



AVA GO, YA MUG! HOW AUSTRALIA CAN STOP FEARING FAILURE AND EMBRACE THE BEST OF AMERICAN INNOVATION CULTURE

Vafa Ghazavi

January 2018



The United States Studies Centre's Innovation and Entrepreneurship Program is a multi-year research initiative, funded by the NSW Government, focused on understanding the United States as an innovation leader with a view to developing insight for the benefit of New South Wales and Australia.

Research areas include business, technology and policy trends in the United States in the areas of innovation and entrepreneurship, including in the emerging area of agtech, venture capital, cybersecurity and defence industries.



Research conclusions are derived independently and authors represent their own view, not those of the United States Studies Centre.

United States Studies Centre

Institute Building (H03)
The University of Sydney NSW 2006
Australia

Phone: +61 2 9351 7249
Email: us-studies@sydney.edu.au
Twitter: @ussc
Website: ussc.edu.au

Table of contents

Executive summary	01
Introduction	02
The innovation imperative	04
Land of promise	05
Fail fast, fail often and the Silicon Valley creed	06
The lucky country's fear of failure	07
Social capital and the new economy	10
Retooling for the twenty-first century	12
Recommendations for Australia	14
Endnotes	15
About the author	21

This report may be cited as:

Vafa Ghazavi, "Ava go, ya mug! How Australia can stop fearing failure and embrace the best of American innovation culture," United States Studies Centre at the University of Sydney, January 2018.

Reports published by the United States Studies Centre are anonymously peer-reviewed by both internal and external experts.

Cover photo: Getty

Executive summary

“...beyond public policy, beyond government, we need something else: a culture of striving. A culture of innovation. A collective belief that innovation is the essence of the Australian way.”

Australia’s chief scientist, Alan Finkel, AFR Innovation Summit, 2017

America’s innovation success is built on the back of entrepreneurs who embrace experimentalism, risk, and failure. This culture has helped make the United States the unrivalled leader of the digital revolution because it enables the flow of capital to new ventures, innovative management practices, and the audacity to commercialise technological breakthroughs. To the extent that other countries are able to foster a similar culture — underpinned by social capital to sustain it and adapted to their own contexts — they will position themselves to become engines of innovation.

The American experience helps frame a major challenge for Australia. Australia has its own advantages, including a stronger social safety net and an egalitarian ethos, that allow it to embrace elements of American innovation culture while spreading it to pockets of the economy that have been insulated from the frontiers of technological and managerial innovation. Recasting attitudes towards entrepreneurial failure, however, will be crucial. Overcoming the stigma around failure is connected with many of the factors that has Australia ranked 23rd in the 2017 Global Innovation Index¹ and 26th for innovation in the World Economic Forum’s 2016-2017 Global Competitiveness Report.²

Drawing on insights from the US experience, this paper assesses the cultural challenge of embracing failure constructively. It argues that there are encouraging developments in the innovation arena in Australia; the start-up and venture capital communities appear to be on the cusp of dramatic growth³ as the government’s National Innovation and Science Agenda has highlighted the importance of a culture of innovation. Nevertheless, there remains a lot to do. Cultural transitions are hard. But even modest initiatives can generate momentum, especially when their effects are combined.

Some key recommendations include:

- *Schools and career advisors* should bring entrepreneurs into their learning sites to share real life stories of learning from failure.
- *Universities* should give academics time and training to pursue entrepreneurial activities, and allow them a pathway to take sabbaticals or unpaid leave to pursue their entrepreneurial ideas with the failsafe of returning to their full-time academic role.
- *Local community leaders* should systematically celebrate entrepreneurial activity, including examples of learning from failure, and identify ways to shape the local discourse on entrepreneurship.
- *Innovation and Science Australia*, in collaboration with the *Behavioural Economics Team of Australia* and the *start-up community*, should investigate effective ways to promote discussion of entrepreneurial failure in homes, schools and workplaces.

Introduction



Photo: Getty

Few Australians have heard of Peter Tattam. Yet, as a lone hobbyist on the margins of his day job in the psychology department at the University of Tasmania in the early 1990s, Tattam wrote a program that enabled Microsoft Windows users to connect to the internet from their personal computers using dial-up servers.⁴ Tattam called his software Trumpet Winsock after a newsreader he had built — and because he liked playing trumpets.⁵ He distributed the program as shareware, without corporate backing or slick marketing, and only asked users to send him \$25 if they went beyond a try-out period. Tattam's creation was the best software for connecting to the internet and its use grew exponentially.⁶ Once Microsoft bundled Winsock functionality with Windows, the game changed forever: now anyone with a PC could access the wider internet without the limitations of a proprietary service.⁷ Tattam was a genuine technology pioneer. And he did it all from Hobart.

Tattam's story highlights something novel about our digital age: innovation can come from anywhere and spread fast. Innovation has been democratised. The twin revolutions of Moore's law (everything digital gets faster, cheaper, and smaller at an exponential rate) and internet connectivity, unleashed an explosive force that

"changed the very nature of innovation, relocating it from the centre (governments and big companies) to the edges" (20-somethings in their garages).⁸ While the internet has made it easier and cheaper to launch a product or business and succeed, "it has also made it easier and cheaper to fail".⁹ Embracing this logic at scale, in an adaptive way, is the cultural underpinning to modern innovation success.

For Australians, this doesn't come easy. Donald Horne, arguably Australia's most important post-war public intellectual, worried as far back as 1964 that "technology has produced a greater momentum than the Australian concept of entrepreneurship may be able to keep up with".¹⁰ At the time, Horne could not have imagined the digital revolution, but his view that Australia's "social climate" is "largely inimical to originality"¹¹ is more relevant than ever.

A modern economy can be seen as a "complex system" where surprising patterns of behaviour emerge out of many interactions; it involves more than the sum of its parts. In these systems, the most influential leverage points — "places in the system where a small change could lead to a large shift in behavior" — concern goals, paradigms, and culture.¹²

Cultural constraints to innovation are a factor across the board, from small businesses to large corporations, but start-ups provide an exceptional opportunity to break out from these. Hence the crucial question: how did an “imagined community”¹³ of start-up economies emerge in the United States, with pro-innovation social norms and the social licence to take risks? And what might be holding back something similar in Australia?

“Innovation” as described by its chief intellectual architect Joseph Schumpeter, an Austrian-American economist active in the first half of the 20th century, is “the market introduction of a technical or organisational novelty, not just its invention”.¹⁴ It is “the specific instrument of entrepreneurship”.¹⁵ And an entrepreneur literally means “bearer of risk”.¹⁶

Embracing failure is a necessary part of innovation but it would be easy to mischaracterise this. As supervillain tech CEO Gavin Belson in HBO’s *Silicon Valley* tells a group of fired employees: “Failure is growth. Failure is learning. But sometimes failure is just failure.” Failure should not, for instance, be an excuse for poor strategy or research.¹⁷ Failure is something that happens on the way to achieving excellence, not an end in itself. The challenge is to “fail well” — to generate new ideas and learning. As an Australian government report puts it, “innovation is about market experimentation. It involves the acceptance, or at least tolerance, of uncertainty and the risk of failure, on the basis that valuable learning will also come from failure”.¹⁸

Twenty-six years of uninterrupted economic growth has, however, hampered the emergence of a constructive view of failure in Australia. Australia’s economic success has had the unintended consequence of making high-risk investments less appealing. If investing in a sure thing is an option, why invest elsewhere? With so many economic winners around, start-up failure in Australia has become more tightly associated with personal failure and lack of entrepreneurial acumen.

It is difficult to be precise about the extent to which attitudes towards failure are holding back Australian innovation, which may help explain why this challenge is often cited but left as a vague observation. The 2016 *Performance Review of Australia’s Innovation and Science System* conducted by Innovation and Science Australia, found “no strong evidence” of Australia having a risk-averse culture, despite “common references” to it, although it acknowledged the limitations of the framework used.¹⁹ Interestingly, the report found: “The process of innovation can be significantly inhibited if failed attempts cannot be openly discussed, evaluated, reviewed or dismantled in a supportive environment in order to inform the next attempt.”²⁰ While difficult to measure, there is a widespread sense that a problem exists. These perceptions deserve attention as they profoundly shape the economic and social climate.

The innovation imperative

New growth theory argues that economic prosperity stems from progress in ideas, rather than the means of production, such as capital and labour. Knowledge, unlike physical capital, is open to increasing returns over time. As US economist Paul Romer argues, “All innovation is a culmination of things, people and ideas that have existed before”, adding that “We

consistently fail to grasp how many ideas remain to be discovered. Possibilities do not add up; they multiply”.²¹ More recent work in cognitive science supports the view that humans are wired to rely on each other’s ideas. In their book, *The Knowledge Illusion: Why We Never Think Alone*, cognitive

scientists Steven Sloman and Philip Fernbach argue that incomplete understanding propels technological progress.²² But ideas alone are not enough; they need to be brought to life in the market.

