

Appendix 1 – StartupAUS Crossroads report

Crossroads

*An action plan to develop a vibrant
tech startup ecosystem in Australia*

April 2014

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Foreword

Australia is facing some tough decisions that will define its prosperity and place in the world. Industries that today account for almost a third of Australia's GDP are in line of fire for severe disruption fuelled by technology. Even historically strong industries less likely to be disrupted by technology are coming under intense pressure from emerging economies with lower cost structures and geographic advantages. This one-two punch has the potential to stall Australian economic growth, render whole industries uncompetitive and lead to climbing long term unemployment across the nation.

Historically, our leaders have viewed technology as a means to drive higher levels of productivity, leading to higher GDP, higher standards of living and longer lives for all. But there is a shift taking place and its impact cannot be understated. Technology is now pervading every sector of every industry. The evidence is clear that this shift is ripping apart entire value chains and industries. We have witnessed this already with retail and Amazon; with music and Apple; and we are now starting to see the dynamic play out in the agriculture, healthcare and transportation industries.

Developing countries throughout the world are responding with speed and conviction by implementing policies and programs to stimulate and support high-growth technology-based businesses, and to retool their workforce by developing entrepreneurial skills. Australia needs to do the same.

Today, 70 percent of Australia's economy is services based and susceptible to digital disruption. We can't put our head in the sand and ignore this domestic and global transformation. We either get ahead of it, or become irrelevant in the global context. As a nation we need to affect systemic change now. Entrepreneurialism is at the heart of this retooling.

Having spent the last twelve years in Silicon Valley I have witnessed the creation of new companies that have become global franchises. Silicon Valley has perfected the methodologies to take inventions and innovations, turn them into products and not stop until they are global billion dollar businesses.

These methodologies can be replicated. I am not suggesting for a minute that Australia try to re-create Silicon Valley. Instead, as this paper suggests, Australia should obtain a deep understanding of the underlying conditions that allow Silicon Valley to prosper and re-create those conditions, modifying them where necessary to align with the uniqueness that is Australia.

The solution for Australia requires strong, co-ordinated leadership that cuts across industries and states. The need for a shift in government policy, educational curriculum, cultural and capital investment to build a viable and sustainable ecosystem could not be more urgent. As this paper points out, Australia has one of the lowest rates of venture capital investment in the world. In 2013 the entire Australian VC industry invested \$79m in startups, while one US-based VC invested more than that amount in Australian startups over a 12 month period. I constantly encounter Australian entrepreneurs in Silicon Valley who reluctantly left the country to build their businesses because of the lack of domestic risk capital. These entrepreneurs are willingly part of the solution for Australia.

Risk capital is just one example in one dimension of the ecosystem; there are many others. In some important dimensions, such as direct government support for growing knowledge-based businesses, Australia is barely on par with some developing economies today.

The industry disruptions faced by Australia are global and not specific to us. However what we choose to do about it is entirely in our hands. The consequences of action or inaction will be plain to see and because of the exponential nature of technology-driven change, Australia has the potential to pass a point of no return and be permanently relegated to a derivative economy.

The good news is there is no reason for this to happen. Australia is full of incredibly talented people with the conviction and tenacity to seize the moment and create the future we all want.

This paper is a credible, action-oriented plan that sets out structured programs that will help ensure we get to where we need to be. It is a combination of original thought and adapting the best initiatives that have been proven to work elsewhere in the world. For individuals this paper is also a call to arms to get involved and be part of the solution by engaging in constructive conversations, debates and by holding stakeholders across all sectors accountable for concrete action.

I am hopeful that the Australian private and public sectors as well as academia will realize the severity of the current situation we face and waste no time in effecting the necessary structural, societal and cultural changes. We are a country with incredible creativity, resilience and fight, but our economic future is in jeopardy. This is a very special moment in time. Let's choose to not accept the status quo, but instead take the lead in creating a brighter future for ourselves, our country and for the next generation who will inherit the consequences of our decisions.

Adrian Turner

Founder, Mocana Corporation and Borondi Group

Author, *Blue Sky Mining: Creating Australia's Next Billion Dollar Industries*

March 2014

Purpose of this document

This action plan has been prepared by StartupAUS on behalf of Australia's tech startup sector. It aims to set out a clear direction for the national startup ecosystem, to identify key policy areas that require government intervention, and to recommend specific actions that should be taken to accelerate the growth and maturation of Australia's startup sector.

This plan is based on a systematic analysis of the startup landscape in Australia, including identifying and quantifying market failures that are impeding growth. Wherever possible it makes comparisons with other countries that are seeking to support the growth of startups and accelerate the development of a knowledge economy.

What is StartupAUS?

StartupAUS is a not-for-profit organisation formed in 2013 by fifty leaders in the national startup community. Its mission is to foster and build a community of technology entrepreneurship in Australia, and to help make Australia a more supportive environment in which to launch tech startups that will become globally meaningful technology companies.

StartupAUS exists because the startup sector in Australia faces several profound challenges that are hampering its growth and Australia's ability to transition to a knowledge-intensive economy.

StartupAUS is currently run by volunteers from the startup community around Australia who are responsible for organising grassroots efforts and coordinating community activities. It has not yet sought to raise any funds from memberships or from government, but gratefully acknowledges the support of its community members.

www.startupaus.org

Executive Summary

Australia is at a crossroads. We have an unprecedented opportunity to transition from an economy based on resources, primary industries and domestically focused businesses to one based on high-growth knowledge-intensive businesses that can compete globally in an increasingly technology-driven world.

As reported recently in *The Economist*,¹ the startup sector worldwide is undergoing a Cambrian explosion, with the low cost and ubiquity of building blocks for tech startups leading to more entrepreneurs tackling billion dollar markets than at any time in history.

The recent *Startup Economy* study² undertaken by PwC and commissioned by Google Australia projected that high-growth technology companies could contribute 4% of GDP (or \$109 billion) and add 540,000 jobs to the Australian economy by 2033 from a base of approximately 0.2% of GDP today – but only if action is taken to address several areas of market failure relating to culture, skills, markets, funding and regulation.

Over the last two decades many countries have recognised that high-growth, technology-based businesses are important drivers of economic growth, and a growing number of governments have responded by launching programs to systematically invest in the creation and support of high-growth companies.

Australia has not kept pace, and has under-invested in catalysing and supporting its high-tech industries, as evidenced by the fact that we now have one of the lowest rates of startup formation in the world, and one of the lowest rates of venture capital investment.

According to a recent World Economic Forum report,³ Australia's startup ecosystem is lagging behind those of many other developed nations due to a lack of emphasis on entrepreneurship education, limited engagement with universities and poor cultural support for entrepreneurs.

In his book *Blue Sky Mining: Creating Australia's Next Billion Dollar Industries*,⁴ Australian entrepreneur Adrian Turner observes that Australia's startup ecosystem is maturing, but at a slower rate than those of many other nations, and largely in the absence of direct government support. He argues that unless innovation and entrepreneurship become a national priority, Australia will find it increasingly difficult to compete on a global stage.

Australia's fledgling startup sector has experienced a groundswell of activity over the last three years. There is much enthusiasm, strong growth in the number of accelerator programs, increased media interest and increased awareness of startups. We have also seen a number of Australian technology companies begin to achieve meaningful global scale, such as Atlassian, Freelancer, BigCommerce, 99designs and Halfbrick Studios.

However we have also witnessed a concerning trend for fast-growing Australian technology companies to leave Australia in search of talent, capital and more favourable regulatory environments.

This paper makes the case that as a nation we need to take immediate and far-reaching steps to address market failures that are impeding the maturation and growth of our startup ecosystem. It sets out an action plan that can be the basis for accelerating our transition from being consumers of technology to being creators of globally relevant technology companies.

¹ <http://techcrunch.com/2014/02/01/required-reading-the-economists-special-report-on-tech-startups/>

² PwC – The Startup Economy, <http://www.digitalpulse.pwc.com.au/australian-tech-startup-ecosystem/>

³ http://www3.weforum.org/docs/WEF_EntrepreneurialEcosystems_Report_2013.pdf

⁴ <http://www.blueskyminingbook.com>

If Australia successfully makes a transition to a knowledge-intensive economy we stand to continue our current economic prosperity well beyond the resources boom. If we maintain the status quo, however, we will forfeit most of the \$109 billion in economic impact identified in the *Startup Economy* report and risk in an irreversible decline in Australia's competitiveness.

StartupAUS is committed to working closely with all parts of the Australian startup ecosystem, including entrepreneurs, corporates, universities and all levels of government, to develop and implement policies and programs to systematically grow Australia's technology sector so that it can drive economic prosperity for future generations.

The StartupAUS board.

Alan Noble

Director Engineering,
Google Australia

Peter Bradd

Founding Director,
Fishburners

Bill Bartee

General Partner,
Southern Cross
Venture Partners

Steve Baxter

Founder & Managing Director,
River City Labs

Dr Jana Matthews

Program Director,
ANZ Innovyz Start Accelerator

What are “tech startups”?

StartupAUS defines a tech startup (or *startup* for short) as an emerging high-growth company that is using technology and innovation to tackle a large and most often global market. Startups have two important defining characteristics:

1. Potential for high growth. Whilst not all startups will need to raise capital to grow, StartupAUS advocates an “investability test” as a proxy for high growth potential, in which the ability of companies to raise capital from professional, arms length investors is a good indicator of their growth potential. Professional investors recognise the high risk of failure in startups and therefore will only invest in opportunities capable of generating high returns to compensate for this risk.
2. Disruptive innovation. Startups are reshaping the way entire industries work by displacing established competitors through use of technology and business model innovation. The mere act of selling undifferentiated products or services online does not make a business a tech startup, and StartupAUS excludes such companies from its definition.

Why are startups important?

Startups, as defined in this document, are recognised worldwide as important drivers of economic growth.

According to Enrico Moretti, Professor of Economics at the University of California, Berkeley and an expert on the future of economic growth, technology-based jobs have a larger multiplier effect than jobs in any other sector. Moretti found that for each new technology-based job, five additional jobs are created in other sectors.⁵ He notes that this multiplier effect is three times larger in the technology sector than in extractive industries or traditional manufacturing. This multiplier is one of the reasons that employment in the US technology sector has grown at 25 times that of other parts of the economy.

Moretti highlights a snowball effect in which regions that spawn a number of large technology companies generate their own attractive pull that makes that region more conducive to attracting further knowledge-intensive companies and workers.

By way of example, Facebook employs approximately 1,500 people in its Palo Alto headquarters, but in doing so has indirectly created an estimated 53,000 jobs for Facebook app creators and 130,000 jobs in related business services. Similarly, Apple employs 12,000 people in Cupertino and in doing so has indirectly created over 60,000 jobs supporting the company and its employees.⁶

A study by the Kauffman Foundation⁷ found that 3 million new jobs are added to the US economy each year by new firms, while over an extended period existing firms have been net job destroyers, losing a total of 1 million jobs per year. The same study found that the 4% of companies with the highest growth are responsible for creation of over 70% of all new jobs.

