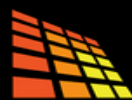




Curtin University

Entrepreneurship and Innovation in Australia: Current Status and Recommendations

February 2021



Techboard

Australia has a rich history of entrepreneurship and the commercialisation of innovative ideas. For example, Australian inventions include the black box flight recorder, spray-on skin, the electronic pacemaker, the bionic ear, Wi-Fi technology and Google maps, among others¹. More recently, Australia has put a stake in the ground to be a world leader in innovation².

Goals and aspirations for global leadership in innovation are admirable. However, according to the most recent Global Innovation Index³, Australia ranks outside the world's 20 most innovative countries (#23). In fact, in the last five years, Australia has barely cracked the top 20 on the Global Innovation Index, while out of 127 countries examined, Australia ranks 76th in innovation efficiency⁴. Further, Australia's intellectual output in 2019 was 1,764 patents granted (7 patents per 100,000 in population or 0.03 patents per capita GDP), compared to the United States with 198,766 patents granted (60 patents per 100,000 in population or 3 patents per capita GDP)⁵. Converting aspiration to reality is difficult. Yet, our view is that the future of the Australian economy and societal welfare depends on entrepreneurship and innovation.

In this report, we explore recent trends highlighting the current state with respect to entrepreneurship and innovation in Australia. We also disclose information on the fuel that triggers entrepreneurship and the commercialisation of innovative ideas; namely, startup funding. Lastly, recommendations are tabled to provide a way forward.

1. Entrepreneurship and innovation: Critical to the economy?

As far back as the 1930s, economists recognised the critical importance of entrepreneurship—and innovation—to economic growth⁶. Recent reports suggest that, with respect to OECD member countries, 50 percent of their long-term economic growth can be attributed to innovation⁷. To be sure, entrepreneurship and innovation go together. Entrepreneurs create ideas that lead to innovations, which are commercialised to solve human problems and fuel new jobs and economic growth. Unfortunately, failure rates of entrepreneurial startups are high—as much as a 90 percent failure rate⁸.

In Australia, based on the most recent Global Entrepreneurship Monitor (GEM) survey, some interesting views and perspectives on entrepreneurship and entrepreneurial activities have emerged. GEM is arguably the world's largest on-going study of entrepreneurial attitudes and the state of entrepreneurship among the adult population, capturing over three million observations across over 100 countries.

According to the most recent survey (2019/2020)⁹, 8% of Australian employees are engaged in entrepreneurial activities (e.g. developing new products or services), compared to less than

¹ <https://www.australiangeographic.com.au/topics/history-culture/2010/06/australian-inventions-that-changed-the-world/>

² <https://www.industry.gov.au/data-and-publications/australia-2030-prosperity-through-innovation>

³ https://www.wipo.int/global_innovation_index/en/2020/

⁴ https://www.globalinnovationindex.org/userfiles/file/reportpdf/gii_2018-report-new.pdf

⁵ <https://statnano.com/report/s135>

⁶ Schumpeter, J.A. 1934. *The theory of economic development*. Cambridge, MA: Harvard University Press.

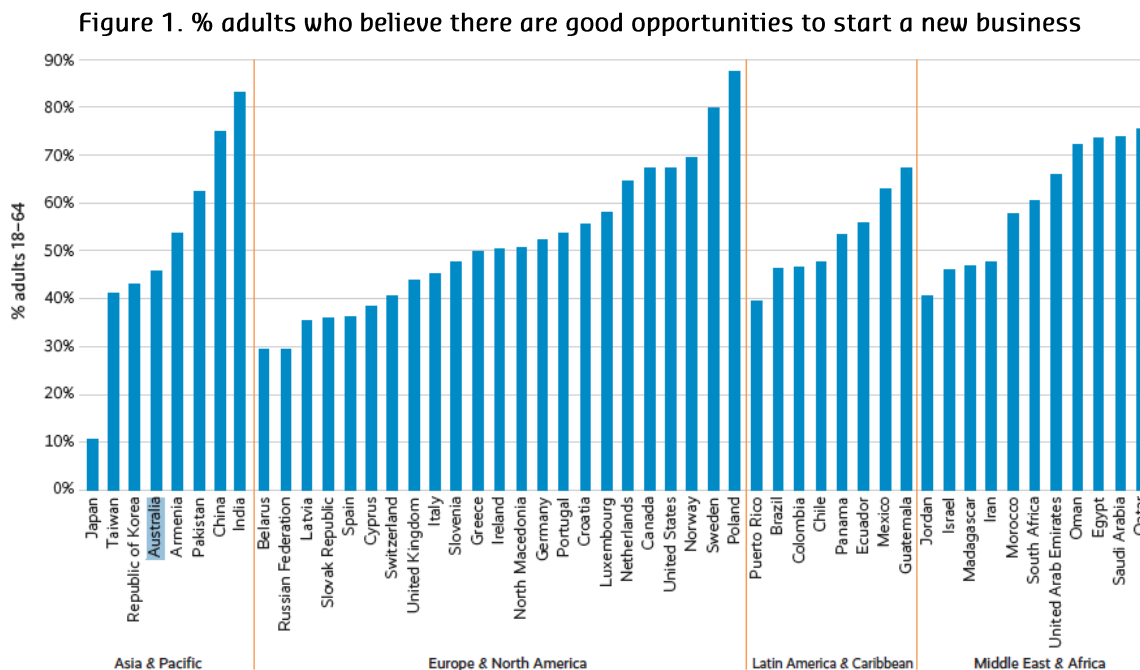
⁷ OECD. 2015. *The innovation imperative: Contributing to productivity, growth and well-being*. Paris: OECD Publishing. https://www.oecd-ilibrary.org/science-and-technology/the-innovation-imperative_9789264239814-en

⁸ <https://www.entrepreneur.com/article/288769>; <https://www.forbes.com/sites/neilpatel/2015/01/16/90-of-startups-will-fail-heres-what-you-need-to-know-about-the-10/#600aa1016679>; <https://www.failory.com/blog/startup-failure-rate>