New firms, and especially start-ups, demonstrate this dynamism. New firms are the engines of job creation in Australia and the United States alike. Between 1977 and 2005, existing firms were net job destroyers in the United States, shedding one million jobs per year, while new firms added an average of three million jobs.²³ More recent data indicates this is a persistent trend, with young firms accounting for “nearly all net new job creation” in the United States.²⁴ Similarly in Australia, businesses less than two years old “are the largest contributor to job creation”, representing 90 per cent of net positive job creation from 2004-05 to 2010-11.²⁵ Despite notoriously high failure rates, start-ups epitomise high-impact entrepreneurship, representing young firms with the most potential for dramatic growth.²⁶

As the cost of failure has dropped dramatically, especially in high-tech industries, the nature of entrepreneurship has also changed. Eric Schmidt and Jonathan Rosenberg, two senior executives at Google, stress how “It’s ridiculously easy to imagine and create a new product, try it out with a limited set of consumers, measure precisely what works and what doesn’t, iterate the product, and try again”.²⁷ They point out that with digital prototyping, 3-D printing, and online market testing and fundraising, the same logic is being extended to manufacturing.

These developments should transform how failure is perceived. As technology and internet-focused academics Joi Ito and Jeff Howe underline, “as the cost of innovation declines, the nature of risk changes”.²⁸ In particular, reducing losses is subservient to amplifying wins. (Indeed, this is the basic logic behind venture capital.)²⁹ With the onset of low-cost innovation, it doesn’t make sense to tie up resources in excessive planning when failure is a “bargain-priced learning opportunity”.³⁰ This paradigm is paramount in Silicon Valley, which is heir to an American tradition of experimentalism.

In Australia, businesses less than two years old “are the largest contributor to job creation”, representing 90 per cent of net positive job creation from 2004-05 to 2010-11.

Land of promise

The best place to start to understand American innovation culture is with the great nineteenth century interpreter of American society, Alexis de Tocqueville, a Frenchman who in his towering 1835 work *Democracy in America* captured better than anyone the American embrace of failure in pursuit of prosperity.

"In the United States, fortunes are easily lost and made again... The primary reason for their rapid progress, their strength and greatness is their bold approach to industrial undertakings. There, industry is like a vast lottery in which there are a few daily losers but the state is a consistent winner; such a nation is, therefore, bound to view favorably and to respect industrial speculations. Now, any bold undertaking risks the fortune of the man who embarks upon it as well as the fortunes of all those who put their trust in him. Americans, who regard commercial rashness as a kind of virtue, would not be able to condemn any of those who practice it... That is why, in the United States, a trader who goes bankrupt is viewed with such an unusual degree of indulgence; his honor is not impaired by such an accident. In that, Americans differ not only from European nations but from all contemporary trading nations."³¹

Tocqueville observed a distinctly American entrepreneurial mindset: markets were to be created, not simply dominated. This is a transformative way of thinking about markets.

In Tocqueville's view, entrepreneurial risks were tied to American notions of honour, since the courage most prized was that "which makes a man indifferent to the sudden loss of a fortune acquired with so much labor and which immediately prompts him to fresh endeavors to gain another".³² He drew a connection between the American circumstance — a land of abundance and spirit of newness — and the cultural attitude towards risk-taking it produced.

"[For Americans], whatever does not exist has simply not yet been tried... This universal activity which prevails in the United States, these frequent reversals of fortune, these unforeseen shifts of public and private wealth, all combine to entrench in men's minds a kind of feverish agitation, which predisposes them to make every possible effort and keeps them, so to speak, above the common level of humanity. For Americans, their whole lives are spent as if in a game of chance... The same causes operate simultaneously on every individual and thus, in the end, give an irresistible impulse to the national character. Choose any American at random and he should be a man of burning desires, full of initiative, enterprising, and, above all, an innovator."³³

Despite this legacy, there is evidence of more recent entrepreneurial stagnation in the United States. Tyler Cowen, an iconoclastic American economist, bemoans the rise of complacency that is sapping Americans of the "pioneer spirit" that made their economy the most productive and innovative in the world.³⁴ Recent data counters some of Cowen's pessimism, however, with net establishment formation accelerating since 2015,³⁵ and, according to the Kauffman Foundation, a nonprofit focused on advancing entrepreneurship, high-growth entrepreneurship rebounding since 2008.³⁶ Regardless of whether these trends hold, the history of Silicon Valley reveals key cultural lessons for any region hoping to generate breakthrough innovation.

Fail fast, fail often and the Silicon Valley creed

The Silicon Valley mantra “fail fast, fail often” is now so widely touted it sounds trite. But the ascendance of this mindset is perhaps the most important distinguishing feature of its success.³⁷ The US academic AnnaLee Saxenian has documented how the mid-twentieth century pioneers of Silicon Valley saw themselves as outsiders to American east coast industrial traditions, while the geography of the region — a peninsula — “minimized physical distances between companies and facilitated intensive informal communications”.³⁸ A common, collaborative culture and ethos emerged centred on technical experimentation.³⁹ The region and its professional networks, rather than individual firms, became “the locus of economic activity”.⁴⁰ Moving between firms became acceptable. The new culture paved the way for “open innovation” — firms using internal and external ideas to create value.⁴¹ Silicon Valley’s early success owed as much to “its rich social, technical, and commercial relationships as to competitive rivalries and the initiative of individual entrepreneurs”.⁴²

Crucially, the emergent social dynamic generated new norms around failure. As Saxenian recounts, “Having left behind families, friends, and established communities”, these technology pioneers were “unusually open to risk-taking and experimentation”.⁴³ They emulated the entrepreneurism observed by Tocqueville, updated for a modern era:

“Not only was risk-taking glorified, but failure was socially acceptable. There was a shared understanding that anyone could be a successful entrepreneur: there were no boundaries of age, status, or social stratum that precluded the possibility of a new beginning; and there was little embarrassment or shame associated with business failure. In fact, the list of individuals who failed, even repeatedly, only to succeed later, was well known within the region.”⁴⁴

This cultural shift has had far-reaching implications. For example, potential entrepreneurs are not expected to wait for years before seeking early-stage investments. As Alec Ross, the former innovation adviser to Secretary of State Hillary Clinton, observes: “It is not a coincidence that Google, Facebook, Microsoft, Oracle, and countless other information-age companies were started by people in their twenties — and started in the United States.”⁴⁵

Silicon Valley culture has provided a model for other American cities. Startup America, an initiative launched by the Obama administration in 2011, sought to boost start-up activity nationally. Start-up culture is indeed spreading across the United States, as evidenced by a closing “dynamism gap” between large cities and the rest of America, and a growing crop of cities embracing start-up culture, including in sectors like manufacturing, healthcare, and transportation.⁴⁶ Cities like Austin, Denver and San Diego have more start-ups per million people than Sydney or Melbourne.⁴⁷

The idea that every state and city can be part of America’s start-up economy underpins the “Rise of the Rest” initiative of the venture capital firm Revolution and its founder Steve Case.⁴⁸ Herbie Ziskend, a former director of Rise of the Rest Investments and director of public policy at Revolution, told me that the Silicon Valley culture of embracing risk and experimentation was spreading to other American cities: “It is part of the larger American culture and ethos — the nation of immigrants that came here to start from scratch.”⁴⁹

The lucky country's fear of failure

In a 2013 international survey, the World Economic Forum found that “cultural support” — including risk and failure tolerance as well as role models and celebration of innovation — was relatively weak within Australia’s entrepreneurial ecosystem. This “pillar” was considered readily available by only 29 per cent of Australian respondents, compared to 90 per cent of respondents from Silicon Valley, or 64 per cent across other American cities. This pillar was by far the biggest gap between Australian and Silicon Valley respondents, outstripping differences in market access, human capital, access to finance or mentors, regulation and infrastructure.⁵⁰

Global Entrepreneurship Monitor data points to a considerable challenge for Australia when it comes to a fear of failure. According to the 2016/2017 report, 42.9 per cent of Australians aged 16-64 years old⁵¹ indicate that a fear of failure would prevent them from setting up a business even when they perceive good opportunities; in contrast, this figure was only 33.3 per cent in the United States.⁵²

The impressions of those involved in Australia’s entrepreneurial ecosystems are even more telling. Chris Styles, dean of UNSW Business School, observes: “In the US, multiple attempts at start-ups are worn as a badge of honour, and are almost a prerequisite to attract investors. In Australia, not getting a new venture off the ground is too often seen as a failure rather than a learning experience that increases the chances of success next time around.”⁵³ Steve Baxter, the Queensland government’s recently appointed chief entrepreneur, pleads for Australia not to punish entrepreneurs who fail. “They probably have five or six years of golden experience, and their next business is going to be ten times better because they had that failure. Right now we treat them like a bloody criminal, which is crazy.”⁵⁴

Such attitudes may be widespread but trying to describe Australian culture is treacherous terrain. Discussing national traits can make them appear immutable. Divergent narratives also tend to compete for ideological advantage, while diverse experiences render loose generalisations unhelpful. By focusing on innovation-related culture we can avoid some of

these pitfalls even if a comprehensive account remains elusive. Australia, like the United States, has over time cultivated traits and norms which are valued or recognised quite widely. Narratives about the national character shape daily and public life, including economic life, even when based on myth as much as reality.