Similar results were reported in the OECD Science, Technology and Industry Scoreboard 2013 which shows that over an extended period, including during the global financial crisis, new businesses have consistently been net job creators whilst existing business have ben net job destroyers.

⁵ Enrico Moretti, *The New Geography of Jobs*: Mariner Books

⁶ Moretti, *ibid*

⁷ <http://www.kauffman.org/what-we-do/research/firm-formation-and-growth-series/the-importance-of-startups-in-job-creation-and-job-destruction>

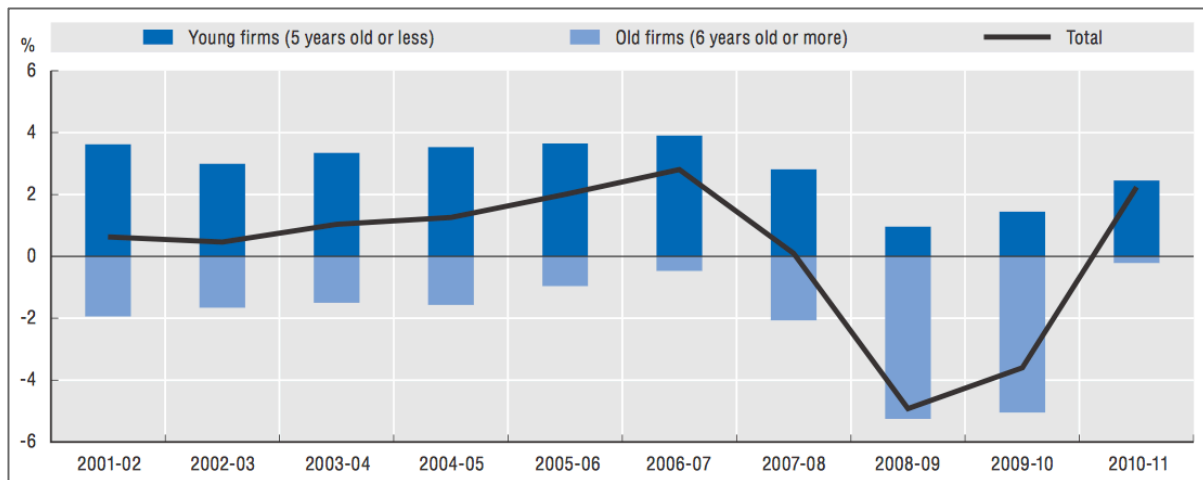


Figure 1: Net job growth: new versus established firms, 2001-11 (average over 15 countries)⁸

Furthermore, technology-based companies are consistently able to generate jobs with much higher labour productivity (revenues per employee) than any other sector, as the following chart illustrates.

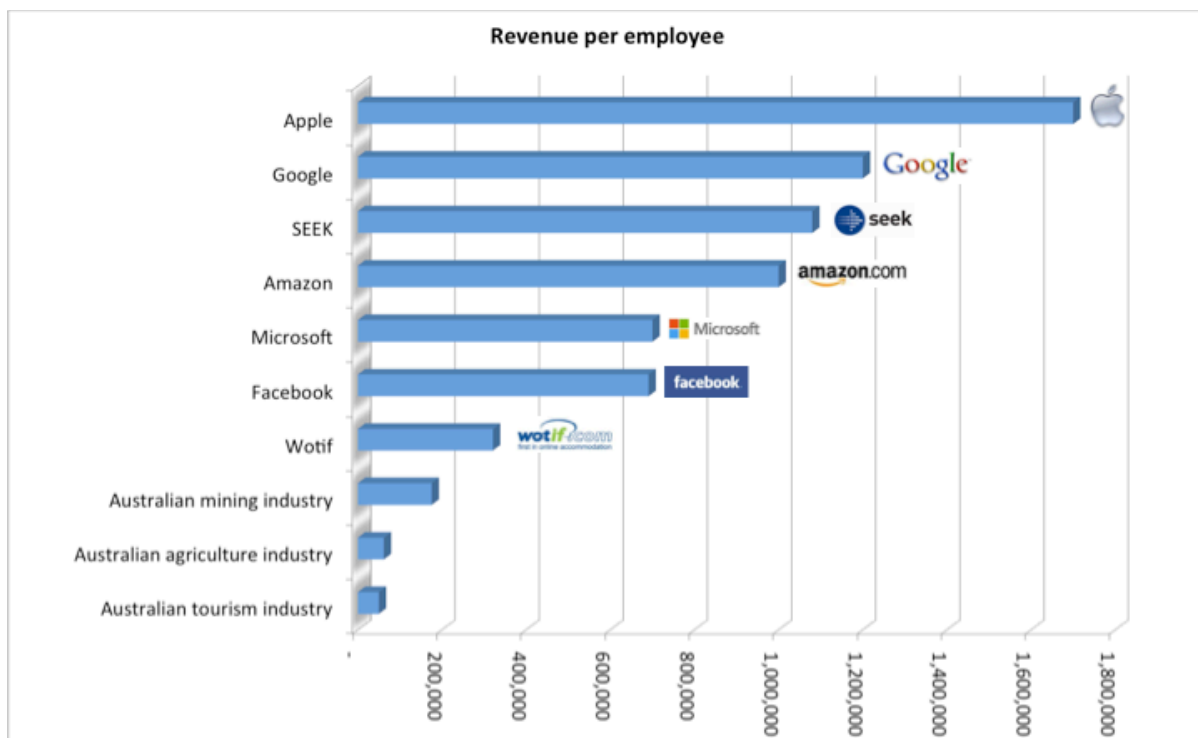


Figure 2: Revenue per employee – selected companies and industries⁹

The objective is of course not to create startups, but to create large, globally significant and sustaining companies that drive economic growth and prosperity, and create large numbers of high-value jobs. These companies are, by definition, startups in their early years.

⁸ http://www.ncp-incontact.eu/nkswiki/images/6/66/OECD_Innovation.pdf

⁹ Sources: ABS, Mashable, gazelles.com, company annual reports

Disrupt or be disrupted

Tech startups operate in any industry in which technology is an enabler of growth, including hardware, engineering, biotech and IT. A particular focus of this paper, however, is the opportunities presented by the internet as an enabler of disruptive innovation.¹⁰

Many industries are in the process of being transformed by online business models, providing entrepreneurs with an unprecedented opportunity to create economic growth, wealth and jobs. Startups in all corners of the globe are aggressively competing to share in the massive redistribution of revenues that is currently taking place across geographic borders.

Startups are now able to reach the 2.4 billion consumers connected to the internet, and do so with significantly lower levels of capital investment than at any time in history.

Examples of industries that have been reshaped by digital disruption:

Industry	Disruptor	Market capitalisation (US\$)
Advertising	Google	\$368 billion
Books	Amazon	\$184 billion
Music	Apple (iTunes)	\$494 billion
Retail	eBay	\$71 billion
Movies	Netflix	\$26 billion

According to research from the University of Oxford, technology will replace close to half of all low knowledge-intensity jobs over the next 20 years.¹¹ Countries that do not support the growth of technology-based industries will increasingly find that their economy is dominated by low value, low knowledge-intensity jobs that service high value industries in other countries.

As Netscape founder Marc Andreessen famously said, “software is eating the world”. Industries are increasingly reliant on software, with a growing number of products and services now being delivered entirely online.

The shift to online business models has removed geographic trade boundaries. Startups from anywhere in the world are now able to generate revenues from a global market from day one – an effect which has opened up massive new opportunities for companies in Australia which have historically been constrained by operating in a small domestic market. At the same time it has exposed startups to new competition from every corner of the globe instead of just a handful of domestic competitors.

The companies that capture the economic rent in these industries will be those that are able to implement technology and business model innovation faster and more effectively than their competitors. The losers will be startups that are constrained by inexperience, lack of technical skills, lack of capital or uncompetitive regulatory environments.

Given the speed at which technology is pervading every industry, Australia has no choice but to embark on an economic transformation in which it actively develops an environment that is conducive to the creation and growth of technology-based business that are capable of competing on a world stage and are not constrained by the market failures discussed in this document.

¹⁰ <http://www.claytonchristensen.com/key-concepts/>

¹¹ <http://www.oxfordmartin.ox.ac.uk/publications/view/1314>

Unicorns matter

The term “unicorn” has become widely adopted worldwide as a label for tech startups that achieve significant scale before achieving a liquidity event (or *exit*) via IPO or acquisition with a market capitalisation of \$1 billion or more. Companies that achieve this scale are relatively rare (hence the term), but are vital to the creation of a vibrant startup ecosystem. Their impact is to spawn hundreds (or thousands) of new entrepreneurs who have been employees of the unicorn, many of whom will go on to form their own startups and invest in others.

The effect of unicorns can be seen in cities such as San Francisco, in which the presence of companies such as Salesforce, Twitter and Yelp have increased the city's value as a location from which to launch and grow other tech startups. These companies act as an attractant for other entrepreneurs to locate their companies there, and for investors and service providers to locate alongside this valuable pipeline of opportunities.

The IPOs of Google, Facebook and Twitter together created close to 4,000 millionaires, many of whom will go on to start, invest in and mentor the next wave of companies and entrepreneurs.

The impact of unicorns in helping to grow startup ecosystems can also be seen in Israel where, as a result of acquisitions of successful startups such as NDS (acquired by Cisco for \$5 billion) there are thousands of serial entrepreneurs who have cycled back into the local startup ecosystem to become angel investors and advisors to the next generation of entrepreneurs.¹²

Similar examples can be seen in countries such as Sweden (eg. Skype, acquired by Microsoft for \$8.5bn and Spotify with a current market capitalisation of \$4bn) and the UK (eg. Betfair \$2.4bn IPO and lastminute.com, acquired by Sabre for \$1.1bn).¹³

If Australia is to grow a vibrant startup ecosystem it is essential that we create an environment that is conducive to the creation of unicorns, and to retention of those companies for long enough that we can benefit from their economic impact. It is worth noting that among Australia's most promising technology companies a significant part of their operations are typically offshore, most of their capital is sourced offshore, their management teams are often based offshore, and in some cases the business has been domiciled offshore.

Even in the case of very early stage startups a trend is emerging for Australian tech entrepreneurs to form a US Delaware C-Corp at the outset instead of an Australian Pty Limited company on the basis that the future of their business will lie largely outside of Australia.

The UK government has recognised the importance of unicorns with the Future Fifty program¹⁴ which matches fifty of the most promising high-growth companies with publicly funded schemes and incentives relevant to their stage of growth and specific needs. A dedicated team provides a concierge-style service connecting companies with support and advice to facilitate continued growth.