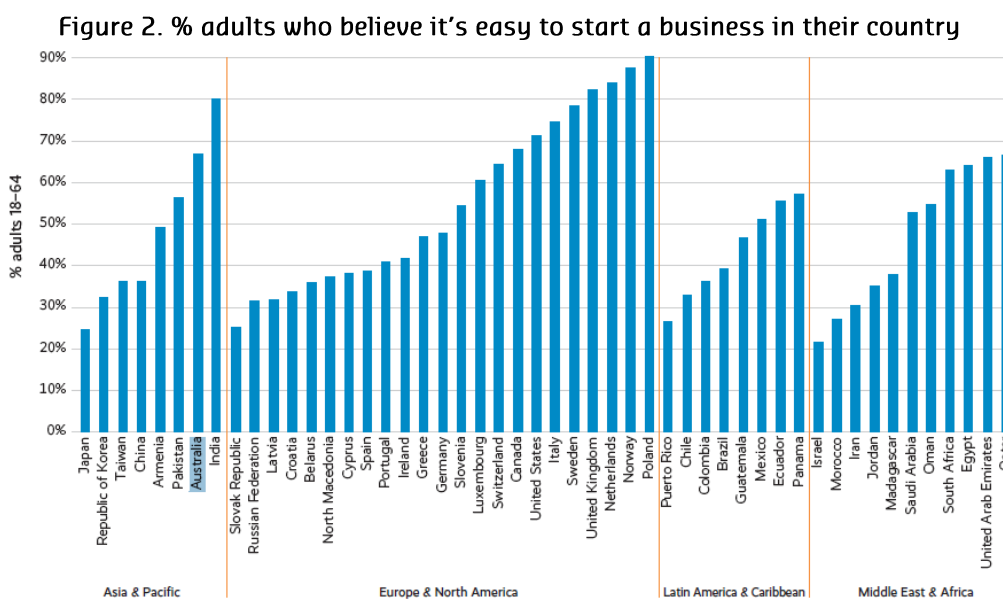
⁹ <https://www.gemconsortium.org/file/open?fileId=50443>

1% in 16 of 50 economies surveyed. This finding suggests that relative to many countries, a degree of entrepreneurial 'orientation' exists in established Australian companies.

In addition to employee perspectives, GEM explores attitudes towards entrepreneurial activities from the perspective of starting a new business. In Australia, around 45% of respondents believe there are good opportunities to start a new business which, while encouraging, is nonetheless below other countries in the region and around the world (Figure 1)¹⁰.



Alternatively, nearly 70% of Australians tend to view starting a business as easy (Figure 2)¹¹.

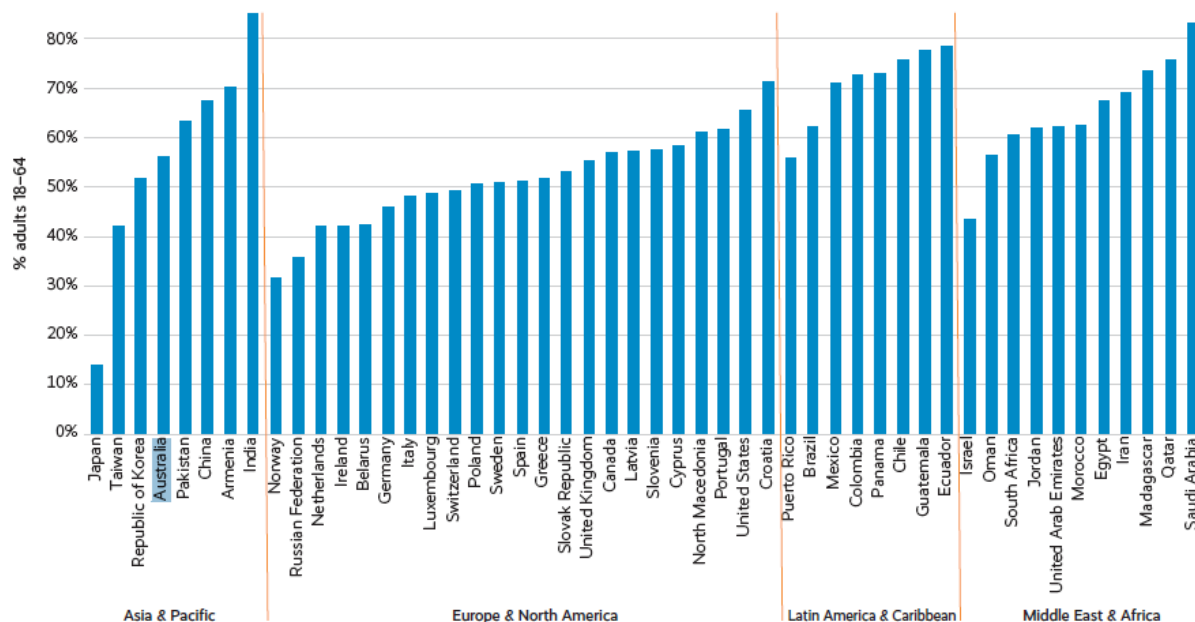


¹⁰ Ibid.

¹¹ Ibid.

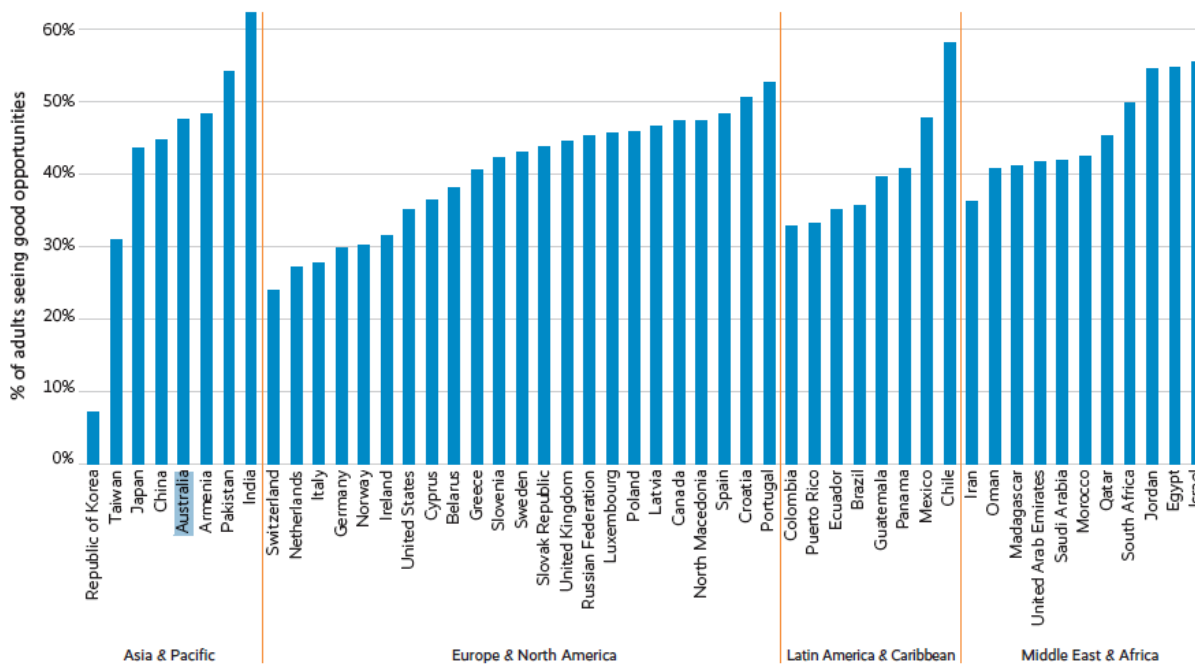
Further, nearly 60% of Australians believe they have the knowledge, skills and experience to start a new business (Figure 3)¹².