Historical legacies

In *The Lucky Country*, Donald Horne argued Australia’s luck, including mineral wealth, had become a source of complacency, stifling ingenuity and creativity. He rejected the notion that “miracles” of Australian settlement had inspired Australian talent,⁵⁵ and worried Australia would be left behind since it had “not been a country of great innovation or originality”, having “exploited the innovations and originality of others”.⁵⁶ In a strikingly similar assessment, the Committee for Economic Development of Australia wrote in a 2016 report that Australia’s natural resource advantages had led to a strategy of copying foreign innovation, thereby creating “a false impression of convergence: the nation may be close to the technological frontier but, in many respects, it is a long way from being able to move that frontier forward”.⁵⁷

Numerous commentators have, however, stressed the “practical improvisation” which characterised Australia’s industrial development.⁵⁸ Australian writer David Malouf sees this as part of our British inheritance, an Anglo-Saxon “habit of mind... that prefers to argue from example and practice rather than principle... is flexible, experimental, adaptive, and scornful of all those traps it sees in habit and rule”.⁵⁹ This saw the early settlers adapt “to new and unknown conditions”.⁶⁰ Such strengths had their weak side too, with Charles Darwin in 1836 observing Australian “anti-intellectualism and complacent philistinism”.⁶¹

Forty-three per cent of Australians aged 16-64 indicate that a fear of failure would prevent them from setting up a business even when they perceive good opportunities; in contrast, this figure was only 33 per cent in the United States.



Looking at the nineteenth century, Australian writer George Megalogenis observes while the United States “claimed every other nation’s tired, poor, huddled masses yearning to breathe free”, Australia wanted “the migrant to improve the national stock”.⁶² He suggests Americans emerged “a religious people distrustful of government,” while Australians became “an intemperate people with a paradoxical dependence on government”.⁶³

Come mid-century, Horne berates Australian elites for being “conformist”. Even so, he had confidence in ordinary Australians’ capacity for change.⁶⁴ Australians “could be skilful improvisors”.⁶⁵ In Horne’s estimation, “The saving Australian characteristic... is the ability to change course quickly... and seek a quick, easy way out”.⁶⁶ Read in a more positive light than perhaps Horne intended, this could be viewed as a variant of what Tocqueville observed as the American determination to find “the shortest route” to prosperity.⁶⁷ Australian pragmatism turns out to be a great innovation asset.

This strength is no more evident than in the quintessential Australian notion of “having a go”, which Horne calls a defining characteristic of Australian people, alongside “fair go” and “having a good time”. Horne

also identifies the Australian aversion to pretension and self-delusion — both in oneself and towards others. “This deeply inlaid scepticism is a genuine philosophy of life, a national style determining individual and group actions... It may be the most pervasive single influence operating on Australians.”⁶⁸ This can cut both ways: combined with “having a go” it can inspire new ways of doing things, unencumbered by fads or trivial trends, but it may also encourage undue negativity about the ambition that drives breakthrough innovations.

The paradox of economic success

The baby boomers achieved economic prosperity with little need for large career risks. Their theories of success are naturally more likely to combine working hard, good luck and safe investments. This approach has also seeped into business culture. In a recent study, the chair of a top ASX-listed company revealed a preference among boards for “doing nothing” rather than innovating, to protect reputations in case things go wrong.⁶⁹ This can lead to throwing good money after bad to avoid the stigma of a cancelled project.⁷⁰ Ben Heap, founding partner of leading Australian fintech

and data investment firm H2 Ventures, told me that in Australia “a corporate board is unlikely to back a CEO who tries a handful of innovative initiatives that don’t work”, even though this is an “entirely flawed way to think about innovative or risk-taking ventures because by their very nature, most innovation initiatives are unlikely to work”.⁷¹

This cautiousness is deeply ingrained in Australia’s investment climate. Wyatt Roy, former federal assistant minister for innovation, told me that Australians — personally, in business or government — “traditionally have invested in very secure things that have a small return over a long period of time. Think resources, property, infrastructure”. He points to the example of superannuation. “You’ve got the second largest retirement savings of any country on the planet and that is heavily geared towards long-term investments with a small but secure return. That’s a good thing when you’re talking about retirement savings but that investment culture basically ensures that when people are successful they’re probably more inclined to invest into property or blue-chip shares than they are to invest in innovation and high-risk enterprises.” And this shapes attitudes towards failure: “If you are seen to have failed before, in Australia that is conceived as a big negative; you wouldn’t look to invest in somebody who has failed. Whereas in Silicon Valley, or certainly Israel, you are not taken seriously unless you have failed. The failure is your opportunity to open up the door to other opportunities. People wear it as a badge of pride; over here it is something that people instinctively try to hide.”⁷²

Following a quarter century of economic growth, it is unsurprising that Australians’ risk tolerance is relatively low. According to “prospect theory” developed by behavioural economics pioneers Daniel Kahneman and Amos Tversky, people tend to be more risk averse in the domain of gains, and less risk averse in the domain of losses.⁷³ When times are good, we stick to the status quo. When things aren’t going well, we are more willing to try something different. As Liberal Party pollster Mark Textor characterises Australians’ fear of decline, “When you are sitting on an economic pedestal, you ask yourself, ‘How do I maintain this?’ The only way is down”.⁷⁴ To encourage greater risk tolerance, effort is needed to destabilise the status quo and highlight negative consequences of stasis.⁷⁵

Yet, the available evidence suggests Australians are collectively prepared to embrace entrepreneurship if the climate was more supportive.⁷⁶ Moreover, the actual experience of successful Australian entrepreneurs is striking: 41 per cent of start-up founders have previously founded at least one other start-up,⁷⁷ while a staggering 82 per cent of founders of successful Australian technology start-ups had previously created at least one company.⁷⁸ Among start-up founders, 21 per cent describe “experience from founding a start-up previously” as a “critical” event in founding their start-up.⁷⁹ This data suggests there is a strong undercurrent of risk-taking entrepreneurship in Australia. The challenge is therefore to amplify this on a wider scale; to take it mainstream in our economic life and public narrative.

Social capital and the new economy

Joseph Schumpeter's conception of innovation and the "creative destruction" it generates⁸⁰ can have drastic implications for the people driving it. Rocking the boat makes one a target for those who wish to defend the status quo so most shy away. This is also why large organisations tend to struggle with innovation.⁸¹ To better understand the conditions in which failure is not only permitted but embraced in a meaningful way, it is helpful to look at this phenomenon through the lens of social capital.

A social norm that prizes experimentation and tolerates failure is a missing ingredient in Australia's stock of social capital as it seeks to participate in the new economy.

Where social capital is weak, potential entrepreneurs might prefer conventional careers, lest they incur the stigma of failure. In contrast, where social capital is strong, they can experiment, confident that their social standing will not be diminished if they fail.

The consequences of this can be hidden when productivity gains are made through inputs of financial, human and physical capital, but it comes to the fore when transitioning to an innovation-driven economy. This type of social capital which emerged in Silicon Valley has only recently been emulated in other countries in a serious way. Co-working spaces and incubators, hackathons and

mentoring programs, are outward expressions of an underlying logic: generating the social capital that fuels an entrepreneurial economy.