According to the UK innovation agency NESTA, the 6 per cent of UK businesses with the highest growth rates generated half of the new jobs in the UK between 2002 and 2008. Based on this and similar research in other countries, the UK government has increasingly taken an economic policy approach of focusing support on the relatively small number of companies with the highest growth potential, rather than broad support programs for new businesses and SMEs.¹⁵ According to NESTA's Chief Executive Jonathan Kestenbaum, “Backing excellence and innovation is not an elitist policy: rather, it is the best way of generating employment and opportunity.”

¹² Start-up Nation: The Story of Israel's Economic Miracle, Dan Senor and Saul Singer

¹³ It is of course desirable to have a large number of smaller exits (\$10-100m), but these generally do not unlock capital or spawn a wave of new startups in the same way as a unicorn.

¹⁴ <http://www.futurefifty.com>

¹⁵ <http://www.nesta.org.uk/publications/vital-6>

Current state of the Australian startup ecosystem






Australian tech startups are supported by a nascent but growing ecosystem with notable growth in incubators, accelerators and angel groups. The key elements of the ecosystem are summarised below.

Australia's startup ecosystem

Startups ¹⁶	1,000
Startup founders	1,500
Incubators and accelerators ¹⁷	15
Student startup incubator programs	7
Angel investment (2012) ¹⁸	\$22m
Active VC funds	6
VC investment in startups (2013) ¹⁹	\$79m

Startups

Australia has produced a number of notable startups that have achieved significant scale. Some examples are listed below.







Company	Founded in	Year founded	Market capitalisation	No. of employees	Annual revenues	Labour productivity (revenue per employee)
 (Domiciled in the UK since January 2014)	Sydney	2002	Estimated \$1.5 billion	800	\$150 million	\$188,000
 (ASX: FLN)	Sydney	2009	\$710 million	300	\$19 million	\$63,000
 (ASX: OFX)	Sydney	1998	\$742 million	170	Est. \$70m	\$410,000
 (ASX: SEK)	Melbourne	1997	\$4.3 billion	500	\$620 million	\$1.24 million
 (ASX: REA)	Melbourne	1995	\$6.45 billion	700	\$337 million	\$481,000

¹⁶ An estimate based on PwC's *Startup Economy* study and further refined by StartupAUS

¹⁷ An accelerator is an intensive startup incubation and support program that typically operates over a three month period and takes a small equity stake in each company in return for services and a small (sub-\$50k) investment

¹⁸ Andrew Stead, NICTA

¹⁹ AVCAL 2013 Yearbook

Company	Founded in	Year founded	Market capitalisation	No. of employees	Annual revenues	Labour productivity (revenue per employee)
 Australia's No.1 because it works! (ASX: CRZ)	Melbourne	1997	\$2.55 billion	370	\$215 million	\$581,000
	Melbourne	2008	N/A	100	N/A	N/A
	Melbourne	2006	N/A	800	\$350 million	\$438,000
	Melbourne	2006	\$400 million	150	\$200 million	\$1.33 million
	Brisbane	2001	N/A	N/A	N/A	N/A
 first in online accommodation (ASX: WTF)	Brisbane	2000	\$504 million	580	\$147 million	\$253,000

Despite the presence of some very successful Australian technology companies such as those listed above, care needs to be taken not to succumb to an *availability bias* – in which we incorrectly assume that successful startups are common in Australia because we are readily able to bring several examples to mind.

There are currently 2,143 companies listed on the ASX with a combined value of \$1.3 trillion, of which software companies comprise 3.3% by number and 1.8% by value.²⁰

In contrast, the top 150 companies in Silicon Valley are all technology-based and have a combined market capitalisation that exceeds that of the entire ASX (\$1.83 trillion).²¹ These 150 companies have annual combined sales of \$620 billion and employ 1.2 million people – many of these in high-skill, high-value jobs.

It should be clearly stated that this action plan is not about replicating Silicon Valley. Many countries have tried and failed, and it is increasingly accepted that any notion of creating another Silicon Valley is fundamentally flawed. However, StartupAUS believes that the success of regions such as Silicon Valley underscores the scale of opportunity that now exists to create globally meaningful technology companies that can start in Australia and compete globally from day one.



“Even if the commodities boom lasts decades, Australia is in trouble. In Silicon Valley it took 60 years to create the structural, cultural and financial infrastructure to repeatedly create new billion dollar technology based industries. We massively underestimate the long term impact of current technology trends and market shifts impacted by the technology.”

Adrian Turner – Director, Mocana Corporation;
Author of *Blue Sky Mining: Creating Australia's Next Billion Dollar Industries*

²⁰ <http://markets.businessday.com.au/apps/mkt/industrylisting.ac?code=4510&next=all>

²¹ http://www.siliconvalley.com/sv150/ci_23055045/sv150-searchable-database-silicon-valley-top-150-companies-2013

The case for economic diversification

The Australian economy is dominated by service-based businesses, constituting around 70% of GDP. Exports are heavily skewed towards the resources sector, with primary products such as minerals, metals and coal constituting 64% of all Australia's exports.²²

According to Klaus Schwab, executive chairman of the World Economic Forum, "The extent to which an economy can develop higher value-added products, processes and business models through innovation is a major determinant of long-term, sustained prosperity."²³

Schwab notes the importance of "a strong scientific and technological base, investment from public and private sectors, links between businesses and research centers, a high-quality education system, political transparency, and a culture that encourages entrepreneurship and risk-taking."

The economic complexity index (ECI) is a holistic measure of the production characteristics of countries. It was developed by economists at Harvard and MIT to explain an economic system as a whole and to identify the knowledge accumulated in a country's population and expressed in the country's industrial output.

The ECI is a measure of the degree to which a nation is able to produce a range of goods varying in complexity from extracting and selling unprocessed natural resources to building and selling complex industrial products. Research has shown that 73% of a nation's future wealth can be predicted from its ECI.²⁴

According to Harvard Economist Professor Ricardo Hausmann,²⁵ Australia has "an amazingly primitive export basket" which he predicts will lead to Australia becoming one of the worst performers in the region in terms of GDP growth.

As can be seen in the chart below, Australia's ECI has declined over the last 20 years to a value of 0.13 in 2011, ranking us 52nd out of 124 countries.

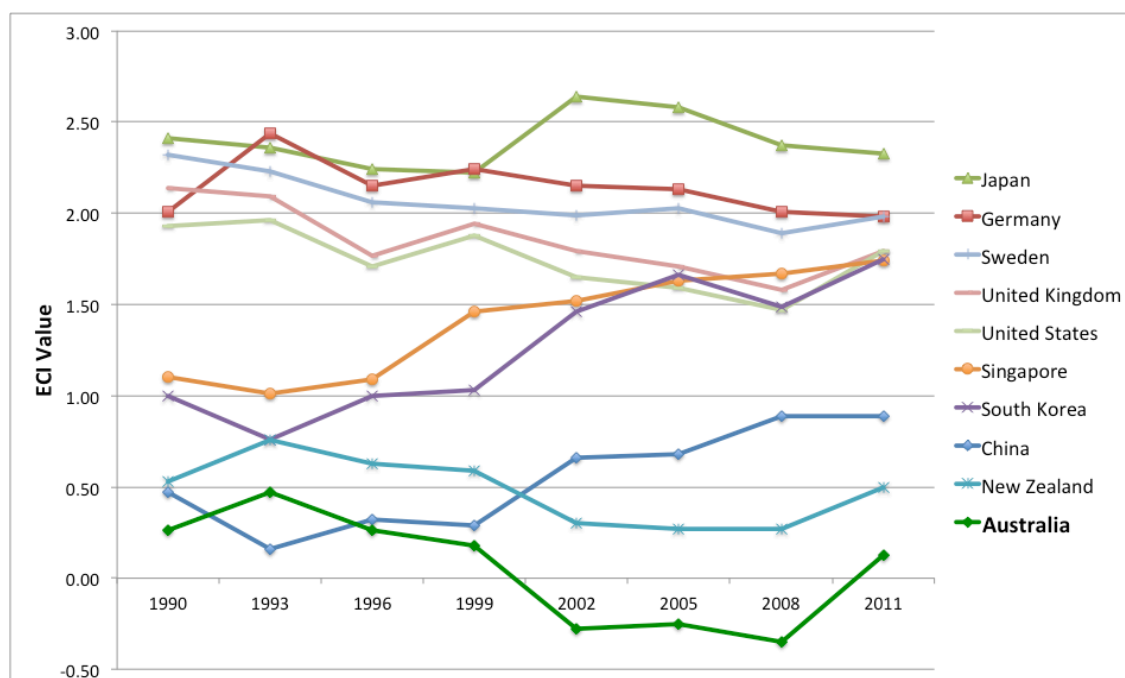


Figure 3: Economic Complexity Index - Australia vs selected countries²⁶

²² DFAT, 2011

²³ <http://www.nytimes.com/2013/12/16/opinion/on-the-innovation-of-nations.html>

²⁴ <http://www.econnow.com/wp/?p=300>

²⁵ <http://www.abc.net.au/worldtoday/content/2011/s3349175.htm>

²⁶ <http://atlas.media.mit.edu/rankings/country/>

By way of comparison, Australia's economic complexity map (below) differs markedly from that of Sweden (following).