Figure 3. % adults believing they have the knowledge, skills and experience to start a new business



While these are positive trends, other findings raise a few concerns. First, while good opportunities may be seen to start a business, fear of failure is relatively high. In Australia, nearly 50% of the adult population would not start a business because of a *fear of failure* (Figure 4)¹³. Put simply, a culture of fear of failure may be holding back greater levels of entrepreneurial activity in Australia.

Figure 4. % adults who would not start a business because of fear of failure

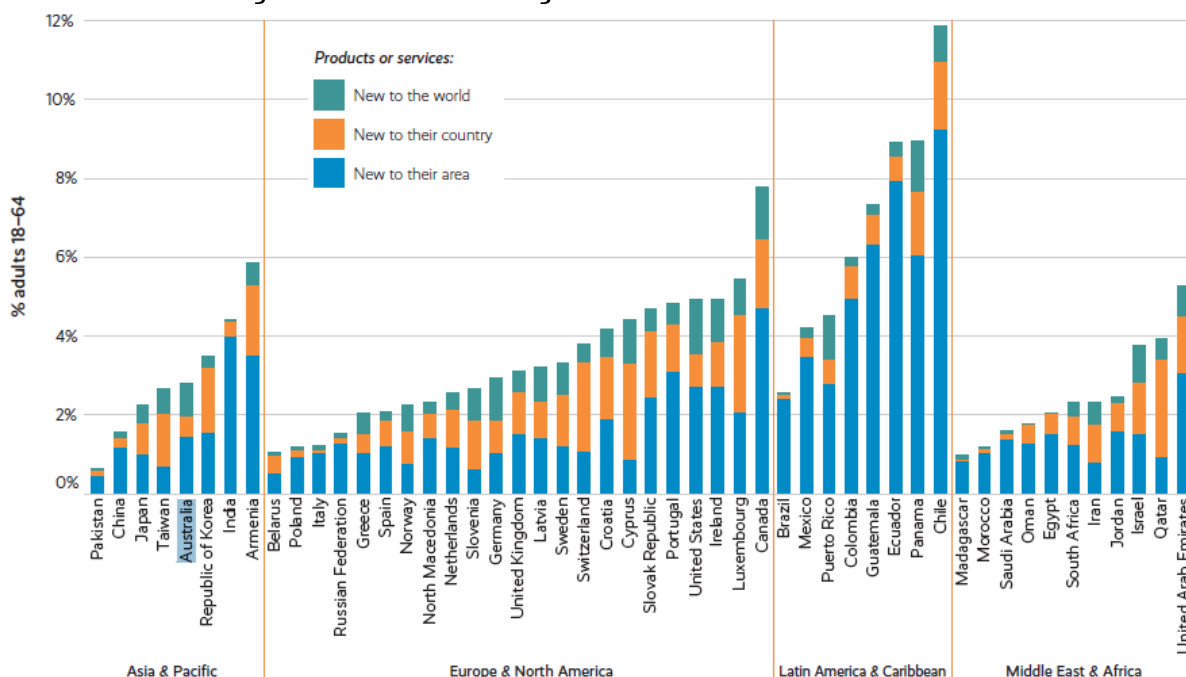


¹² Ibid.

¹³ Ibid.

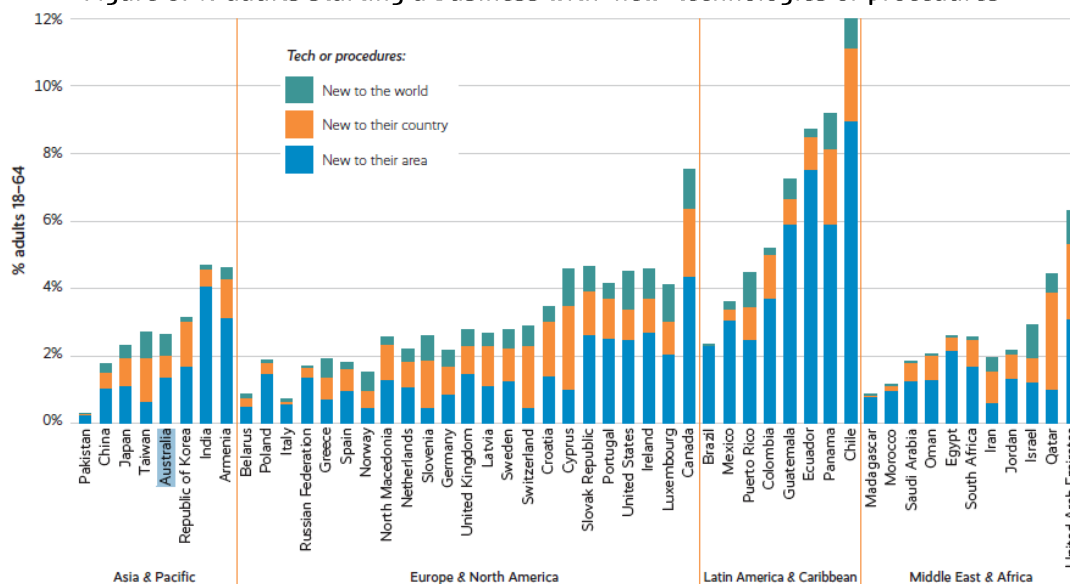
However, fear of failure is not the only perceived obstacle. Startup business activity that focusses on new innovation appears to be lacking. Figure 5 suggests that relatively few Australian startups focus on 'new' innovations¹⁴.

Figure 5. % adults starting a business with 'new' innovations



Similarly, the % Australian adults starting a new business with technologies (e.g. computer technologies) or procedures (e.g. processes or business models) that are 'new' to either their sector, country or to the world is also relatively low at just under 3% (Figure 6)¹⁵. These results suggest that Australia's high ambitions to be innovative translate poorly to the startup sector¹⁶.

Figure 6. % adults starting a business with 'new' technologies or procedures



¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Footnote 2, *op. cit.*

Yet, there is another factor to consider. Startups require investment to scale, and a healthy startup sector needs funding to be successful, which we turn our attention to next.