Following US political scientist Robert Putnam's landmark 1995 study on civic engagement, social capital can be understood as referring to "connections among individuals — social networks and the norms of reciprocity and trustworthiness that arise from them".⁸² The importance of the social dimensions of markets, especially the role of trust, has long been established, including by the father of modern economics Adam Smith.⁸³ Entrepreneurs often rely on the support of social networks, such as those provided by friends, collaborators and family, when engaging in new ventures. Fortunately, economist and parliamentarian Andrew Leigh's study of social capital

in Australia finds "little evidence of a collapse of trust" (even though he finds decline in other areas).⁸⁴ High-trust relationships can enable risky investments in bold ideas, including by family and friends who tend to be crucial sources of seed capital for early-stage ventures, alongside personal finances,⁸⁵ including in Australia.⁸⁶ Where social capital is weak, potential entrepreneurs might prefer conventional careers, lest they incur the stigma of failure. In contrast, where social capital is strong, they can experiment, confident that their social standing will not be diminished if they fail.

Social capital sustains start-up ecosystems where "the interests of the participants are aligned such that the success of each participant leads to the success of the start-ups and the ecosystem as a whole, thus avoiding behaviours that benefit one entity at the expense of others."⁸⁷

A particular challenge is to build communities where failures can be surfaced for individual and collective learning. As Ben Heap, founding partner of leading Australian fintech and data investment firm H2 Ventures, told me regarding the Australian context: "There aren't many people running around who have failed a handful of times and are still at it. And the ones that are running around that have failed a few times are certainly not silly enough to talk about it and so there's not a sharing of those lessons learnt. It's more like gamblers anonymous in an Australian context where it's hard to find someone else who has dealt with a gambling addiction because people aren't going to talk about it, even if they might have some terrific experience to share. Until the culture changes you don't have the sort of knowledge out there and the experience — the lessons learnt — which is the thing that makes failure valuable."⁸⁸

These conversations can only happen in a social context which welcomes them. Like cities,⁸⁹ effective start-up ecosystems facilitate productive human interactions. Reid Hoffman, the US internet entrepreneur and founder of LinkedIn, highlights common spaces in Silicon Valley — places where the "very creatures of entrepreneurial life mingle and learn from one another" — like restaurants known for venture deals, coffee shops where programmers and students mingle and

get recruited, and accelerators where entrepreneurs “swap insights and commiserate about the insanity of start-up life”. He argues these are “just as vital to Silicon Valley as the headquarters of Facebook, Google or LinkedIn”. Hoffman suggests thinking of Silicon Valley as “a vast, deep learning machine that sends information careening through its network”. Crucially, these dynamics “can take root just about anywhere that you have a few successful entrepreneurs willing to pay it forward”. So this is how to identify the next Silicon Valley: “Is there a density of talent sharing, swapping and learning from each other’s experience?”⁹⁰

Analysis by the Australian innovation department chief economist concurs on the benefits of “geographical clustering” which creates “economies of scale associated with shared access to infrastructure, skilled labour and other resources” and allows firms, universities and research institutions to build “trust and cooperation” that reduces transaction costs and encourages ideas exchange.⁹¹ However, as the national start-up advocacy organisation StartupAUS highlights, “Australia’s startup landscape is remarkable for its lack of density. There are no start-up precincts of globally significant scale in any Australian cities. Ecosystems are scattered, with focal points becoming isolated co-working spaces, incubators or accelerators. The cultural impact of this fragmentation should not be underestimated. Entrepreneurship is invisible for most Australians. And without focal points, any build in cultural momentum supporting start-ups has been difficult to maintain”.⁹²

The push for “innovation districts”, or “innovation precincts” — including from StartupAUS⁹³ — addresses this challenge. According to research by the Brookings Institution, these are “geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators, and accelerators”. Furthermore, “They are also physically compact, transit-accessible, and technically-wired and offer mixed-use housing, office, and retail”.⁹⁴ By concentrating interactions, these precincts can increase the trust and common mission that characterises the best innovation hubs in the United States. We are beginning to see these emerge in Australia. Following a recent visit to Melbourne, Brookings analyst Julie

Wagner called it “a city to watch” because “there are multiple innovation districts... in various phases of development, which cumulatively has the potential to create a broader innovation ecosystem — or innovation spine — across the city.”⁹⁵ There is hope that the new Startup Hub located in the heart of Sydney — backed by \$35 million from the NSW government — will also emerge as a globally significant innovation district.⁹⁶ Two new start-up hubs in Brisbane are also positioning it as an emerging precinct. Local governments are also playing an important role.⁹⁷

While so few Australian investors have themselves engaged in risky start-ups — let alone talk about their failures — they are less likely to see the value in aspiring innovators willing to take on high-risk projects. Networks can thus have the opposite effect to those in Silicon Valley: more networking produces more conformity. While improving, Australia’s corporate sector is not as integrated into start-up ecosystems as it could be, thereby limiting the mainstream impact of start-up culture.⁹⁸ The chair of a top ASX-listed company recently observed: “We are still too tribal, and certainly the people that run businesses are not properly or sufficiently connected with the leaders of innovation in this country. We have pockets of innovative excellence... The problem is they are pockets and we don’t have that nationwide culture.”⁹⁹

When it comes to social capital, entrepreneurs in regional cities may have advantages. StartupAUS identifies emerging innovation centres in several regional locations from Bunbury to Ipswich.¹⁰⁰ For budding entrepreneurs, strong community ties can translate into a supportive environment and easier access to professional counsel through personal networks. Of course, the converse may also be true: in some smaller communities, the idea of standing out from the crowd, only to fail, may be overwhelming. The lack of a critical mass of human capital or role models, and limiting social expectations of some groups such as young people, may also be a barrier. Nonetheless, regional cities present a tremendous opportunity.

Retooling for the twenty-first century

Rethinking education

Education systems can inspire experimentation and entrepreneurship. They can also do the opposite. The billionaire Silicon Valley-based venture capitalist Peter Thiel, for example, worries American education prizes competition and conformity, rather than nurturing talent.¹⁰¹ This dynamic may be even stronger in Australia where the Australian Tertiary Admission Rank (ATAR) boils down a student's ability into a single score. As the Mitchell Institute notes, in earlier years children "are encouraged to be curious, to experiment and to learn through trial, error and eventual mastery. These are inherently scientific traits. However, once they enter primary school, this approach is often replaced... by a narrowing of focus towards achieving high NAPLAN scores and working towards an ATAR, to secure university entry".¹⁰² In its place, the Mitchell Institute recommends a greater focus on creative problem-solving and capability-building in the curriculum.

This approach can shift attitudes towards entrepreneurial failure, initially among a critical mass exposed to such education and eventually at a societal level. This type of education focuses less on conveying specific knowledge and more on fostering experimental inquiry and developing a range of competencies. It empowers people to explore new disciplines, create and maintain coalitions, avoid groupthink, seek feedback from peers, communicate ideas, and demonstrate resilience.¹⁰³ It should enable students to effectively manage risk and to develop what business researcher Adam Grant calls "risk portfolios" — that is, help them figure out how to take safe bets in one domain of life so they can simultaneously pursue ambitious, high-risk ventures without compromising their mental health or livelihood.¹⁰⁴

Many of these competencies — essential for interpersonal skills, creative and decision-making tasks, and information synthesis — are also fundamental for a future of work defined by intensifying automation and the rise of AI.¹⁰⁵ As MIT economists Erik Brynjolfsson and Andrew McAfee write in *The Second Machine Age*, "We've never seen a truly creative machine, or an entrepreneurial one, or an innovative one".¹⁰⁶ Computers help us find answers but not pose new questions. The audacity to pursue new ideas is largely

contingent on the willingness to be wrong, and social mechanisms to support that.

In the United States, investments like those made by the Kauffman Foundation, a nonprofit founded to advance entrepreneurship, mean more than 400,000 students participate in entrepreneurship training each year,¹⁰⁷ while 4.4 million school students participate in Kauffman's Junior Achievement program, exposing them to entrepreneurship principles through experiential activities.¹⁰⁸ In Australia, there are only a handful of initiatives at the primary school level such as those run by the Club Kidpreneur Foundation, which encourages entrepreneurial thinking in primary-aged children. Although there are some opportunities available for secondary students through courses like those delivered by Phronesis Academy, an online platform that teaches children entrepreneurial and business development skills,¹⁰⁹ there are no widely implemented entrepreneurship programs in Australian high schools.¹¹⁰

A 2015 report by Spike Innovation for Australia's chief scientist found that "Producing and training entrepreneurs is not seen as a priority" for most Australian universities.¹¹¹ The report acknowledged promising initiatives, but overall assessed programs to be small and unreflective of best practice; it provided a comprehensive set of recommendations to close the gap. Experiential programs in particular, such as incubators and pitch competitions with seed funding, were identified as helping students "fail fast in a safe environment".¹¹² The recent surge in university-based incubators, accelerators, mentoring schemes, and entrepreneurship courses (a recent report by Universities Australia identified more than 100 such facilities in Australia)¹¹³ can therefore promote capabilities needed to turn ideas into ventures while debunking negative attitudes towards failure.¹¹⁴ University programs based on Lean Startup methodology — described as "the international gold standard in entrepreneurship education"¹¹⁵ — have particular promise in this regard. This approach calls for adapting to the needs of customers, starting with a minimum viable product and iterating towards success. It turns small-scale failure into a strategic asset.