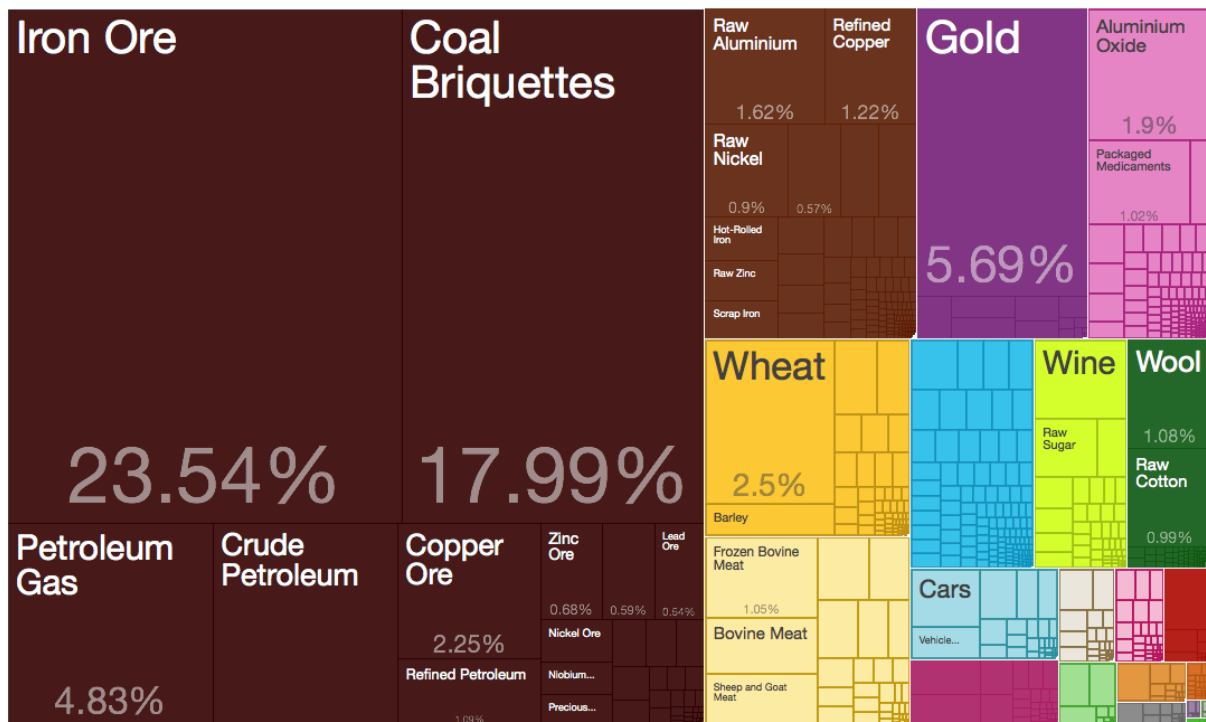


Figure 4: Economic Complexity Map for Australia (ranked 52nd by ECI)²⁷

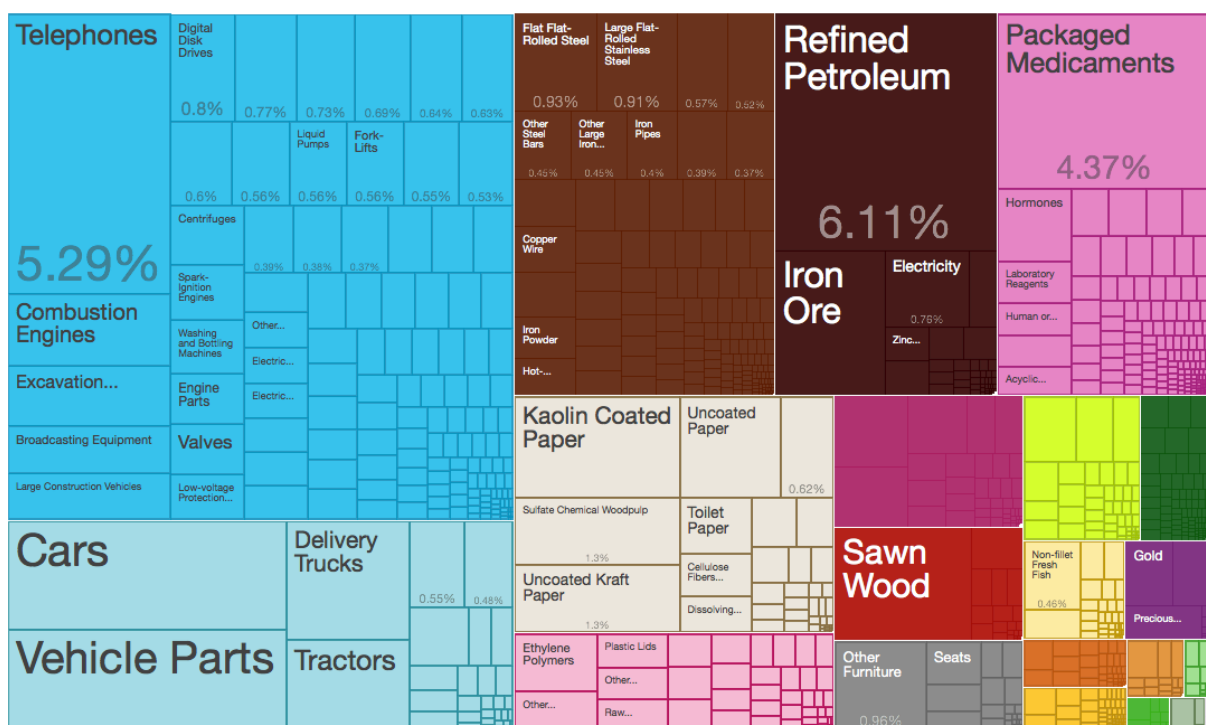


Figure 5: Economic Complexity Map for Sweden (ranked 2nd by ECI)²⁸

²⁷ http://atlas.media.mit.edu/explore/tree_map/hs/export/aus/all/show/2011/

²⁸ http://atlas.media.mit.edu/explore/tree_map/hs/export/swe/all/show/2011/

It has long been recognised that Australia's economic dependence on its resources sector has hampered the development of other sectors. This phenomenon, named "Dutch Disease" by The Economist (after the collapse of Holland's manufacturing sector following the discovery of natural gas) is characterised by neglect and atrophy of high-value export industries whilst enjoying the benefits of exporting natural, unimproved (and finite) commodities.²⁹

One of Australia's challenges is to shift away from being a derivative economy and to create high labour productivity jobs that are not susceptible to being usurped by lower cost-of-labour locations, as has been seen in the case of car manufacturing.

As noted by Australian businessman Andrew Liveris (Chairman and CEO of Dow Chemical Company), *"Australia needs a diversification strategy. We have the resources in the ground, but why should we allow ourselves to be the world's quarry?"*³⁰

The Commonwealth Bank's CIO Michael Harte recently noted that Australia tended to use technology to prop up "diminishing returns industries" such as manufacturing, mining and agriculture. He called for government support for more blue sky science to drive inventions like the CSIRO's wireless networking patent, which came from radioastronomy research.³¹

In February 2014 the Federal Treasurer Joe Hockey aptly noted "We cannot longer rely on the land, through minerals and agriculture in particular, or the heavy lifting done by previous generations of manufacturing. We can no longer rely on that to sustain our quality of life in the future."³²

The case for government intervention

StartupAUS believes that economic development is an important part of the government's role, and that this should include creating a suitable economic climate, providing the right stimulus and support for the sector, and identifying and addressing market failures that are impeding economic growth.

The Australian government already has a number of existing programs that provide valuable support to high-growth companies, including the R&D tax incentive and grants from Commercialisation Australia. However very few government programs focus on supporting startups or boosting entrepreneurship, and those that do are sub-scale and highly fragmented.

Worldwide, startups have been shown to be a massive contributor to economic growth and high value job creation over several decades. Yet the Australian government's investment in supporting the startup ecosystem is extremely modest, particularly when compared with the government's direct support for diminishing returns industries such as the automotive industry (subsidies of \$30 billion in the past 12 years, including \$2.17 billion directly to General Motors Holden),^{33,34} the mining industry (subsidies of \$4.5 billion per year³⁵ including \$2 billion per year in fuel tax credits to mining companies),³⁶ and assistance packages in the hundreds of millions of dollars a year to other sectors and individual businesses.

²⁹ <http://internationalspectator.com/2013/analysis-australias-problematic-dependence-on-primary-products/>

³⁰ <http://www.theaustralian.com.au/business/economics/obamas-aussie-tells-it-like-it-is/story-e6frg926-1226099320569>

³¹ <http://www.itnews.com.au/News/341763,commbank-wants-troublemakers-in-one-in-ten-jobs.aspx>

³² http://www.afr.com/p/national/hockey_lays_ground_for_cuts_KF85IKpfopp7oyN79jDn5H

³³ <http://www.smh.com.au/business/comment-and-analysis/the-end-of-uggboot-economics-why-the-consumer-is-now-in-charge-20140227-33k0d.html>

³⁴ <http://www.abc.net.au/news/2013-04-02/holden-reveals-billions-in-subsidies/4604558>

³⁵ <http://www.abc.net.au/news/2013-06-25/nrn-dist-mining-subsidies/4778042>

³⁶ <http://www.theguardian.com/environment/southern-crossroads/2014/feb/02/fossil-fuel-subsidies-tony-abbott-spc-ardmona-corporate-welfare>



"The Australian Government has been a tremendous partner and advocate for startups through the R&D Tax Grant, Commercialisation Australia and venture capital programs. If there is one common theme of the usefulness it's where the Government amplifies what the market is already doing (matching funding, R&D spending refunds) rather than in trying to create new areas of prosperity. The spark for a thriving web and mobile industry is there but it still needs help to become a fire of activity."

Niki Scevak – Founder, Startmate; Partner, Blackbird Ventures

In June 2013 the federal government's Department of Broadband, Communications and the Digital Economy released an update to the Digital Economy Strategy (*Advancing Australia as a Digital Economy*).³⁷ That paper recognised the limited availability of capital for Australian startups and difficulties in attracting and retaining talent as impediments to growth in the startup sector.

Two actions were identified specifically to support digital startups, namely:

- **[Action 7]** Review the regulatory arrangements for employee share schemes; and
- **[Action 8]** Consult on an Australian crowd-sourced equity funding scheme.

StartupAUS endorses addressing these two areas as promptly as possible, and further commentary on both is provided in Section 6 of this document.

Disappointingly, the digital economy paper is heavily skewed toward technology *adoption* with little emphasis on technology *creation and commercialisation* as a driver of economic growth. The actions set out in the digital economy paper are mainly aimed at addressing regulatory barriers – which is an important but narrow part of the required solution. There is little in the strategy to stimulate growth in the technology sector despite clear evidence of systemic market failures.

It is also important to note that the Australian government has produced or commissioned several other substantial reviews of aspects of the innovation ecosystem – including the Innovation System Report (2011, 2012 and 2013)³⁸ produced by the Department of Industry; the Review of Venture Capital and Entrepreneurial Skills (2012) prepared by The Treasury and the Department of Industry, Innovation, Science, Research and Tertiary Education;³⁹ and an Independent Econometric Analysis of the Innovation Investment Fund (2010).⁴⁰

StartupAUS has reviewed the findings of the above reports pertaining to the startup sector and asserts that whilst many of the fundamental issues have been identified (and in some cases explored in some detail), there is as yet no coherent strategy to deliver Australia's transition to a knowledge economy.

Although beyond the scope of this paper, it has been noted that Australia does not have a central agency responsible for innovation and entrepreneurship policy, with responsibility seeming to fall somewhere between the Department of Broadband, Communications and the Digital Economy, the Department of Industry and the Department of Treasury.



"The case for government intervention to help drive more investment in our innovation system is very strong. Our economy is in the midst of deep structural change, and globalisation is accelerating the need for us to develop new markets and new growth opportunities to position ourselves to compete with the most advanced nations in the world. The government must play a role in guiding the transformation of our economy through support for startups, innovation and venture capital."

Yasser El-Ansary - Chief Executive Officer, Australian Private Equity and Venture Capital Association Limited (AVCAL)

³⁷ http://www.archive.dbcde.gov.au/2013/september/national_digital_economy_strategy

³⁸ <http://www.innovation.gov.au/science/policy/AustralianInnovationSystemReport/AISR2013/wp-content/uploads/2013/11/AIS-Innovation-Systems-Report-2013-v3.pdf>

³⁹ <http://www.avcal.com.au/documents/item/516>

⁴⁰ <http://www.innovation.gov.au/industry/VentureCapital/Pages/IndependentEconometricAnalysisOfIIF.aspx>

International entrepreneurship policy frameworks

Many national governments have developed policy frameworks to stimulate entrepreneurship, startups and high-tech industries. Some examples are provided below.