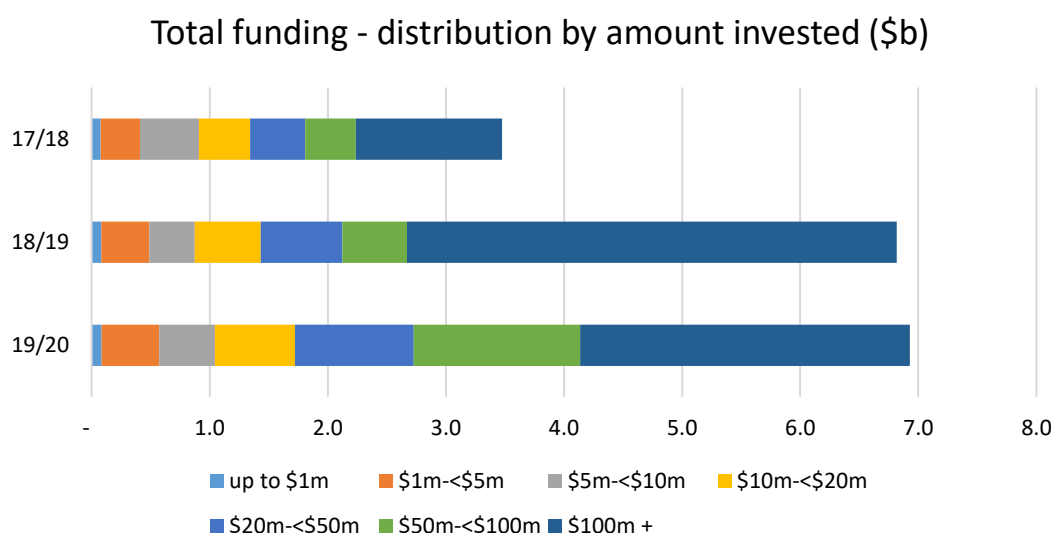
2. Startup funding in Australia

Research by the University of Melbourne suggests that for startups at least two years old, 77% of economic benefits will be created by 3% of startups¹⁷. These high growth 'scale-ups' typically require significant growth capital. But who is funding them?

The past five years have seen a steady increase in funding coming into the startup sector in Australia, manifesting itself in billions of dollars raised by venture capital funds and an increase in technology funding by public markets.

According to data captured by Techboard, which specialises in Australian startup and tech data, total startup funding from all sources during the 2020 financial year was \$6.9b (Figure 7). This total is in line with the previous year (\$6.8b), but almost a doubling from FY18's \$3.5b¹⁸.

Figure 7. Funding 2017/18 to 2019/2020



Funding data suggests a maturing of the startup and tech sector in Australia, with funding events generally getting larger as companies are maturing. In particular, between FY18 and FY19 there was a marked uptick in funding events greater than \$100m, up 167% in quantity and 235% in value. Admittedly, FY19 figures were skewed by the \$1.6b acquisition of PEXA, but even removing this data point, the trend remains notably upwards.

Funding events of all sizes increased year on year between FY18 and FY19, with the exception of deals in the \$5m-\$10m range. From FY19 to FY20, funding events again increased year on year in all categories (including \$100m+ once removing the PEXA acquisition).

2.1. Types of funders

Venture capital

Venture capital funds have been consistently growing in size. According to startup advocacy group StartupAUS, VC firms raised over \$4 billion from 2015 to 2018, with the annual value of

¹⁷ <https://pursuit.unimelb.edu.au/articles/why-are-australian-start-ups-failing>

¹⁸ <https://techboard.com.au/techboard-annual-funding-report-2018-19/>

new funds closed roughly doubling each year¹⁹. VC firms are now attracting more institutional-level capital as larger fund sizes become more practical for industry super funds that historically have been too large to invest in early stage ventures. In particular, super fund HostPlus has established itself as a hugely significant player in the tech investment space, having backed a range of VC firms including Square Peg Capital, Brandon Capital's Medial Research Commercialisation Fund and CSIRO's Main Sequences Ventures fund. Other super funds are following in HostPlus' footsteps, including First State Super, Sunsuper, AustralianSuper and Hesta.

Blackbird Ventures is Australia's largest VC fund with \$1.24b under management following its latest raise²⁰. It took over from Square Peg Capital, who previously held the title with a little over \$1bn in management. According to Techboard data, the most active VC fund is Artesian with investments into 44 Australian startups in FY20. Other notable VC funds include One Ventures and AirTree Ventures.

These large funds don't just back Aussie companies (Square Peg also backed Uber and Stripe), however, their impact as facilitators of Australian unicorns (young, private companies with a valuation in excess of US\$1 billion) is significant. Melbourne-based Airwallex was one such startup to benefit when Square Peg invested \$8m in the two-year-old fintech in 2017. Two years later the company was valued at over \$1 billion.

Something largely absent from the Australian landscape, but more prevalent in more developed ecosystems like the US, is the trend of successfully exited local tech entrepreneurs reinvesting significant amounts of their wealth into the next generation of startups. On a positive note there have been increasing examples of this occurring in Australia in recent years, with cases such as Paul Bassat (of SEEK fame), Scott Farquhar and Mike Cannon-Brookes (co-founders of Atlassian), Steve Baxter (founder of PIPE Networks) and Leigh Jasper (Aconex founder), among others.

Angel investment

Data on angel investment is notoriously difficult to track because a lot of seed stage deals remain confidential, either deliberately or because they are considered too small to be newsworthy. While many high net-worth individuals invest independently, many other angels join local angel groups in order to benefit from increased deal flow and peer support. As such angel groups can provide some insight into the overall level of the asset class.

Data collected from the major angel groups shows total funds deployed remained steady at circa \$10m in FY18 and FY19, but increased to \$14m in FY20, despite a drop off in activity in the last quarter following COVID-19. The most active angel groups are Brisbane Angels, Melbourne Angels, Sydney Angels and Scale Investors, with Sydney Angels' activity amplified through its co-investment fund.

Public markets

In addition to private capital, the public markets provide a significant amount of funding for startups and tech companies. In FY20, \$188m was raised by tech companies listing on the ASX (this excludes amounts raised by foreign companies relocating to Australia in order to list on the ASX). But dwarfing this amount was the \$1.4b raised by tech companies across over 100 share placements. Fintech Afterpay alone has raised over \$600m across four placements during the last two years.