Beyond campuses, Lean Startup methodology is already shaping Australia's start-up economy. A survey

of Australian start-up founders found that *The Lean Startup* by US entrepreneur and writer Eric Ries was their most recommended book.¹¹⁶ CSIRO is using Lean Startup methodology to boost entrepreneurship among its staff and more widely through its accelerator program.¹¹⁷ As the influence of this methodology spreads, the effects over time could nudge thinking on entrepreneurial failure.

Clay Shirky, a US academic who writes on the social and economic implications of the internet, argues that the key to successful tech management is “learning to metabolize failure”.¹¹⁸ This insight extends to all entrepreneurial success. In 2011, the *Harvard Business Review* dedicated an entire issue to “examining the art and science of failing well”.¹¹⁹ This should be at the heart of Australia’s burgeoning entrepreneurship training programs. Those going into business will need to learn to operationalise “intelligent failure”, such as by codifying and sharing what is learnt.¹²⁰ Building resilience is also key.¹²¹

Rethinking careers

Adam Grant finds “When achievement motivation goes sky-high, it can crowd out originality: The more you value achievement, the more you come to dread failure. Instead of aiming for unique accomplishments, the intense desire to succeed leads us to strive for guaranteed success”.¹²² This can have systemic effects. Australian writer Lisa Pryor, writing in *The New York Times*, suggests Australia is in danger of squandering its enviable prosperity and lifestyle because “when you have a nation full of people trying to get to the top, eventually most of the population is forced to run just to keep up”.¹²³

The pressure to compete on the same terrain as others may sap entrepreneurial creativity and drive. Peter Thiel believes American universities promote conformity by fostering “fierce rivalries with equally smart peers over conventional careers like management consulting and investment banking”.¹²⁴ This critique may also be apt for Australia, where many undergraduate students focus on a particular professional goal rather than seeking a well-rounded foundation from their tertiary studies, and there may be great pressure to stick to conventional careers. As Alex McCauley, the CEO of StartupAUS, told me:

“It’s that conversation young people have when they sit down to family dinner and get asked ‘What are you going to do with your life?’. The kid is supposed to say, be a lawyer or a doctor, or an accountant or architect, something with a bit of cachet about it and that has a professional degree and a clear path you can follow. That conversation needs to evolve: smart kids need to be able to say, I’ll actually do something new and create some jobs by building a business.”¹²⁵ Once graduates enter the workforce, conventional career paths often drain what is left of their entrepreneurial ambition.

In the tertiary sector, one obvious reform would be for Australian universities to follow their American counterparts in offering greater scope for academics to pursue entrepreneurial activities, including through sabbaticals. This would minimise personal risks for researchers such as Australian engineering professor Andreas Fouras who left his academic post — and sold his house — to focus on his early stage medical start-up, 4Dx. As Australian journalist John McDuling writes in the *Australian Financial Review*, “It is exactly the kind of risk taking we are trying to encourage as a nation. But we sure don’t make it easy”.¹²⁶ Worries about being locked out of academia haunt researchers making the leap into commercial territory.

It is difficult to build innovation in large organisations, where hierarchical bureaucracies tend to be risk-averse. This is why technology companies such as Google — which drives innovation by “failing well” — are remarkable. A good illustration came out of its Sydney office. Google Wave, a new way to communicate online, was launched in 2009 with much fanfare but didn’t gain traction and was scrapped. As Eric Schmidt and Jonathan Rosenberg describe in *How Google Works*, “It failed quickly: We did not pour good money after bad. It failed without anyone being stigmatized: No one on the Wave team lost their jobs, and in fact most of them were highly recruited within Google after the project shut down, precisely because they had worked on something that had pushed the boundaries”.¹²⁷ Innovators notice how failure is treated: if it is punished they will naturally become more cautious. According to Schmidt and Rosenberg, managers should create systems that get stronger as a result of failure, or what American scholar and author Nassim Taleb calls becoming more “antifragile”.¹²⁸

Recommendations for Australia

Aspiring entrepreneurs need to be given room to experiment — and fail. This is the social and cultural task, as distinct from the technocratic or commercial one, of nations seeking to become innovation leaders.

Recent reform of Australia's corporate insolvency laws demonstrates how concrete steps can be taken to ensure we don't excessively penalise failure,¹²⁹ potentially helping shift attitudes towards failure over time.¹³⁰ This brings Australia closer to the more

entrepreneurship-friendly American approach to bankruptcy.¹³¹ More broadly, political and corporate leaders have a vital role but so do parents, teachers, and journalists.

The following ideas are a sample of steps that could be taken in various

Australian sectors to embrace the best of American innovation culture when it comes to valuing failure. They are intended to indicate that modest practical measures can cumulatively impact culture, rather than to resemble a comprehensive list of solutions.

- Local governments and community leaders should systematically celebrate entrepreneurial activity, including examples of learning from past failure, and identify ways to shape the local discourse on entrepreneurship.
- Entrepreneurial training programs should use methodologies (such as Lean Startup) that encourage systematic experimentation and iteration which leverages low-cost failure, and promote capabilities needed to "fail well". They should also assist aspiring entrepreneurs to develop skills to communicate personal narratives around past failures.
- Schools, careers advisers, and entrepreneurial training programs should help students to develop the self-awareness and capabilities to effectively manage their personal "risk portfolio", as detailed in the section "Rethinking education".

- Schools and career advisors should bring entrepreneurs into their learning sites to share real life stories of learning from failure.
- Universities should give academics time and training to pursue entrepreneurial activities, and allow them a pathway to take sabbaticals or unpaid leave to pursue their entrepreneurial ideas with the failsafe of returning to their full-time academic role.
- Innovation and Science Australia, in collaboration with the Behavioural Economics Team of Australia (BETA) and the start-up community, should investigate effective ways to promote discussion of entrepreneurial failure in homes, schools, and workplaces. This might include online platforms that curate and disseminate start-up experiences.
- Governments at all levels should continue to work with the start-up community to identify ways to strategically support the emergence of world-class innovation precincts.

Australia's challenge was presented forcefully by Bertrand Russell, the great British philosopher, who penned an article for *The West Australian* upon his arrival in Australia in 1950 in which he emphasised the importance of enterprise and investing in scientific research, even when we know much of it "will probably prove unfruitful". He added: "Perhaps you will be content with a moderate and humdrum success, but I hope not. I hope that the more enterprising spirits among you will be inspired by a golden vision of a possible future, and will be content to take the risks involved in aiming at great success rather than acquiesce in the comfortable certainty of a moderate competence."¹³² In the decades since, Australia has achieved profound economic and social success. Now, it must rethink the meaning of failure to ensure this prosperity continues. The American example demonstrates there is no time for complacency, and no room for pessimism.

Australia has achieved profound economic and social success. Now, it must rethink the meaning of failure to ensure this prosperity continues.