US

Startup America Partnership⁴¹ - a White House initiative to accelerate high-growth entrepreneurship in the US. The government, in partnership with startup community leaders, has implemented a suite of entrepreneur-focused policy initiatives in the following areas:

- Expand access to capital for high-growth startups by providing an extra A\$2.2 billion in matching funds for VC and other private sector investors
- Expand entrepreneurship education and mentorship programs
- Strengthen commercialisation of federally-funded R&D, which can generate innovative startups and entirely new industries
- Provide tax relief and incentives for startups
- Remove unnecessary regulatory barriers to high-growth startups
- Impact Investment and Early Stage Innovation (A\$2.2 billion)

"Entrepreneurs embody the promise of America: the idea that if you have a good idea and are willing to work hard and see it through, you can succeed in this country. And in fulfilling this promise, entrepreneurs also play a critical role in expanding our economy and creating jobs."

– President Barack Obama, January 2011

UK

Over the last decade the UK government has implemented a raft of policies and programs aimed explicitly at supporting high-growth, globally focused businesses. These include:

- UK Angel CoFund – a A\$185 million early stage matching fund to support the growth of an angel investment sector
- Start-Up Loan Scheme – a A\$285 million program to provide seed capital and mentoring to early stage businesses
- Enterprise Capital Fund program⁴² – a A\$440m program to support the creation of new early stage venture capital funds
- Future Fifty program to identify and directly support fifty of the most promising high-growth companies with bespoke assistance and incentives
- Aggressive inward investment attraction programs, including actively encouraging startups from other countries to relocate to Tech City in London
- Entrepreneur Visa to encourage the best entrepreneurs from around the world to establish their business in the UK
- Global Entrepreneur Programme⁴³ to attract high-calibre, early-stage companies and entrepreneurs to set up in the UK by offering bespoke advice and capital raising assistance from a team of experienced entrepreneurs
- Entrepreneurs' Relief program to provide a reduced capital gains tax rate of 10% for startup founders who sell their business

⁴¹ <http://www.whitehouse.gov/startup-america-fact-sheet>

⁴² <http://www.capitalforenterprise.gov.uk/ecfp>

⁴³ <http://www.ukti.gov.uk/investintheuk/globalentrepreneursprogramme.html>

- Enterprise Investment Scheme (EIS) and Seed Enterprise Investment Scheme (SEIS) to stimulate early stage investment by providing upfront income tax relief and capital gains tax exemption for angel investors
- UK Innovation Investment Fund – a A\$300 million fund that co-invests with private sector investors in high growth, knowledge-based businesses
- Business Finance Partnership – a A\$2.2 billion program to improve access to finance by growing businesses by providing matching funds alongside private investors
- Changes to IPO regulations to catalyse higher rates of technology company listings
- Entrepreneurship promotion in schools via business immersion programs, guest talks by entrepreneurs
- Competitions with A\$28 million in prize money to encourage digital entrepreneurship
- Establishment of a Technology Strategy Board as the UK's innovation agency, with oversight of a range of innovation programs and input to government innovation and economic development policy.

“The world of business is changing rapidly and one of the most promising opportunities for new jobs and growth lies within a new wave of high growth, highly innovative digital businesses. We are competing in a global race and I am absolutely determined to make Britain the best place in the world in which to start and grow a business.”

– David Cameron, British Prime Minister

New Zealand

New Zealand has embarked on a deliberate effort to transition its economy from its historical reliance on tourism and primary industries to one based on high-growth knowledge-based businesses. A range of government programs have been launched over the last ten years, including:

- Entrepreneur Visa to attract foreign entrepreneurs to establish high growth businesses in New Zealand
- Visiting Entrepreneur initiative to engage experienced US entrepreneurs and angel investors to help accelerate the growth of a vibrant startup ecosystem
- Incubator Support Program – a national network of eleven government-funded startup incubators
- Grant funding of up to A\$425,000 per company for startups supported by the government-funded incubators
- Wynyard Quarter Innovation Precinct, a 48,000m² facility on the waterfront in Auckland to house and support technology-based businesses, venture capital firms and angel investors, and act as a hub for entrepreneurship in New Zealand in the same way as Tech City in London
- New Zealand Seed Co-Investment Fund – a A\$37m early stage direct investment fund to stimulate greater levels of angel investment
- New Zealand Venture Investment Fund – a A\$150 million direct investment fund to stimulate greater levels of venture capital investment
- Implementation of regulatory changes to enable crowd-sourced equity funding commencing in April 2014
- Kiwi Landing Pad – a startup support program in San Francisco to assist New Zealand startups establishing a presence in the US
- Establishment of Callaghan Innovation as the country's national innovation agency with a focus on high growth technology-based businesses

South Korea

In 2013 the South Korean government announced a “Creative Economy” initiative,⁴⁴ a A\$3.3 billion funding commitment to accelerate the growth of the country’s startup sector. The initiative is part of President Park Geun-hye’s efforts to reduce the country’s dependence on low-value manufacturing and to stimulate creation of new high-growth businesses.

The Korean Creative Economy initiative includes:⁴⁵

- A national startup promotion program to encourage more people to become entrepreneurs
- Free entrepreneurship education for primary, secondary, high school and university students and the general public
- Funding for a network of 300 startup incubators that together support 5,000 Korean startups
- Funding for international engagement such as hosting of the MIT Global Startup Workshop and multiple trade missions to Silicon Valley, London, Israel and Singapore
- Tax incentives for investing in startups
- Establishment of 25 “App Creation Playgrounds” in which aspiring entrepreneurs can access technical support to build new apps and tackle global markets
- Funding for startup internships to place university students within growing startups
- Funding for entrepreneurs who have had failed businesses (in recognition of the stigma attached to business failure)
- Establishment of government-backed early stage investment funds
- Funding to universities specifically for commercialisation of research outcomes
- Mandated access to IP generated in the country’s universities for Korean startups

European Union

The Entrepreneurship 2020 Action Plan⁴⁶ is a comprehensive plan for EU member countries to better support entrepreneurs and high-growth businesses. The plan emphasises the need to stimulate a culture of entrepreneurship and change public perception through entrepreneurship education.

The Entrepreneurship 2020 Action Plan includes measure such as:

- Technology and entrepreneurship education programs beginning in primary school
- Establishment of a Europe-wide entrepreneurship promotion campaign
- Funding for a European network of startup accelerators
- Review of regulatory environments to ensure they are startup-friendly
- Amending tax legislation to stimulate angel investment
- Establishment of a European crowdfunding network
- Funding for a young entrepreneurs development program including international exchanges
- Measures to stimulate venture capital investment in startups
- Reduction of penalties and introduction of support services for honest entrepreneurs who experience bankruptcy
- Establishment of a Europe-wide startup mentors network
- A Startup Europe Partnership based on the successful Startup America Partnership

⁴⁴ <http://online.wsj.com/news/articles/SB10001424127887323393804578554681586293800>

⁴⁵ <http://www.kised.or.kr/new/english/index.html>

⁴⁶ http://ec.europa.eu/enterprise/policies/sme/entrepreneurship-2020/index_en.htm

Singapore

The Singapore Government has committed over A\$14 billion to the National Framework for Innovation and Enterprise over the five years to 2015.⁴⁷ Its stated aims are to shift the country's economy from labour-driven to productivity-driven industries, and to support the creation and growth of at least five local technology companies with annual revenue of more than \$1 billion.^{48,49}

The program was launched shortly after Singapore's President Tony Tan visited Tel Aviv in 2008, and like the Israeli approach, focuses on achieving greater emphasis on entrepreneurship via education, and providing practical and financial support to high-growth, risk-taking ventures.

The Singapore government's suite of programs includes:⁵⁰

- Technology Incubation Scheme – A network of 14 government-funded tech startup incubators
- Early Stage Venture Fund – invests on a 1:1 matching basis to catalyse formation of venture capital funds that invest in Singapore-based technology companies
- Co-investment of up to A\$440,000 in Singapore-based startups (to match private investors 85:15)
- Startup Enterprise Development Scheme – a startup co-investment program in which the government invests alongside VC funds matching dollar-for-dollar up to A\$900,000
- Business Angels Fund – a startup co-investment program in which the government matches approved angel investors on a dollar-for-dollar basis up to A\$1.3 million
- Technopreneurship Investment Fund – a A\$1.1 billion venture fund to invest in local entrepreneurs and attract high-growth venture-backed companies to relocate to Singapore. The government invests up to A\$3 million in matching funding to eligible companies.
- Technology Enterprise Commercialization Scheme – a grants program in which the government provides funding of up to A\$440,000 to support development of proprietary ideas at conceptualization stage
- iSTART Accelerate – a grants scheme to support startups in developing technologies by funding up to 50% of salaries of five technical staff for one year up to A\$220,000
- Young Entrepreneurs Scheme – a national program to develop entrepreneurship education in schools
- An overseas immersion program that places 400 university students per annum as interns in startup hubs such as Silicon Valley
- Revision of bankruptcy laws to protect entrepreneurs who take normal business risks and fail
- Tax deductions for investors in startups
- Concessional tax rates for startups – a corporate tax rate of 0% on the first A\$90,000 of taxable income, and 8.5% on the next A\$180,000 and the normal corporate tax rate of 17% above A\$270,000
- Relaxation of criteria for startups to list on the stock exchange
- Deferral of capital gains tax by startup employees for up to four years under an Employee Stock Option Scheme

⁴⁷ <http://www.nrf.gov.sg/innovation-enterprise/national-framework-for-research-innovation-and-enterprise>

⁴⁸ <http://www.techinasia.com/singapore-government-iterating-on-its-entrepreneurial-policies-and-how-you-can-help/>

⁴⁹ http://technopreneurial.com/articles/technopreneurship_singapore.asp

⁵⁰ <http://www.guidemesingapore.com/doing-business/finances/singapore-government-schemes-for-startups>

Conditions for a vibrant startup ecosystem in Australia

As a consequence of global interest in supporting startups as a driver of economic growth, a number of highly influential books^{51,52,53} have been written about the conditions that are required in order for startup ecosystems to flourish.