¹⁹ <https://crossroads.startupaus.org/>

²⁰ <https://www.afr.com/technology/blackbird-s-500m-fund-hopes-for-another-hundred-bagger-20200804-p55icp>

Crowdfunding

Equity-based crowdfunding has existed in Australia for many years, but had been restricted to wholesale investors. Regulation was extended to retail investors in 2017, creating what is today referred to as crowd-sourced funding (CSF). In this respect Australia followed in the footsteps of the UK (2011) and New Zealand (2014).

In 2019, over \$50m was raised across Australia and New Zealand through CSF campaigns (as compared to roughly \$500m in the UK).²¹ CSF Platform Birchal estimates over 44,000 Australian investors have taken part in CSF campaigns to date.²²

The main platforms operating in this space are:

- Equitise, which helped neobank Xinja raise several million dollars over multiple rounds.
- VentureCrowd, which has focused on wholesale investors for now, even though it is licensed for retail investors too.
- Birchal, a spin-off from the non-equity based platform Pozible.
- OnMarket, which also offers retail investors access to IPOs and placements.

The industry sectors that are best leveraging the channel appear to be consumer-facing verticals, as businesses are able to mobilise existing customers and convert them into investor-brand advocates.

Reward-based crowdfunding has been around a lot longer than CSF, but only provides a fraction of the funding to startups. According to Techboard data fewer than a dozen Aussie startups closed successful campaigns over the past three years, with the only notable campaign being Flow Hive. The easy-to-use beehive returned to US platform Indiegogo and raised \$15m in 2018—having previously raised the largest ever campaign (\$12m) in the US platform's history back in 2015.

Grants

According to Techboard data, Aussie startups received a quarter of a billion dollars in grants over the past three years. These figures do not capture what is likely the biggest funder of earlier stage ventures, the R&D tax incentive, as this information is difficult to track. Federal funding for startups is also available through the well-known Accelerating Commercialisation grants, and the Export Marketing Development Grant. Other notable sources of grant funding include the Australian Renewable Energy Agency (Evia Networks, Greensync, HAZER Group), the Cooperative Research Centre (FluroSat, Solar Analytics) and the Medical Research Commercialisation Fund's Biomedical Translation Fund, AustCyber Project Fund and the Advanced Manufacturing Growth Centre.

Other grants and awards from non-public providers identified by Techboard also include Google, Salesforce, River City Labs, Mars, Optus and Microsoft.

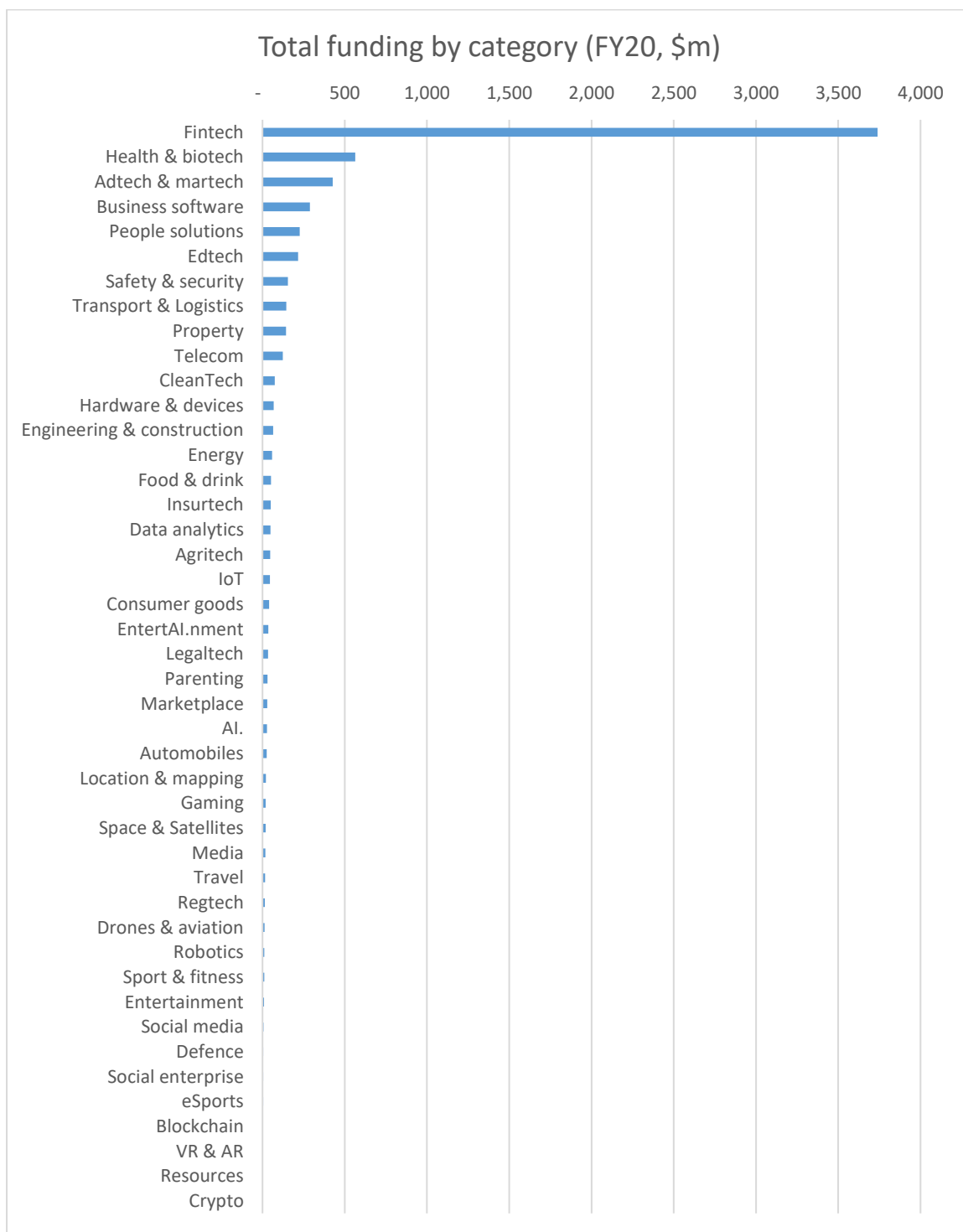
2.2. Funding by sector

Which sectors are benefitting most from this increasing volume of investment? Techboard data (Figure 8) shows fintech companies capturing over half of total funding during the 2020 financial year:

²¹ <https://www.scale.partners/post/crowdfunding-in-australia-everything-you-need-to-know>

²² https://storage.googleapis.com/birchal-public/Funded!%20CSF%20Industry%20Report%20FY%202019_20.pdf

Figure 8. Funding breakdown



The term fintech is a portmanteau of 'financial technology' and is used to categorise startups using technology to disrupting the products, services and business models in the financial services sector, from robo-advising to cryptocurrency to mobile payment apps. Capital raises in this space tend to be large, not just because of the size of the opportunities and investor enthusiasm, but also because fintech companies, like neobanks, require cash to lend to borrowers and not just to cover operating costs. Fintech has consistently dominated total startup funding volumes in recent years.