Endnotes

1. Cornell University, INSEAD, and WIPO, *The Global Innovation Index 2017: Innovation Feeding the World* (Ithaca, Fontainebleau, and Geneva, 2017).
2. Klaus Schwab (ed.), *The Global Competitiveness Report 2016-2017* (Geneva, World Economic Forum, 2016).
3. For example, venture capital fundraising has reached a record level and total VC investment in the last financial year was up nearly 50 percent compared to the previous year. See Australian Private Equity and Venture Capital Association Limited, *2016 Yearbook: Australian Private Equity and Venture Capital Activity Report — November 2016*: <https://www.avcal.com.au/documents/item/1315>
4. Jonathan Zittrain, *The Future of the Internet — And How to Stop It* (New Haven and London: Yale University Press, 2008), p. 29.
5. The background to the name can be found in one of Peter Tattam's contributions to the following online forum: <https://news.ycombinator.com/item?id=2282875>
6. See Cristina Cifuentes and Anne Fitzgerald, "Copyright in Shareware Software Distributed on the Internet — The Trumpet Winsock Case," *Proceedings of the 19th International Conference on Software Engineering* (1997), p. 456.
7. Jonathan Zittrain, *The Future of the Internet — And How to Stop It*, pp. 29-30.
8. Joi Ito and Jeff Howe, *Whiplash: How to Survive Our Faster Future* (New York and Boston: Grand Central Publishing, 2016), p. 21.
9. Eric Markowitz, "Why Silicon Valley Loves Failures," *Inc.*, 16 August 2012: <https://www.inc.com/eric-markowitz/brilliant-failures/why-silicon-valley-loves-failures.html>
10. Donald Horne, *The Lucky Country: Australia in the sixties* (Sydney and Melbourne: Angus and Robertson Publishers, 1978 [1964]), p. 126.
11. Donald Horne, *The Lucky Country: Australia in the sixties*, p. 217.
12. See Donella H. Meadows, *Thinking in Systems: A Primer* (White River Junction, Vermont: Chelsea Green Publishing, 2008), pp. 145-65.
13. This phrase is borrowed from Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London and New York: Verso, 2006 [1983]).
14. Quoted in Erik Brynjolfsson and Andrew McAfee, *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies* (New York and London: W.W. Norton and Company, 2016), p. 214.
15. Peter Drucker, *Innovation and Entrepreneurship: Practice and Principles* (Boston: Butterworth Heinemann, 1985), p. 27.
16. Adam Grant, *Originals: How Non-Conformists Change the World* (London: WH Allen, 2016), pp. 14. According to the OECD, "The death of enterprises is an integral part of the phenomenon of entrepreneurship."; see OECD, *Entrepreneurship at a Glance 2017* (Paris: OECD Publishing, 2017), p. 78: http://dx.doi.org/10.1787/entrepreneur_aag-2017-en
17. Erika Hall, "How the 'Failure' Culture of Startups is Killing Innovation," *Wired*, 11 September 2013: <https://www.wired.com/2013/09/why-do-research-when-you-can-fail-fast-pivot-and-act-out-other-popular-startup-liches/>
18. Australian Government Department of Industry, Innovation and Science, Office of the Chief Economist, *Australian Innovation System Report 2016*, p. 11: <https://industry.gov.au/Office-of-the-Chief-Economist/Publications/Documents/Australian-Innovation-System/2016-AIS-Report.pdf>
19. Innovation and Science Australia, *Performance Review of the Australian Innovation, Science and Research System 2016* (Commonwealth of Australia, 2016), p. xii: <https://industry.gov.au/Innovation-and-Science-Australia/Documents/ISA-system-review/index.html>
20. Innovation and Science Australia, *Performance Review of the Australian Innovation, Science and Research System 2016*, p. 89.
21. Quoted in Erik Brynjolfsson and Andrew McAfee, *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*, p. 79.
22. Steven Sloman and Philip Fernbach, *The Knowledge Illusion: Why We Never Think Alone* (New York: Riverhead Books, 2017).
23. See Vijay V. Vaitheeswaran, *Need, Speed, and Greed: How the New Rules of Innovation Can Transform Businesses, Propel Nations to Greatness, and Tame the World's Most Wicked Problems* (New York: HarperCollins, 2012), p. 178.
24. Ewing Marion Kauffman Foundation, "The Importance of Young Firms for Economic Growth," *Entrepreneurship Policy Digest*, 14 September 2015: <http://www.kauffman.org/what-we-do/resources/entrepreneurship-policy-digest/the->

- importance-of-young-firms-for-economic-growth
25. Australian Government Department of Industry, Innovation and Science, Office of the Chief Economist, *Australian Innovation System Report 2016*, p. 26.
 26. StartupAUS defines a tech start-up as “a young high-growth company that is using technology and innovation to tackle a large, probably global, market.” It sees these as having two defining characteristics: (1) “Potential for high growth” and (2) “Disruptive innovation” which entails “reshaping the way entire industries work by displacing established competitors through use of technology and business model innovation.” See StartupAUS, *Crossroads 2017: An action plan to develop a world-leading tech startup ecosystem in Australia*, November 2017, p. 114: <https://startupaus.org/document/crossroads-2017/>
 27. Eric Schmidt and Jonathan Rosenberg, *How Google Works* (London: John Murray, 2014), p. 15.
 28. Joi Ito and Jeff Howe, *Whiplash: How to Survive Our Faster Future*, p. 117.
 29. Ibid, p. 132.
 30. Ibid, pp. 159.
 31. Alexis de Tocqueville, *Democracy in America and Two Essays on America* (London: Penguin Books, 2003), p. 721-22.
 32. Ibid, p. 722-23.
 33. Ibid, p. 475.
 34. Tyler Cowen, *The Complacent Class: The Self-Defeating Quest for the American Dream* (New York: St. Martin’s Press, 2017). Cowen has also famously argued that America has reached a technological plateau; see Tyler Cowen, *The Great Stagnation: How America Ate All the Low-Hanging Fruit of Modern History, Got Sick, and Will (Eventually) Feel Better* (New York: Dutton, 2011).
 35. See Michael Mandel, *How the Startup Economy is Spreading Across the Country — And How It Can Be Accelerated* (Progressive Policy Institute and TechNet, 29 March 2017), pp. 9-11: <http://www.progressivepolicy.org/wp-content/uploads/2017/05/How-the-Startup-Economy-is-Spreading-Across-the-Country-%E2%80%94-And-How-It-Can-Be-Accelerate-final.pdf>
 36. This is based on data published by the Kauffman Foundation and summarised here: “American entrepreneurship is flourishing, if you know where to look,” *The Economist*, 30 September 2017, p. 62. For access to the Kauffman Index of Entrepreneurship series which provides measures to assess America’s overall economic dynamism, including the latest data on national trends contained in the 2017 Kauffman Index of Growth Entrepreneurship, see here: <http://www.kauffman.org/kauffman-index>
 37. James B. Stewart, “A Fearless Culture Fuels U.S. Tech Giants,” *The New York Times*, 18 June 2015: <https://www.nytimes.com/2015/06/19/business/the-american-way-of-tech-and-europes.html?mcubz=3>
 38. AnnaLee Saxenian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*, p. 30.
 39. Ibid.
 40. Ibid, p. 37.
 41. Henry W. Chesbrough, *Open Innovation: The New Imperative for Creating and Profiting from Technology* (Boston: Harvard Business School Press, 2005).
 42. AnnaLee Saxenian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*, p. 164.
 43. Ibid, pp. 30-1.
 44. Ibid, pp. 38-9.
 45. Alec Ross, *The Industries of the Future* (London: Simon & Schuster, 2017), p. 231.
 46. Michael Mandel, *How the Startup Economy is Spreading Across the Country — And How It Can Be Accelerated*.
 47. Spike Innovation, *Boosting High-Impact Entrepreneurship in Australia — A role for universities*, October 2015, p. 7: <http://www.chiefscientist.gov.au/wp-content/uploads/Boosting-High-Impact-Entrepreneurship.pdf>
 48. See Steve Case, *The Third Wave: An Entrepreneur’s Vision of the Future* (New York: Simon and Schuster, 2016), pp. 89-103.
 49. Interview with the author.
 50. World Economic Forum, *Entrepreneurial Ecosystems Around the Globe and Company Growth Dynamics*, September 2013: http://www3.weforum.org/docs/WEF_EntrepreneurialEcosystems_Report_2013.pdf
 51. It is worth noting the limitations of aggregated data within this age range, especially given potentially relevant differences across generations in terms of factors such as career structure and planning, and income security, which could be better analysed through disaggregated data.
 52. Global Entrepreneurship Research Association, *Global Entrepreneurship Monitor Global Report 2016/17*, pp. 107-8: <http://gemconsortium.org/report/49812> I am grateful to Paul Steffens for his assistance in interpreting this data.