The general consensus is that successful startup ecosystems require the following conditions:

1. A pro-entrepreneurship culture
2. Guidance from experienced entrepreneurs
3. A supportive regulatory environment
4. A collaborative business culture
5. Visible successes and role models
6. Risk tolerance
7. Availability of capital
8. Technical skills (in particular computer programming)

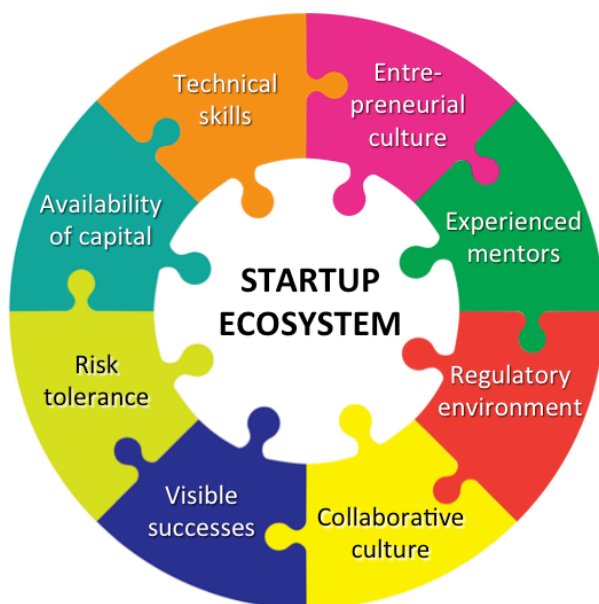


Figure 6: Elements of a vibrant startup ecosystem

The following sections explore each of these conditions in detail, identifying Australia's current performance with reference to other countries, and proposing steps that can be taken to improve the conditions for Australian startups.

⁵¹ *Blue Sky Mining: Creating Australia's Next Billion Dollar Industries*, Adrian Turner

⁵² *Startup Communities: Building an Entrepreneurial Ecosystem in Your City*, Brad Feld

⁵³ *The Rainforest: The Secret to Building the Next Silicon Valley*, Victor Hwang and Greg Horowitz

Action plan summary

Australia does not currently have all of the required conditions for a successful startup ecosystem. Their establishment has been hampered to varying degrees by market failures spanning education, culture, expertise, access to capital and regulatory environments.

Below is a summary of the actions proposed to address those market failures. The majority of the actions are not new. They have been implemented in other countries in which similar market failures have been identified, and in many cases have been effective to the point that government intervention can be scaled back or withdrawn.

The impacts from some of the actions will be seen in the near term, although most will take several years to have a positive effect and will require a long term bipartisan commitment.

StartupAUS does not believe that the government should be required to make an open-ended commitment to supporting the startup sector, but rather it should develop an exit plan for scaling back and ending its support of each aspect of the sector. This will require the development of suitable metrics against which progress can be measured.

This paper does not prescribe a division of responsibility between federal, state and local governments, although clearly the best outcomes will be achieved if high-growth startups and entrepreneurship become a national priority, and if there is close alignment between efforts at each level of government, and between states.

Actions with near-term impact (1-2 years)

Action	Rationale	Reference
Create an Entrepreneur Visa	Australia's startup sector needs diversity and new skills. An entrepreneur visa, like those in place in many other countries, would help to attract entrepreneurs and accelerate the growth of our startup ecosystem.	Action 1.4
Relax restrictions on 457 visas for startups	Australian tech startups are unable to recruit enough skilled Australian ICT workers. Relaxing restrictions to the 457 visa would enable Australian startups to employ sufficient skilled overseas ICT workers to meet the current shortfall.	Action 3.4
Ensure foreign workers in Australian startups can access the Living Away From Home Allowance	Australia has a relatively high cost of living that is acting as a disincentive for foreign ICT professionals to join Australian startups. Making the LAFHA program available to startups would help to ensure Australian startups are able to attract the highest calibre workers.	Action 3.5
Implement a national Visiting Entrepreneurs Program	Australia has a relatively shallow pool of experienced entrepreneurs. Introducing this expertise from startup hot-spots around the world would short-circuit the learning curve and accelerate the maturation of the startup ecosystem.	Action 4.1
Change the tax treatment of ESOPs	Currently a bizarre situation exists in Australia in which options are taxed in the hands of startup employees at the time of issue, rather than at the time they received the proceeds, despite the fact that those options are illiquid and may never have any realizable value. Bringing the tax treatment of ESOPs in line with the rest of the world would greatly improve Australia's ability to attract and retain the best workers.	Action 6.1

Action	Rationale	Reference
Extend the Advance Innovation Program	Each year the Advance Innovation Program provides 25 promising Australian tech startups with investor-readiness training and mentoring, and takes them to Silicon Valley for a two week trade mission. Extending the program would enable more entrepreneurs to gain exposure to Silicon Valley and other startup hot-spots, and to bring those learnings back to Australia.	Action 7.1
Establish a Silicon Valley Landing Pad for Australian startups	An increasing number of Australian startups are moving to Silicon Valley in search of talent and capital. An Australian landing pad would greatly assist these companies in getting established in the Valley and improve their chances of success. It would also equip more Australian entrepreneurs with an international perspective and enable them to contribute positively to the Australian startup ecosystem when they return home.	Action 7.2

Actions with medium-term impact (2-5 years)

Action	Rationale	Reference
Support a Young Entrepreneur Scholarships program	Offering scholarships to 100 final year university students per annum would encourage more young people to launch startups. This could also be an effective way of addressing the current gender imbalance in the startup sector.	Action 1.2
Support entrepreneurial behaviour by university researchers	Most Australian universities have limited engagement in the startup sector, and the academic culture does not embrace entrepreneurship and risk-taking. Supporting entrepreneurship in universities would increase the rate of startup formation and improve the economic contribution made by universities.	Action 1.3
Support a national network of student startup incubators	Very few university students in Australia are exposed to the notion of doing a startup. A network of student startup incubators would raise the profile of entrepreneurship and boost the number and success rate of technology entrepreneurs among university students and graduates.	Action 2.2
Launch a national learn to code promotion program	Australia is facing a significant skills shortage in the ICT sector. A promotional program would increase interest in studying ICT and help to address the gender imbalance in the sector.	Action 3.2
Implement a tertiary scholarships program to drive participation in CS education	A prestigious scholarship program would attract the brightest high school students to tertiary computer science education, and the best undergraduates to advanced postgraduate studies in computer science.	Action 3.3
Remove disincentives for experienced Australian entrepreneurs to repatriate	A growing cohort of Australians are acquiring valuable experience in building a global technology companies in the US and elsewhere. There are significant tax disincentives for successful Australians to repatriate. Removing these disincentives would encourage Australian entrepreneurs to return and use their international expertise to benefit the Australian startup ecosystem.	Action 4.2
Create a national network of entrepreneurship centres	Unlike many countries, Australia has no centrally supported system of startup incubators. Creating a network of entrepreneurship centres would provide an important piece of soft infrastructure around which startup communities can be built.	Action 4.3

Action	Rationale	Reference
Continue the Innovation Investment Fund program	Australia has one of the lowest rates of venture capital investment in the world. Continuing the IIF program, with targeted changes, will ensure it is effective in supporting the growth of a healthy VC industry in Australia.	Action 5.1
Establish a seed co-investment fund	Australia has one of the lowest rates of angel investment in the world. Establishing a co-investment fund would stimulate greater levels of angel investment and improve the chances of startups raising capital in Australia rather than moving to the US or elsewhere at the outset.	Action 5.2
Create a capital gains exemption and/or tax deduction for angel investments	A tax incentive for angel investors would boost the level of investment in startups and bring Australia into line with many other knowledge-intensive economies.	Action 5.3
Enhance Commercialisation Australia to improve support for entrepreneurs	Commercialisation Australia is a valuable program that is currently constrained in its ability to effectively support startups. Making targeted changes to the program would allow it to more effectively accelerate the growth of Australian startups.	Action 5.4
Establish a young entrepreneurs startup loans scheme	A startup loans scheme would provide financial support to first-time entrepreneurs under the age of thirty. It would help young entrepreneurs to bridge the funding gap for early stage ideas that are not yet ready to raise capital from angel investors or VC funds.	Action 5.5
Implement legislative changes to enable crowd-sourced equity funding	By 2020, crowdfunding is projected to reach \$500 billion per annum, generating \$3.2 trillion a year in economic impact and creating more than 2 million jobs. If Australian startups are to tap into this source of funding the regulatory environment will need to be changed to enable crowd-sourced equity funding in Australia.	Action 6.2

Actions with long-term impact (5-15 years)

Action	Rationale	Reference
Support a national program to raise awareness of startups in Australia	Australians are good at starting "small businesses" but we have a relatively low rate of "tech startup" formation. A national awareness program would increase the number of people engaging in startups and help to establish a vibrant culture of entrepreneurship in Australia.	Action 1.1
Implement a national program of entrepreneurship education	Currently the Australian education system is geared toward preparing students for the workforce. Introducing entrepreneurship education across the primary, secondary and tertiary education system would equip young people to start businesses and spur economic growth.	Action 2.1
Implement and extend the Digital Technologies Curriculum	Ensuring that computer science is taught in every primary and high school will bring Australia in line with other countries and allow us to compete with the growing talent pool in other countries.	Action 3.1

Action #1 – Increase the number of entrepreneurs

Strictly speaking, an entrepreneur is anyone who starts a new business venture.⁵⁴ However, this paper makes a clear distinction between *needs-based* entrepreneurship (which is often characterised by self-employment and creation of undifferentiated small businesses) and *opportunity-based* entrepreneurship in which high-growth companies are created to tackle large, high value opportunities and based on a clear competitive advantage.

Myth: Australia has a high rate of entrepreneurship

The Global Entrepreneurship Monitor study is often cited by the media as evidence that Australia is an entrepreneurial nation. It found that 10.5% of the Australian adult population was actively engaged in starting a business in 2012, a rate which is second only to the US.

However, the GEM study considered entrepreneurship to be the formation of any new business and consequently only an exceedingly small proportion of Australian entrepreneurs covered by the GEM study are involved in creating a high growth tech startup. Most of Australia's "entrepreneurs" are pursuing self-employment or needs-based businesses.

In fact, a study by the Research Institute of Industrial Economics in Sweden⁵⁵ has shown that small business formation is a poor indicator of economic impact from entrepreneurship, and that countries with higher rates of self-employed entrepreneurs tend to have relatively few high impact entrepreneurs.

In 2013 PwC conducted a preliminary survey of Australian startups as part of the *Startup Economy* report. That survey has since been refined by StartupAUS and the best estimate now available is that there are 1,000 tech startups in Australia, or 0.047% of all Australian businesses.⁵⁶

As can be seen in the figure below, Australia has a relatively low rate of tech startup formation in a global context.