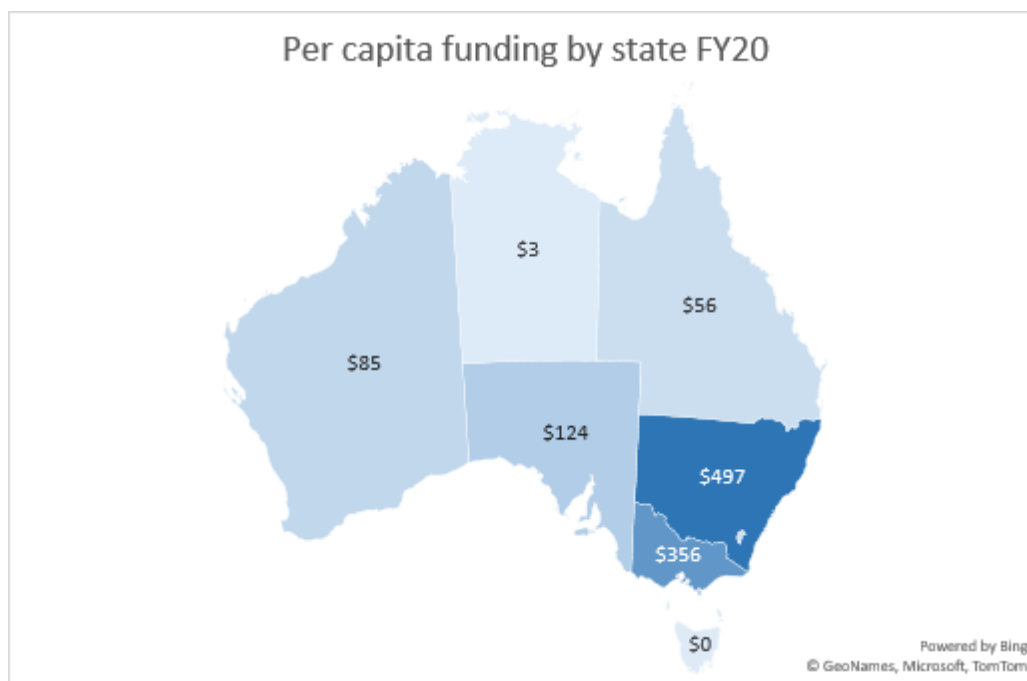
Health and biotech companies also put in a strong showing over the past couple of years (ranking second in FY20 and third in FY19), which is perhaps to be expected as a result of the significant long term capital required in bringing innovations to market in this sector.

Figure 8 highlights the disparities in funding flowing to different sectors, if you consider over two thirds of total FY20 funding is concentrated across just three sectors, while over 50% of sectors capture a combined total of just 4% of total funding—this is consistent with FY19 figures. What opportunities for Australia’s long term prosperity might we be missing within this long tail of under-funded ecosystems? A closer look at the bottom 50% of categories reveals that space and satellites, artificial intelligence and social enterprise are all potentially being over-looked.

2.3. Funding by state

Which states are benefitting most from the funding flowing into the startup ecosystem? Plotting funding events extracted from Techboard data for the FY20 year (states are recorded based on the home of the funded startup, not the location of the investor) yields Figure 9:

Figure 9. Funding by State



New South Wales was the highest funded state during the year, with close to \$500 per capita. This was driven by a series of mega-raises by fintechs, with Xinja, ZipCo and Brighte raising almost half a billion dollars between them.

International comparisons

Contrasting startup funding in Australia to other countries on a *per capita* basis is an informative exercise, to position and contextualise our ecosystem’s maturity (or lack thereof).

The first challenge with such an analysis is in comparing apples with apples, as different reports and studies can use significantly different data definitions when it comes to startup funding. Per capita measures of startup funding sometimes include venture capital only, other times incorporate angel investment and seed round only, but can also be all sources of funding.

In Australia, total private funding of local startups in FY20 is reported as \$3.9 billion by Techboard, which takes an all-sources view and includes VC, angel and corporate venture. In

terms of total dollars this mostly reflects large VC rounds (e.g. the top 11 investments make up half of the total). This yields a \$153 per capita figure. The comparable figures for 2019 were \$2.2 billion total, or \$90 per capita.

KPMG's Venture Pulse report reports total VC funding at \$1.25 billion²³ for the 2018 calendar year and \$1.63 billion²⁴ for 2019—or \$49 and \$64 per capita. Techboard's data likely being more comprehensive, a reasonable measure would place Australia's per capita VC investment in the \$100-\$150 range.

Worldwide, Israel and the US have mature venture capital industries. In 2019 VC investment was AU\$604 (US\$414) per capita in Israel and AU\$412 (US\$282) in the US²⁵. In other words, three to four times greater than in Australia.

3. Recommendations

Early stage startups

The evidence suggests that funding for entrepreneurship in Australia is on the rise. That's the good news. However, peeling back the layers of funding suggests that early stage startups (as opposed to later stage startups) may struggle to secure funding and when they do access funding they do not progress the innovation as effectively and efficiently as they intended or as the investor believed they should.

The struggles of early stage startups are due to many reasons ranging from poor product-market fit, poor or underdeveloped investor pitches, lack of traction or investors who have little experience with investing in fields outside of what they know (e.g. property or mining-related startups). This is not the fault of the founders or investors, but rather is due to the challenges of successfully executing innovation projects in economies that do not have substantial experiences and experts to assist. Highly evolved innovation economies have substantial knowledge and resources that can be easily accessed by a large percentage of new startups. Alternatively, small innovation ecosystems will only be able to provide sufficient knowledge and resources to a small number of startups.

Currently, this scenario is effectively what Australia is experiencing. There are a number of high quality, experienced innovation resources available, which grows marginally each year, but it is not capable of providing the knowledge and resources for a large number of startups. For startups to be successful they need access to five key ingredients that optimal innovation ecosystems provide:

1. A roadmap of what the innovation journey requires from idea to full market impact;
2. Support for effective decision making at all stages of the innovation journey;
3. Efficient access to the resources required;
4. A peer group; and
5. Access to funds when required.

