of experienced workers employed in US tech firms on LinkedIn</li> </ul>	<ul> <li>LinkedIn Economic Graph data</li> <li>OECD AMNE Database – Activity of Multinational Enterprises</li> <li>Lightcast</li> </ul>
3	Total value added of US tech alumni via individual contributions	• Additional value added of experienced talent x number of experienced US tech workers that depart US tech firms each year x average Australian job tenure	<ul><li>Previous outputs</li><li>McCrindle</li></ul>



Notes: (1) Assumes that wages grow proportionally with value add. (2) The annual flow of US workers was calculated as the US share of global tech workers multiplied by the annual flow of global workers to new roles in Australian organisations. (3) Number of experienced workers employed in US tech firms in Australia was derived from a combination of sources. The proportion of tech workers employed at US tech firms was estimated using LinkedIn Economic Graph data and multiplied by the total number of jobs in the Australia tech sector of 861,000. The share of workers with 3+ years of experience was then derived from an average of sources from LinkedIn Economic Graph data, and Lightcast. The product of this average share and the total number of experienced workers employed at US tech firms. This was necessary to account for the share of employees that do not have an account on LinkedIn. Assumes proportions derived from LinkedIn Economic Graph data are representative of the tech sector as a whole

# Methodology: Measuring the economic value from additional individual contributions from US tech alumni

	<b>D</b> Economic value from productivity spillovers to new co- workers in other firms from US tech alumni		
	Metric	Calculation	Source
1	Productivity spillover from experienced talent onto new co- workers	<ul> <li>Average of spillover effects observed in Serafinelli (2012), Mas &amp; Moretti (2009) and Palangkaraya et al. (2015)<sup>1</sup></li> </ul>	<ul> <li>Serafinelli (2012)</li> <li>Mas &amp; Moretti (2009)</li> <li>Palangkaraya et al. (2015)</li> </ul>
2	Number of experienced workers departing US tech firms each year	<ul> <li># of workers with 3+ years of tech experience changing jobs from a US tech firm to another Australian organisation (LinkedIn)<sup>2</sup> x # of experienced workers employed in US tech firms in Australia<sup>2</sup> / # of experienced workers employed in US tech firms on LinkedIn</li> </ul>	<ul> <li>LinkedIn Economic Graph data</li> <li>OECD AMNE Database – Activity of Multinational Enterprises</li> <li>Lightcast</li> </ul>
3	GVA per worker	<ul> <li>Industry value added / # of employees in industry<sup>3</sup></li> </ul>	<ul> <li>ABS Australian Industry (20-21)</li> </ul>
4	Total value added of departing US tech talent via productivity spillovers	<ul> <li>Average productivity spillover<sup>4</sup> x # of experienced US tech workers that depart US tech firms each year x average GVA per worker (by industry) x average job tenure x # of co-workers affected<sup>5</sup></li> </ul>	<ul> <li>Previous outputs</li> <li>Ali-Yrkkö (2021)</li> <li>Roche et al. (2022)</li> <li>McCrindle</li> </ul>

Notes: (1) Serafinelli (2012) measures a 3-5% increase "non-high-wage firm" productivity after hiring a worker from a "high-wage firm". Mas & Moretti (2009) find that "the entry of a worker with above average permanent productivity is associated with a 1 percent increase in the productivity of coworkers". Palangkaraya (2015) observe that innovations in "managerial processes" can increase firm productivity by 2.7%. While two of these studies cite that productivity benefits created by the introduction of experienced talent occur at the firm level, this study applies this effect at the level of the coworker to be conservative. (2) See footnotes on previous page. (3) For talent departing for roles at Australian tech firms, tech sector GVA per worker was used. For those departing for roles at startups, small business tech sector GVA per worker was used. GVA per worker for the public sector was proxied using industry value added and employees in public administration and safety. Due to data availability, the average GVA per worker across all industries was used for other industries. (4) Productivity benefits are actually modelled to decrease incrementally over each year of the experienced worker's job tenure to reflect diminishing returns. This decay was implemented linearly over a 6 year horizon to reflect the 6 years of productivity responses that were observed by the hiring of experienced Nokia tech talent in Ali-Yrkkö (2021). (5) Productivity benefits were assumed to affect co-workers within a 20sqm radius of the experienced tech hire, in line with Roche et al. (2022). Assuming an average distance of 1.5sqm per person in indoor offices, this effect was estimated to impact 13.33 co-workers per departed experienced US tech worker.