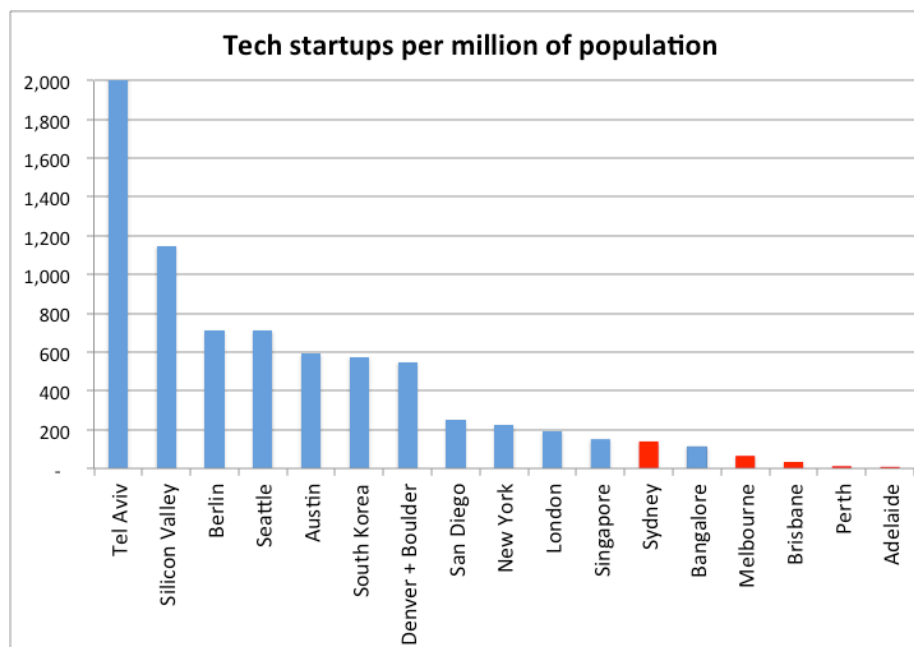


Figure 7: Tech startups per million of population⁵⁷

⁵⁴ Wikipedia

⁵⁵ <http://ideas.repec.org/p/hhs/iuiwop/0959.html>

⁵⁶ ABS 8165.0 - Counts of Australian Businesses, including Entries and Exits <http://bit.ly/1aJfQHW>

⁵⁷ Sources: Crunchbase, besuccess, Virgin, Huffington Post, Mashable, Startup Economy, Wall Street Journal, The Economist

Clearly if Australia is to become competitive in the technology sector we will need to rapidly increase the level of participation in high-growth entrepreneurship.



"Tech startups could contribute \$109 billion of GDP and add half a million jobs by 2033, but to unlock this potential we need more young Australians having a go."

Alan Noble – Director Engineering, Google Australia and board member, StartupAUS

A similar observation can be made from the rates of startup formation from graduates of Australian universities. The following chart shows that relative to many overseas institutions, Australian universities are producing graduates who are significantly less predisposed to startup formation.

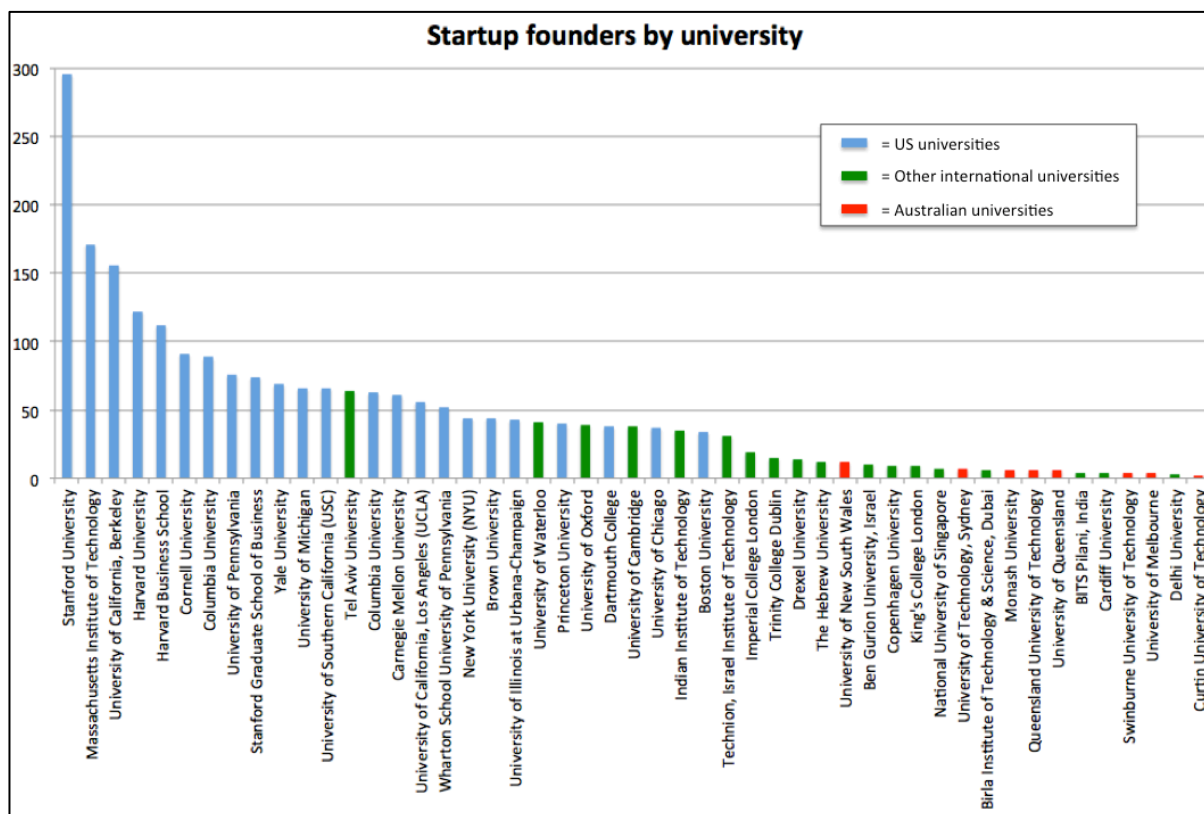


Figure 8: Startup founders by university⁵⁸

Entrepreneur demographics

In Australia a large proportion of first-time entrepreneurs are in their thirties and forties, with relatively few younger Australians engaging in creation of high-growth startups. Having young people become entrepreneurs is important because startups are high risk (most fail) and as a general rule, an individual's risk tolerance decreases over time, particularly once they have a mortgage, a family and an established career. This is particularly true in Australia where entrepreneurial risk-taking is largely absent from our culture.

In a number of countries such as the US and Israel, a large proportion of entrepreneurs launch their first startup during or immediately after their undergraduate degree. For example, it has been estimated that twenty per cent of all students at CalTech, Stanford and Berkeley, and more than fifty percent of computer science students from those universities, form a startup before they graduate.⁵⁹

⁵⁸ <http://info.crunchbase.com/2013/08/12/entrepreneurs-and-universities/>

⁵⁹ <http://ec.europa.eu/digital-agenda/en/news/manifesto-entrepreneurship-and-innovation-power-growth-eu>

A consequence of Australia's entrepreneur demographic is that many startups founded here are at the lower end of the risk-reward curve. They are often focused on small niches, domestic markets, or are based on a business model with early revenue generating opportunities, with relatively few truly disruptive high-risk startups that are tackling sizeable global markets.

A study conducted in 2012 by Deloitte and Pollenizer found that entrepreneurs in Silicon Valley are significantly more likely to tackle a billion dollar market than their Australian counterparts.

Action 1.1 – Support a national program to raise awareness of startups in Australia

It is essential that we encourage kids, parents and teachers to consider the possibility of business creation as a career path rather than the current expectation that kids will get a good education in order to get a good job.

One of the reasons for the low level of participation in startups in Australia is the limited exposure the general public has to entrepreneurship, combined with a culture that does not celebrate or promote an entrepreneurial mindset. Entrepreneurship is seen as an unusual career path, and even when children are exposed to the notion of starting their own company they are generally guided toward small business creation.

In its 2012 Review of Venture Capital and Entrepreneurial Skills,⁶⁰ the federal government identified the importance of promoting successful Australian companies, noting that “Australia has had a number of big successes which are contributing to Australia's future industries and the economy more broadly but which are not well known outside the Australian scientific and venture capital communities.”

An entrepreneurship awareness raising program should have the following elements:

1. An annual Australian Entrepreneur Heroes award to celebrate successful entrepreneurs in the same way that the nation celebrates successful athletes and entertainers.
2. A series of public lectures by successful entrepreneurs who can evangelise entrepreneurship as a valid and rewarding career path.
3. Support promotion of entrepreneurial successes in the media by ensuring startups are a priority in government media efforts.
4. Visits from government ministers (including the Prime Minister) to the offices of promising Australian startups.
5. Expansion of Startup Spring – an annual program of profile-raising events organised by StartupAUS. The inaugural Startup Spring held in September 2013 incorporated 160 events in nine Australian cities, engaged 6,500 people and was covered in over 100 media articles.
6. Broad support for startup events such as Startup Weekend (a hackathon and startup training program for aspiring first-time entrepreneurs).

Action 1.2 – Support a Young Entrepreneur Scholarships program

StartupAUS encourages the government to provide \$5,000 scholarships to 100 final year university students per annum to encourage them to launch startups. The scholarships would enable young entrepreneurs to access support programs such as incubators, and to allow students to live for a few months while focusing exclusively on their startup idea. The program would incorporate mentoring from experienced entrepreneurs and would ideally be sponsored by one or more corporate partners.

A similar outcome could also be achieved by waiving or reducing HECS debt for anyone who launches a high-growth startup within three years of graduating.

⁶⁰ <http://www.avcal.com.au/documents/item/516>

Particular focus needs to be given to attracting more women to entrepreneurship in Australia. A study by Deloitte and Pollenizer in 2012 found that only 4% of Australian startup founders are female. A similar challenge exists in many countries, and is being addressed through initiatives such as the European Commission's creation of an online mentoring, advisory, educational and business networking platform for women entrepreneurs.⁶¹

The government should look to similar initiatives and take steps to better promote and support women entrepreneurs in collaboration with the startup community.

International benchmarks

US

The Young Entrepreneur Foundation⁶² was established by the National Federation of Independent Business to raise awareness of the important role of entrepreneurship in young people. In the last ten years the Young Entrepreneur Foundation has awarded over 2,400 scholarships of up to A\$11,000 to support and encourage young entrepreneurs.

Canada

The Canadian Youth Business Foundation⁶³ is a government-funded agency that provides concessional loans of up to A\$45,000 to young entrepreneurs.

In the last 16 years it has provided funding to 5,600 young Canadian entrepreneurs whose businesses have created over 23,000 new jobs, \$160 million in tax revenue and hundreds of millions of dollars in sales.

Action 1.3 – Support entrepreneurial behaviour by university researchers

It has long been recognised that Australian universities need to shift their commercialisation focus from "monetising internally created IP" to "creating entrepreneurs who will generate economic impact" in the same way as universities like Stanford and MIT.

Economic impact of entrepreneurship at Stanford and MIT⁶⁴

University	New companies created by alumni	Annual revenues of companies created by alumni	Employees in companies created by alumni
Stanford University	39,900	\$2.7 trillion	5.4 million
MIT	25,800	\$2 trillion	3.3 million

If the combined revenues of companies created by MIT and Stanford alumni were a single country it would have the fifth largest GDP in the world.