53. Chris Styles, "Australia should be giving start-ups a leg up," *ABC News*, 9 October 2015: <http://www.abc.net.au/news/2015-10-09/styles-we-should-be-giving-start-ups-a-leg-up/6840118>
54. Quoted in Aimee Chanthadavong, "Steve Baxter's big new govt gig," *InnovationAus.com*, 30 August 2017: <http://www.innovationaus.com/2017/08/Steve-Baxters-big-new-govt-gig>
55. Donald Horne, *The Lucky Country: Australia in the sixties*, p. 119.
56. *Ibid.*, p. 7.
57. Committee for Economic Development of Australia, *Australia's economic future: an agenda for growth*, June 2016, p. 14: <https://www.ceda.com.au/Research-and-policy/All-CEDA-research/Research-catalogue/Australia-s-economic-future-an-agenda-for-growth>
58. See for example Russel Ward, *Australian Legend* (Melbourne: Oxford University Press, 1958).
59. David Malouf, *Made in England: Australia's British Inheritance*, Quarterly Essay Issue 12 (Melbourne: Black Inc., 2003), p. 43.
60. *Ibid.*
61. *Ibid.*
62. George Megalogenis, *Australia's Second Chance: What our history tells us about our future* (Hawthorn: Hamish Hamilton, 2015), p. 11.
63. *Ibid.*, pp. 11-2.
64. Donald Horne, *The Lucky Country: Australia in the sixties*, p. 33.
65. *Ibid.*, p. 28.
66. *Ibid.*, p. 219.
67. Alexis de Tocqueville, *Democracy in America and Two Essays on America*, p. 623.
68. Donald Horne, *The Lucky Country: Australia in the sixties*, p. 27.
69. Linda Leung, Natalia Nikolova, Jochen Schweitzer, Tony Golsby-Smith, Tracy Whybrow and Kevin Jurd, *View from the Top — 2016 Innovation Report: A Conversation with 20+ Chairs and CEOs from Major Corporations on the State of Innovation in Australia* (Sydney, Second Road, Spencer Stuart, University of Technology Sydney: October 2016), p. 12.
70. Jed Simms, "Fear of failure scuppers Australian innovation," *The Sydney Morning Herald*, 9 December 2015: <http://www.smh.com.au/comment/innovation-demanding-but-vital-if-a-business-is-to-survive-20151207-glhw6r.html>
71. Interview with the author.
72. Interview with the author. Roy's assessment is backed up by economic data. Venture capital investment as a percentage of GDP is 0.023 percent in Australia as compared to 0.33 percent in the United States, with the OECD+ average more than double Australia's, at 0.049 percent; see OECD, *Entrepreneurship at a Glance 2016* (Paris: OECD Publishing, 2016): http://www.oecd-ilibrary.org/industry-and-services/entrepreneurship-at-a-glance-2016_entrepreneur_aag-2016-en On a per capita basis, there is 7.3 times more venture funding in the US than in Australia (although this is a much better than in 2014, when it was 27.8 times more per capita); see Rick Baker, "Australian Venture Capital — the future looks bright," in Australian Private Equity and Venture Capital Association Limited, *The Venture Capital Effect: A Report on the Industry's Impact on the Australian Economy*, 13 June 2017: <https://www.avcal.com.au/documents/item/1428>
73. Amos Tversky and Daniel Kahneman, "The Framing of Decisions and the Psychology of Choice," *Science* 211 (1981), pp. 453-58; Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision under Risk," *Econometrica* 47 (1979), pp. 263-291; Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus and Giroux, 2011), pp. 278-88.
74. George Megalogenis, *Australia's Second Chance: What our history tells us about our future*, p. ix.
75. Alexander J. Rothman, Roger D. Bartels, Johon Wlaschin, and Peter Salovey, "The Strategic Use of Gain- and Loss- Framed Messages to Promote Healthy Behavior: How Theory an Inform Practice," *Journal of Communication* 56 (2006), pp. 202-20.
76. StartupAUS, *Cultural Attitudes to Entrepreneurship: Factors influencing Australia's entrepreneur talent pool*, Unpublished report for the Department of Industry, Innovation and Science, 25 November 2016.
77. Startup Muster, *Startup Muster 2017 Annual Report*: <https://www.startupmuster.com/reports/Startup-Muster-2017-Report.pdf>
78. StartupAUS, *Crossroads 2016: An action plan to develop a vibrant tech startup ecosystem in Australia*, December 2016, p. 132: <https://startupaus.org/document/crossroads-2016/>
79. Startup Muster, *Startup Muster 2017 Annual Report*.
80. Joseph A. Schumpeter, *Capitalism, Socialism and Democracy* (London: Allen and Unwin, 1976 [1942]).
81. For example, a majority of employees would rather remain silent about a corporate problem than

- convey it to their managers if doing so would ruffle feathers. See Frances J. Milliken, Elizabeth W. Morrison, and Patricia F. Hewlin, "An Exploratory Study of Employee Silence: Issues That Employees Don't Communicate Upward and Why," *Journal of Management Studies* 40 (2003), pp. 1453-76.
82. Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon and Schuster, 2000), p. 16.
 83. For a discussion on this, see Amartya Sen, *The Idea of Justice* (Cambridge MA: The Belknap Press, 2009), pp. 185-87.
 84. Andrew Leigh, *Disconnected* (Sydney: New South, 2010), p. 122.
 85. "Global Heroes," *The Economist*, 12 March 2009: <http://www.economist.com/node/13216025>
 86. See Startup Muster, *Startup Muster 2017 Annual Report*.
 87. StartupAUS, *Crossroads 2016: An action plan to develop a vibrant tech startup ecosystem in Australia*, p. 24.
 88. Interview with the author.
 89. See Edward Glaeser, *Triumph of the City: How Urban Spaces Make Us Human* (London: Macmillan, 2011) for a major study of how cities promote interactions that lead to human flourishing.
 90. *Masters of Scale*, Podcast Episode 9, "The Next Silicon Valley Is...": <https://mastersofscale.com/>
 91. Australian Government Department of Industry, Innovation and Science, Office of the Chief Economist, *Australian Innovation System Report 2015*, p. x: <https://www.industry.gov.au/Office-of-the-Chief-Economist/Publications/Documents/Australian-Innovation-System/Australian-Innovation-System-Report-2015.pdf>
 92. StartupAUS, *Cultural Attitudes to Entrepreneurship: Factors influencing Australia's entrepreneur talent pool*.
 93. StartupAUS, *Crossroads 2016: An action plan to develop a vibrant tech startup ecosystem in Australia*, p. 113. While acknowledging "significant progress" over the last year, StartupAUS has recently called for continued work to "expand and connect these precincts." See StartupAUS, *Crossroads 2017: An action plan to develop a world-leading tech startup ecosystem in Australia*, p. 46.
 94. Bruce Katz and Julie Wagner, *The Rise of Innovation Districts: A New Geography of Innovation in America*, Metropolitan Policy Program at Brookings, May 2014, p.1: <https://c24215cec6c97b637db6-9c0895f07c3474f6636f95b6bf3db172.ssl.cf1.rackcdn.com/content/metro-innovation-districts/~media/programs/metro/images/innovation/innovationdistricts1.pdf>
 95. Julie Wagner, "Innovation districts down under: A postcard from Melbourne, Australia," *Metropolitan Revolution*, Brookings Institution, 6 October 2017: <https://www.brookings.edu/blog/metropolitan-revolution/2017/10/06/innovation-districts-down-under-a-postcard-from-melbourne-australia/>
 96. Michael Bailey, "NSW spends \$35m on 11-floor Sydney CBD startup hub," *Australian Financial Review*, 13 July 2017: <http://www.afr.com/leadership/entrepreneur/nsw-spends-35m-on-11floor-sydney-cbd-startup-hub-20170712-gx9lv3>; For a more sceptical view, see Petra Andren, "Sydney Startup Hub misses the deeper technology opportunity," *Australian Financial Review*, 22 August 2017: <http://www.afr.com/leadership/entrepreneur/sydney-startup-hub-misses-the-deeper-technology-opportunity-20170822-gy1rp9>
 97. Local governments can do much to enable community-based support for entrepreneurs and start-up ecosystems. The City of Sydney, for example, has launched a Tech Startups Action Plan which includes a series of steps to promote an entrepreneurial culture and community. As local governments become engaged, they can help shift narratives around entrepreneurial failure. Brisbane City Council has opened a start-up hub, The Capital, with \$5 million in funding.
 98. In 2015, only 38 percent of ASX50 companies, mostly limited to telecommunication, banking and insurance companies, were "participating in startup ecosystems through direct investments or other fluid forms of collaboration through incubators, accelerators, and co-working spaces."; see Massimo Garbuio, "Staying Ahead of the Curve — how corporates are innovating," in Australian Private Equity and Venture Capital Association Limited, *The Venture Capital Effect: A Report on the Industry's Impact on the Australian Economy*, pp. 51-4.
 99. Linda Leung, Natalia Nikolova, Jochen Schweitzer, Tony Golsby-Smith, Tracy Whybrow and Kevin Jurd, *View from the Top — 2016 Innovation Report: A Conversation with 20+ Chairs and CEOs from Major Corporations on the State of Innovation in Australia*, p. 12.
 100. StartupAUS, *Cultural Attitudes to Entrepreneurship: Factors influencing Australia's entrepreneur talent pool*, Unpublished report for the Department of Industry, Innovation and Science, 25 November 2016.