²³ <https://www.startupdaily.net/2019/01/vc-investment-australian-startups-reached-record-1-25-billion-2018/>

²⁴ <https://home.kpmg/au/en/home/media/press-releases/2020/02/another-billion-dollar-year-for-investment-in-australian-startups-in-2019-10-feb-2020.html>

²⁵ <https://www.statista.com/statistics/1071105/value-of-investments-by-venture-capital-worldwide-by-key-market/>

The more startups have access to the above factors, the more successful outcomes will be achieved. Such ecosystems are currently being developed in each Australian city using the local experts and resources, but we believe that this can be replicated in an online format that provides the above in a hybrid physical/virtual manner. This would allow the startups to have 'instant' access to the appropriate knowledge and resources that they require, rather than the current model where a founder will need to search and figure it all out on their own and hopefully find the 'right person at the right time' as they progress along the innovation journey.

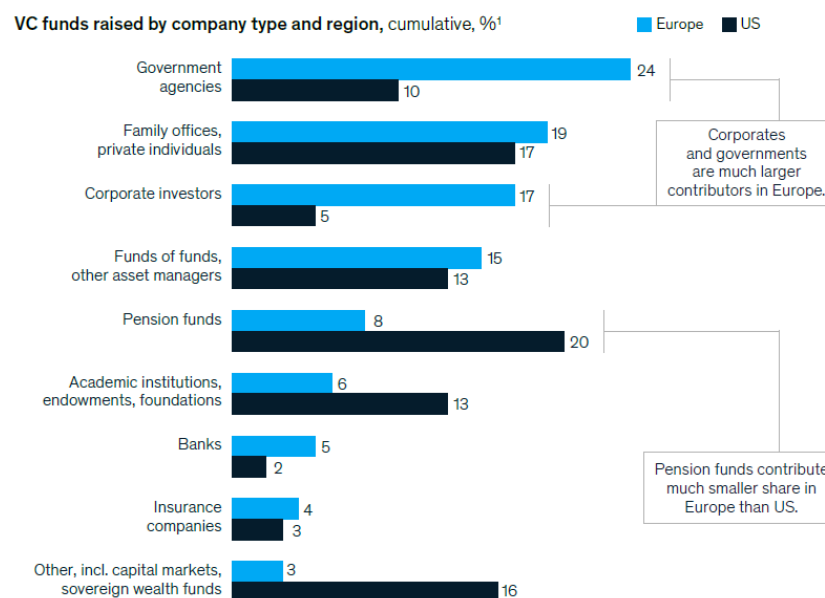
Such an online platform and process is currently being trialled in Western Australia—a broad ranging ecosystem platform that connects entrepreneurs, investors, advisers, government agencies (state and federal), educators and other interested parties. Think of the network effect created by Apple's iPhone app network: the more stakeholders join the network, the more powerful and valuable the ecosystem, and the better the support for entrepreneurs.

While such online platforms should be state-based (and tailored to local contexts), they can be replicated and interconnected across the country. Further, while government could support such platforms in a number of ways, private enterprise is critical. Private enterprise ultimately must establish, run and manage entrepreneurship-based, online marketplace ecosystems.

Government

An interesting fact about how governments support startups and entrepreneurial ventures is in their level of investment. According to McKinsey and Company research, government agencies in Europe, for example, make considerable investments, while pension funds do in the US (Figure 10)²⁶.

Figure 10. How venture capitalists raise their funds: Europe vs US



We believe Australia should take a page out of European and US strategies. For example, while the government announced a \$520M Business Growth Fund targeted at high growth SMEs with between \$2M and \$50M in revenue²⁷, more can be done. Specifically, early stage startups (with little revenue) are necessary to fuel longer-term innovation. Similar to strategies in the US, the Australian government should consider better provisions for superfunds to invest in early

²⁶ McKinsey & Co. 2020. Europe's start-up ecosystem. Heating up, but still facing challenges.

²⁷ <https://www.startupdaily.net/2019/11/australian-business-growth-fund-startup-reaction/>

stage startups. We believe there is even scope to offer incentives for those who contribute to such superfunds. While there are risks to consider and perhaps the need for a ‘certification’ process for such startups to go through, more available capital advances the entrepreneurial ecosystem, and makes better provision for new innovations to thrive.

The government should, in part, also consider supporting search funds. A search fund, otherwise known as Entrepreneurship through Acquisition, is an investment vehicle whereby entrepreneurs are supported to acquire and grow an existing business²⁸. Search funds have proven successful in many countries (in particular the United States, South America and throughout Europe) and offer an alternative pathway for budding entrepreneurs to enter the business market. In Australia, the launch of Second Squared marked the first search fund accelerator in the country²⁹. Government support of such accelerator concepts would bode well to diversify the pathway through which entrepreneurship and innovation is advanced.

Procurement

The government is a key sector in the Australian economy, with a total net operating balance of \$17 billion³⁰ and representing around 16% of total jobs³¹. As such, governments have a major impact on the economy through the procurement and consumption of goods and services. To that extent, government agencies can have an impact in driving a startup ecosystem not just through its policy levers, but through procurement.

The biggest challenge relating to procurement is arcane policies resulting in a system that is difficult to navigate, and stifles innovation and creativity in an attempt to manage bad results. In doing so, the best solution may not fit and is therefore discounted, and the process does not take into account—or enable government to take advantage of—rapid changes in technology, which may deliver faster, cheaper and better outcomes. It also results in large established companies having a foothold in the government, thereby limiting options for new technologies to be introduced.

There is an opportunity for government to leverage procurement to drive more economic growth and job creation. Various public procurement of innovation reports cite a number of common challenges including risk aversion, management, personnel and skills capability and political support³².

Our view is that governments can do more by:

1. Creating a startup marketplace for Government to work directly with startups, providing opportunities to test new ideas and solutions. The marketplace would provide problems or challenges whose solutions could be scaled through verticals to deliver impact while creating sustainable enterprises. Those solutions could be incubated to provide referenceability. An example is Ministry of Data, a volunteer organisation that facilitates local entrepreneurs to solve government problems using data, to build new businesses with the solutions they develop. SmartVision AI and ISEEROO, two new WA startups, were created from the solutions to a Main Roads challenge to automatically identify roadside hazards using thousands of hours of road video footage.