## Methodology: Data on experience and tech talent outcomes underpins the analysis

Share of US tech talent wo experience	rking in AU by level of	Source	
0-2 years of experience	24.5%	<ul> <li>LinkedIn Economic Graph data</li> <li>Lightcast</li> </ul>	
<b>3+ years of experience</b>	75.5%	<ul> <li>ABS Labour Force data</li> <li>TCA</li> <li>Accenture analysis</li> </ul>	
Distribution of US tech tale outcomes <sup>1</sup>	ent alumni career	Source	
Move to Australian tech firms	15.4%		
Move to other Australian industries	50.2%	LinkedIn Economic Graph	
Move to the Australian public sector	14.6%	data	
Found or helped scaled an	19.7%		
Australialistartup			
2030 jobs target by level of	of experience	Source	
<b>2030 jobs target by level o</b> <b>0-2 years of experience</b>	o <b>f experience</b> 24.2%	<b>Source</b> <ul> <li>Getting to 1.2 million</li> <li>Tech Council of Australia, 2022</li> <li>ABS Australian Census</li> </ul>	
<b>2030 jobs target by level o 0-2 years of experience 3+ years of experience</b>	24.2% 75.8%	<ul> <li>Source</li> <li>Getting to 1.2 million</li> <li>Tech Council of Australia, 2022</li> <li>ABS Australian Census</li> <li>Longitudinal Data 2011-2016</li> <li>LinkedIn Economic Graph data</li> <li>Accenture analysis</li> </ul>	
Australian startup         2030 jobs target by level of         0-2 years of experience         3+ years of experience         Multinational share of the workforce	24.2% 75.8%	<ul> <li>Source</li> <li>Getting to 1.2 million</li> <li>Tech Council of Australia, 2022</li> <li>ABS Australian Census</li> <li>Longitudinal Data 2011-2016</li> <li>LinkedIn Economic Graph data</li> <li>Accenture analysis</li> </ul>	
Australian startup         2030 jobs target by level of         0-2 years of experience         3+ years of experience         Multinational share of the workforce         Global multinational share of Australian tech workforce	24.2% 24.2% 75.8% Australian tech 18.9%	<ul> <li>Source</li> <li>Getting to 1.2 million</li> <li>Tech Council of Australia, 2022</li> <li>ABS Australian Census</li> <li>Longitudinal Data 2011-2016</li> <li>LinkedIn Economic Graph data</li> <li>Accenture analysis</li> <li>Source</li> <li>LinkedIn Economic Graph</li> </ul>	

#### Experienced talent is critical for upskilling junior staff, with managers requiring 2.6 times the level of training and development skills compared to other professional occupations

There is a strong focus on training and development skills for tech sector managers, as they fulfil a critical role to help entry level workers become job ready.

Comparing management roles in tech occupations against other professionals reveals that on average, ads for tech managers are 2.6x more likely to specify training and development skills as job requirements than ads for managers in other professional occupations.

In particular, skills like Program Management, Project Planning and Development, and Project Management – which all relate to a manager's ability to lead and manage the workstreams of employees they are overseeing – were 6.6x, 4.8x, and 3.2x more likely to be specified on tech management job ads than for other professionals.

#### Prevalence of training and development skills for manager roles in tech vs professionals in other sectors

Ratio of the proportion of training & development skills specified in management job ads for tech vs other professionals1, FY21 & FY22





Notes: (1) Training and development skills were defined as skills associated with education and training that enable managers to facilitate growth and 47 talent development of less experienced employees

#### **About Accenture**

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