101. Peter Thiel, *Zero to One: Notes on Startups, or How to Build the Future* (New York: Crown Business, 2014), pp. 35-6.
102. Megan O'Connell, Kate Torii and Hannah Cole, *Mitchell Institute Submission — Inquiry into innovation and creativity: workforce for the new economy*, February 2017: http://www.aph.gov.au/Parliamentary_Business/Committees/House/Employment_Education_and_Training/Innovationandcreativity/Submissions
103. Several of these actions are discussed in Adam Grant, *Originals: How Non-Conformists Change the World*.
104. See *Ibid*, pp. 18-20, 246-7.
105. See AlphaBeta, *The Automation Advantage*, 8 August 2017: <http://www.alphabeta.com/the-automation-advantage/>
106. Erik Brynjolfsson and Andrew McAfee, *The Second Machine Age*, p. 191.
107. Spike Innovation, *Boosting High-Impact Entrepreneurship in Australia — A role for universities*, p. 13.
108. StartupAUS, *Crossroads 2016: An action plan to develop a vibrant tech startup ecosystem in Australia*, p. 169.
109. Through start-up.business Phronesis Academy is also attempting to map content into the approved year 9 curricula. See <http://startup.business/our-courses/>
110. StartupAUS, *Crossroads 2016: An action plan to develop a vibrant tech startup ecosystem in Australia*, p. 160.
111. Spike Innovation, *Boosting High-Impact Entrepreneurship in Australia — A role for universities*, p. v.
112. *Ibid*, p. 26.
113. See also Larissa Ham, "Innovation on campus," *Forge*, Vol 3, No 2, 2017, pp. 53-7.
114. University-based programs represent a part of the proliferation of incubators and accelerators more widely in the Australian start-up ecosystem. On the broader evolution of incubators and accelerators (not only at universities), especially in Australia and the U.S., see Tim Mazarol, "Business incubators and start-up accelerators: Valuable assets or a waste of time and money," *The Conversation*, 1 August 2015: <https://theconversation.com/business-incubators-and-start-up-accelerators-valuable-assets-or-a-waste-of-time-and-money-45551> For a recent attempt to rank most active incubators and accelerators, see Dominic Powell, "Here are Australia's 24 most active startup accelerators and incubators," *SmartCompany*, 10 November 2017: <https://www.smartcompany.com.au/startupsmart/news-analysis/australias-24-most-active-accelerators-incubators/>
115. Spike Innovation, *Boosting High-Impact Entrepreneurship in Australia — A role for universities*, p. 34.
116. Startup Muster, *Startup Muster 2017 Annual Report*. The same book topped the list in the 2016 survey.
117. Yolanda Redrup, "CSIRO's ON to accelerate Australia through innovation rankings," *Australian Financial Review*, 16 October 2017: <http://www.afr.com/technology/csiro-on-to-accelerate-australian-through-innovation-rankings-20171010-gyy4wb> In 2016, CSIRO, Westpac, IAG, and Deloitte collaborated with five Australian universities to take over 350 students and mentors through a Lean Launchpad accelerator program; see: <http://www.intersective.com/2016/10/26/next-innovation-csiro-westpac-iag-and-deloitte-collaborating-with-universities-to-build-australias-innovation-skills/>
118. Clay Shirky, "The Key to Successful Tech Management: Learning to Metabolize Failure," *Foreign Affairs*, March/April 2014, p. 51.
119. Adi Ignatius, "When We Fail at Failure," *Harvard Business Review*, April 2011, p. 12.
120. See Rita Gunther McGrath, "Failing by Design," *Harvard Business Review*, April 2011, pp. 77-83.
121. As Ben Heap told me, "If you want to narrow entrepreneurial success down to one thing, it is resilience. When we talk about people who have failed multiple times, what we're really talking about is resilience... Creating that sense of resilience — and recognition of resilience as a strength — is where you'll see this change in culture."
122. Adam Grant, *Originals: How Non-Conformists Change the World*, pp. 10-11.
123. Lisa Pryor, "The End of the Australian Dream?," *The New York Times*, 1 May 2017: <https://www.nytimes.com/2017/05/01/opinion/the-end-of-the-australian-dream.html>
124. Peter Thiel, *Zero to One: Notes on Startups, or How to Build the Future*, p. 36.
125. Interview with the author. Lisa Pryor has also written about how large firms seduce Australia's top students in her book, *The Pinstriped Prison* (Sydney: Picador, 2008).
126. John McDuling, "A different type of culture war is stifling Australian innovation," *Australian Financial Review*, 20 August 2016: <http://www.afr.com/>

- technology/a-different-type-of-culture-war-is-stifling-australian-innovation-20160818-gqw5ea
127. Eric Schmidt and Jonathan Rosenberg, *How Google Works*, p. 238. It is worth noting that Wave also generated technology that was used in other Google products, which reinforces the argument that ideas interact, grow and evolve to promote innovation. Google's influence on innovation culture also extends directly into the Australian start-up economy through numerous investments in the start-up ecosystem and educational partnerships. Its Australian-based employees (around 1,300) and Australian staff abroad (more than 500) are also part of an emerging group of Australians with experience in highly innovative technology companies who can help diffuse pro-innovation attitudes and work practices. On Google's impact in Australia see Richard Holden and Jared Mondschein, *Indispensable Economic Partners: The US-Australia investment relationship*, The United States Studies Centre at the University of Sydney, 13 August 2017, p. 47: <https://www.usssc.edu.au/analysis/indispensable-economic-partners-the-us-australia-investment-relationship>
 128. Nassim Nicholas Taleb, *Antifragile: Things that Gain from Disorder* (New York: Random House, 2012).
 129. Kelly O'Dwyer, *Supporting innovation through insolvency law reform*, Media release, 12 September 2017: <http://kmo.ministers.treasury.gov.au/media-release/091-2017/> On the importance of bankruptcy laws not excessively penalising failure and facilitating "the efficient exit of less-productive firms, which would otherwise free up resources for more productive uses" see OECD, *The Innovation Imperative: Contributing to Productivity, Growth and Well-Being* (Paris: OECD Publishing, 2015), p. 79: <http://dx.doi.org/10.1787/9789264239814-en>
 130. Gene Tilbrook, "Insolvency laws make welcome leap into 21st century," *The Australian*, 20 September 2017: <http://www.theaustralian.com.au/business/opinion/insolvency-laws-make-welcome-leap-into-21st-century/news-story/12692859a460c763c802e33338e98a24> For a positive view of these "landmark reforms" from the perspective of the Australian Institute of Company Directors, see the contribution of Louise Petschler in StartupAUS, *Crossroads 2017: An action plan to develop a world-leading tech startup ecosystem in Australia*, p. 77.
 131. For an international comparative study which includes the United States, see Seung-Hyun Lee, Yasuhiro Yamakawa, Mike W. Peng, Jay B. Barney, "How do bankruptcy laws affect entrepreneurship development around the world?," *Journal of Business Venturing*, 26 (2011), pp. 505-520.
 132. Bertrand Russell, "Bertrand Russell's Impressions," *The West Australian*, 19 August 1950, p. 2.

About the author



Vafa Ghazavi

John Monash Scholar at the University of Oxford

Vafa Ghazavi is a John Monash Scholar and doctoral student in public policy at the University of Oxford. He is a former Australian diplomat and international cyber policy adviser in the Department of the Prime Minister and Cabinet.

Vafa has a Bachelor of Economic and Social Sciences with Honours and the University Medal from the University of Sydney, and a Master in Public Administration from Harvard University, where he studied as a Fulbright Scholar.

Acknowledgements

I am grateful to numerous people who generously shared their insights and expertise on themes covered in this paper, in particular Nathan Albrighton, Helen Baxendale, Greg Campbell, Ben Heap, Alex McCauley, Wyatt Roy, May Samali, Monica Wulff, and Herbie Ziskend. I am also grateful for the feedback provided by two anonymous reviewers on an earlier draft. Several of my teachers have in one way or another inspired me to pursue ideas discussed here, including David Eaves, Joi Ito, Nicco Mele, Dani Rodrik, Roberto Mangabeira Unger, and Jonathan Zittrain. I would also like to acknowledge the Australian-American Fulbright Commission for supporting my postgraduate studies in the United States, which enabled me to meet many entrepreneurs and innovators working in Boston, Silicon Valley, and beyond. This provided some very helpful background context when writing this paper. Finally, I would like to thank Jared Mondschein and Claire McFarland at the United States Studies Centre for their support. Claire in particular has been instrumental in guiding this project from the outset and I am extremely grateful for her thoughtful input and advice throughout the process. The views expressed in the final product are of course my own and they do not necessarily reflect those of the Australian Government.

United States Studies Centre

Institute Building (H03)
The University of Sydney NSW 2006
Australia

Phone: +61 2 9351 7249

Email: us-studies@sydney.edu.au

Twitter: [@ussc](https://twitter.com/ussc)

Website: ussc.edu.au