²⁸ <https://www.gsb.stanford.edu/faculty-research/centers-initiatives/ces/research/search-funds>

²⁹ <https://secondsquared.space/>

³⁰ <https://www.abs.gov.au/statistics/economy/government/government-finance-statistics-annual/latest-release>

³¹ <https://www.abs.gov.au/statistics/labour/employment-and-unemployment/labour-force-australia-detailed/latest-release>

³² <https://www.oecd.org/gov/public-procurement-for-innovation-9789264265820-en.htm> ; <https://www.sciencedirect.com/science/article/pii/S0166497214000388>

2. Giving consideration to which phases of a project could be delivered by startups, approach the market accordingly and target specific procurement opportunities to SMEs in the pipeline of works or projects. They should be required to engage with startups to solve problems and procure their services in a 'sandbox' or trial, to test the approach. The Japanese government introduced a sandbox framework in 2018 to support the development of new innovations and entrepreneurs, and there are 129 companies currently operating under the framework³³. An example is the Wakayama City trial of e-bikes with startup Glafit, which is being used to collect data to reduce the time to develop new regulations.
3. Establishing an innovation accreditation process of service providers in the ecosystem in order to manage risk. This would give a level of confidence to government agencies seeking the services of startups to deliver services. The Infocomm Development Authority of Singapore created an accreditation program for startups to help win projects from government and industry. Under the program, accredited companies are considered first for projects, and can be considered a substitute for the costly and time-consuming Government Supplier Registration status³⁴.

Private business

We believe there are at least four ways that private business can further foster innovation and entrepreneurship across the Australian economy. First, private business in Australia should consider deeper engagement with entrepreneurial startups. For example, in the UK, leading 3PL provider Wincanton regularly holds 'innovation competitions' through their W² Labs program. By inviting startups to submit applications to the competition, Wincanton is able to assess and ultimately employ cutting-edge technological solutions in their business, while helping startups better gain traction in the market. The Wincanton program has proved successful for Australia's Storekat (see www.storekat.com and www.onevastwarehouse.com). Private businesses in Australia have an opportunity to follow a similar pathway, or create a new model that otherwise advances the position of startups—and innovation in the country.

Second, in a similar fashion, private business should establish procurement policies for purchases from Australian startups. While risk is involved, the same rigour in normal procurement policies and due diligence procedures should insulate against the downside. We would go even as far as suggesting that such policies should account for a specified overall percentage of purchases (e.g. 20%) to come from startups. The upshot here is that startups better gain traction, generate cash flow and have the opportunity to interface with established businesses.

Third, private business should readily engage in open innovation and use accredited innovation managers to run innovation for successful outcomes. Open innovation is a strategy whereby existing businesses not only have an internal focus on innovation, but also openly seek to engage with external individuals, businesses and other organisations to solve problems. Good ideas—if not better ideas—can come from anywhere, and developing a network of partners is a pathway for startups to potentially be better embedded in the innovation processes of existing businesses. In an open innovation model, IP is produced and retained where appropriate, and as IP is no longer relevant to a given business or otherwise has no specific use, it can be made available to the market to advance someone else's

³³ <https://hbr.org/sponsored/2020/02/how-the-japanese-governments-new-sandbox-program-is-testing-innovations-in-mobility-and-technology>

³⁴ <https://entrepreneurhk.org/ida-launches-accreditation-programme-for-startups/>

innovation efforts. A standard innovation manager accreditation, connected within the innovation ecosystem marketplace, would make this feasible and optimal.

Fourth, boards of directors and C-suite executives carry considerable weight with respect to how much focus is given to innovation—and the degree to which entrepreneurship in Australia is recognised and valued. Australian boards of directors and C-suite executives receive little (if any) support and access to upskilling on innovation and need to become better informed about what successful innovation requires and the entrepreneurial community around the country. As they do, this is likely to have flow-on effects in terms of better engagement with startups—and improve innovation.

Ultimately, our view is that there exist considerable inefficiencies in connecting private business (and particularly Australia's larger companies) to the startup community. Through developing a robust entrepreneurship/startup ecosystem platform (as noted above), an electronic marketplace could be created that links startups with existing businesses around the country, resulting in higher levels of partnership, engagement and advancement.

Higher Education

Most institutions of higher education offer courses and units in entrepreneurship and innovation. While these are vital, we believe the future rests in new forms of engagement and delivery. For example, entrepreneurs are extremely time poor and may lack motivation or commitment to complete a three year undergraduate degree or a one to two year post-graduate degree. Shorter courses and industry connectedness are vital. For example, units offered in entrepreneurship (or innovation) could be completed in as little as an hour or two (or multiple sessions in a day), and 'stacked' for credit to complete an overall degree or certificate. Such units, while academically rigorous, should be industry connected with guest lectures and 'lessons learned' offered from existing entrepreneurs (who could be local or international). Alternatively, on-demand units should be available in the Internet cloud where students can access content, digitally, anytime from anywhere. The future of higher education is in the cloud, and building a connected platform between students, faculty and industry experts is needed (which can be achieved with the startup online ecosystem platform discussed above).

Data and Research

Reliable data measurement can be leveraged to derive valuable insights which support decision-making. While there have been notable efforts at compiling startup data in Australia, including the survey approach of Startup Muster and the now funding focused approach of Techboard, more effort and resources are required to collect and analyse data on startups and the ecosystems that support them.

One of the ten highlighted policy action items in StartupAUS' Crossroads report was to: "increase access to public data sets and fund strategically-coordinated large-scale data collection efforts"³⁵. We echo this recommendation. In particular, further data gathering and analysis needs to focus on understanding commonalities in successful startups, the extent to which local ecosystems support that success and identifying what the drivers for success might be. This kind of data and research can yield valuable insights to inform decision making and better target investment decisions.

4. Conclusion

Australia has much to be proud of regarding entrepreneurship and innovation. Australia has delivered vital innovations to society and the startup community continues to grow and expand. Yet, there are clear gaps and opportunities that need to be filled and built on. Our report has provided insight into the current state and has mapped out a pathway to the future.

³⁵ <https://crossroads.startupaus.org/>

Acknowledgements

Techboard is the number one source for up-to-date data on the Australian startup and young technology company ecosystem. Techboard operates Australia's largest publicly searchable directory of Australian startups and young technology companies with over 3,800 company profiles. Techboard publishes free reports containing high level insights and provides subscription access to its data on Australian startups and young technology companies. For more, see <https://techboard.com.au>

Curtin is an innovative, global university known for its high-impact research, strong industry partnerships and commitment to preparing students for jobs of the future. Curtin University is Western Australia's largest and most culturally diverse institutions of higher education with Australia's third largest international student population. Curtin is ranked in the top one percent of universities worldwide in the highly regarded [Academic Ranking of World Universities 2020](#). Curtin can be reached at <https://www.curtin.edu.au>

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StartupWA is a not-for-profit, representative organisation which promotes the growing startup sector in Western Australia. StartupWA aims to accelerate and advocate for the startup ecosystem that includes investors, technology hubs, accelerator programs and early stage technology businesses.

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