⁶¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0795:FIN:EN:PDF>

⁶² <http://www.nfib.com/foundations/yef/yef-programs/young-entrepreneur-awards/>

⁶³ http://www.cybf.ca/cybf_programs/start-up/

⁶⁴ <http://www.forbes.com/sites/petercohan/2012/11/06/stanfords-2-7-trillion-economic-jolt-beats-mits-2-trillion/>

Initiatives that would help to create more pro-entrepreneurship behaviours in the university sector include:

- A national program of University Entrepreneurship Leave to enable academic staff and research students to pursue startup opportunities (whether or not directly related to their research) and return to their academic post or studies without penalty.
- Increased emphasis on economic impact measures such as startups created, capital raised and jobs created in allocating federal funding within applied research disciplines. Currently funding allocation is governed via the ERA⁶⁵ framework which is skewed toward measures of input and activity such as number of papers published, academic citations and patents filed.
- A competitive grant funding program specifically aimed at enabling universities to launch new entrepreneurship education programs, startup incubators and seed funds.

International benchmarks

South Korea

The Ministry of Science, ICT and Future Planning has established a Startup Sabbaticals program⁶⁶ which gives academic staff up to six years leave and students up to four years leave to pursue a startup. The staff member or student is able to return to the university without penalty regardless of whether the startup was successful.

US

The majority of US universities offer sabbaticals for faculty members to pursue startup activities, and such experience is viewed very favourably in terms of career advancement.⁶⁷

Action 1.4 – Create an Entrepreneur Visa

Skilled workers are more mobile than at any time in history. UN data shows that over 175 million people live permanently outside their countries of birth.⁶⁸

According to the Global Entrepreneurship Monitor's 2012 Global Report, immigrant entrepreneurs can create jobs, boost global competitiveness, and influence the transfer of resources, information and technological know-how.⁶⁹

One third of venture-backed companies in the United States that went public between 2006 and 2012 had at least one immigrant founder, and more than 40% of Fortune 500 companies were founded by immigrants or the children of immigrants (despite the immigrant population of the US averaging only 10.5 percent), and around half of Silicon Valley's startups are founded by immigrants.^{70,71}

The impact of immigrants can be seen in very recent examples such as WhatsApp, the instant messaging startup founded in Silicon Valley by Ukrainian immigrant Jan Koum in February 2009, and acquired by Facebook in February 2014 for \$19 billion.

These figures highlight the economic and social value that can be achieved by embracing entrepreneurially minded people from other nations.

⁶⁵ http://www.arc.gov.au/pdf/era12/ERA%202012%20Evaluation%20Handbook_final%20for%20web_protected.pdf

⁶⁶ <http://e27.co/south-korea-tech-universities-to-offer-startup-sabbaticals/>

⁶⁷ <http://chronicle.com/article/Recipe-for-Start-Ups-/130379/>

⁶⁸ http://www.hbs.edu/faculty/Publication%20Files/09-013_15702a45-fbc3-44d7-be52-477123ee58d0.pdf

⁶⁹ <http://www.gemconsortium.org/docs/download/2645>

⁷⁰ <http://www.fastcompany.com/3015616/the-shocking-stats-about-whos-really-starting-companies-in-america>

⁷¹ <http://www.renewoureconomy.org/sites/all/themes/pnae/img/new-american-fortune-500-june-2011.pdf>

Australia would benefit greatly from attracting entrepreneurs from other countries. This would help to accelerate the growth of our startup ecosystem by adding diversity and new skills to the sector. Such diversification is particularly important given the absence of a strong entrepreneurial culture in Australia.

An entrepreneur visa would also be a valuable tool in retaining more of the approximately 8,000 overseas students who complete a computer science degree in Australian universities each year, by encouraging them to stay in the country and engage in creating a startup.

Unfortunately Australia does not have a visa program suited to attracting emerging entrepreneurs.

The only Australian visa program aimed at entrepreneurs is the Business Talent (Permanent) visa (subclass 132: Venture Capital Entrepreneur) which requires foreign entrepreneurs to have “sourced at least A\$1 million in venture capital funding from a member of the Australian Venture Capital Association Limited (AVCAL) to fund the start up or product commercialisation of a high value business idea in Australia.”^{72,73}

StartupAUS is not aware of any venture capital investments made by Australian VC funds in companies founded by immigrants under the above visa program, and believes the program’s requirement to have raised \$1m in funding is at odds with how venture capital investment actually works.

A visa better suited to attracting entrepreneurs could be developed with reference to the international benchmarks below.

International benchmarks

Many countries have implemented entrepreneur visa programs for the reasons outlined above. For example:

Chile

The Startup Chile program attracts foreign entrepreneurs by offering a \$44,000 grant and one-year resident visas for any startup founders that locate there for at least 6 months.

The government has spent A\$44 million over four years supporting 1,000 foreign entrepreneurs and has built a local ecosystem of over 750 tech startups. Entrepreneurs are expected to contribute to the local startup ecosystem by visiting universities and schools to give talks and mentor locals.

Brazil

The Startups and Entrepreneurship Ecosystem Development (SEED) program⁷⁴ was established to turn the state of Minas Gerais into a tech startup hub by offering a A\$37,000 grant to startups from any country to develop their project in the state and join the SEED acceleration program.

Foreign entrepreneurs selected for the program are automatically entitled to a two year visa.

UK

The UK Entrepreneur Visa⁷⁵ was introduced in 2011 and provides a three year residency visa for foreign entrepreneurs conditional on having raised A\$90,000 in external funding or having been accepted into either of the accelerator programs pre-approved by the government: TechStars or Seedcamp.

⁷² <http://www.immi.gov.au/allforms/booklets/1407.pdf>

⁷³ http://www.immi.gov.au/skilled/business/_pdf/faq-reforms-business-skills-program.pdf

⁷⁴ <http://thenextweb.com/la/2013/11/14/startups-will-participate-seeds-first-program/>

⁷⁵ <http://www.techstars.com/smart-immigration-techstars-london-approved-for-uk-entrepreneurs-visa/>

Recipients can extend their visa by two years and apply for permanent residency if their business has created at least 10 new full-time jobs in the UK.

In 2013 the UK government introduced the Exceptional Talent Visa⁷⁶ under which individuals with a proven track record in creating successful technology businesses can obtain residency regardless of whether they have already formed a startup business. The program is aimed at attracting the best global talent to accelerate the growth of the UK's technology sector.

Ireland

The Start-up Entrepreneur Programme grants two years residency visas to entrepreneurs conditional on having raised A\$100,000 in external funding.

Germany

A three year Entrepreneur Visa is granted conditional on having raised seed funding. Recipients have the option to receive permanent residency and then citizenship.

Singapore

An Entrepreneur Visa grants one year residency conditional on having raised A\$44,000 in external funding.

New Zealand

An Entrepreneur Visa is granted conditional on having raised A\$44,000 funding.

Canada

An Entrepreneur Visa grants permanent residency conditional on having raised A\$50,000 in external funding or acceptance into one of the country's incubator programs.

Denmark

The Danish government's LaunchPad Denmark⁷⁷ program attracts foreign entrepreneurs via a government sponsored accelerator program for entrepreneurs to set up in Denmark and receive residency. Recipients are entitled to professional coaching and training, help with raising capital, cash prizes and sponsorships.

⁷⁶ <https://www.gov.uk/tier-1-exceptional-talent>

⁷⁷ <http://launchpaddenmark.com>

Action #2 – Improve the quality and quantity of entrepreneurship education

To have any chance of growing a robust startup ecosystem Australia needs an entrepreneurial mindset as a society as well as the practical skills to successfully launch and grow businesses with global potential. Australia is currently a long way behind other parts of the world (particularly the US) in this regard.

Australia is one of 129 countries that are signatories to United Nations Resolution 67/202 “Entrepreneurship for development”⁷⁸, aimed at encouraging entrepreneurship as a driver of job creation. In particular the Resolution highlights “the value of teaching entrepreneurial skills at all levels of education” and encourages entrepreneurship education through skills development, capacity-building, training programs and startup incubators.

Action 2.1 – Implement a national program of entrepreneurship education

Many countries have made the policy shift from approaching tech startups as early-stage corporations to a focus on the entrepreneurs themselves, due to the importance of developing entrepreneurial skill sets.⁷⁹

Currently the Australian education system is geared toward preparing students for the workforce. It does not adequately equip young people to start businesses, particularly high-growth startups.

StartupAUS advocates the creation of a comprehensive entrepreneurship education program in all schools (commencing by grade 6 and continuing to grade 12) and in all universities.

School-based programs

There are a small number of existing programs in Australia aimed at raising awareness and stimulating an interest in entrepreneurship, such as Club Kidpreneur Foundation⁸⁰ which runs entrepreneurship exposure programs in 250 primary schools in Australia. The program aligns with the school curriculum and supports several important national curriculum objectives such as financial literacy. It has thus far engaged around 2,400 children (ie. 0.12% of the 2 million children enrolled in Australian primary schools).

Club Kidpreneur Foundation is a not-for-profit entity established by successful entrepreneur Creel Price with modest financial support from Google Australia and a number of city councils. Federal government support would enable these programs to be expanded so that every Australian child is exposed to entrepreneurship and has some experience of business creation.



“Entrepreneurship must be enthusiastically encouraged and embraced. Kids need to know that starting and building a business can be a fun, rewarding life path. Education on how to become an entrepreneur (having a go) has to start early at home and in school when kids first set up their roadside lemonade stand.”

Bill Bartee – General Partner Southern Cross Venture Partners and board member, StartupAUS

Currently there are no widely implemented entrepreneurship programs in Australian high schools. The creation of an entrepreneurship elective in high schools would put Australia on par with the education systems in much of Europe, the US and Singapore where entrepreneurship is increasingly seen as an essential component of the secondary curriculum.

⁷⁸ http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/67/202

⁷⁹ www.ict.org.nz

⁸⁰ <http://clubkidpreneur.com>

In the US it has been found that up to 20% of students who participate in an entrepreneurship training program in secondary school will later start their own company – a rate about five times that of the general population.⁸¹

International benchmarks

A growing list of countries have implemented entrepreneurship exposure and education programs in primary schools and high schools. Below are some examples:

UK

Young Enterprise program⁸² launched with funding from the UK government in partnership with Virgin Money to develop primary and secondary students' business creation skills and attitudes by launching micro-businesses. Plans to engage 20,000 children in 500 primary schools in 2014, 30,000 in 2015 and 40,000 in 2016.

Europe

The European Commission is introducing education programs under which entrepreneurship will be embedded in the curriculum across primary, secondary, vocational, and higher education. This will include opportunities for students to have at least one practical entrepreneurial experience such as running a mini-company or entrepreneurial project.⁸³

The EU is also introducing "Entrepreneurship Day" for students in their last year of secondary school and will include meetings with entrepreneurs, case studies, lectures, workshops and company open days.

US

The Kauffman Foundation in the US provides a range of modular entrepreneurship programs that schools can incorporate in the curriculum or provide as an extra-curricular activity. One example is the Junior Achievement program⁸⁴ which exposes students to entrepreneurship principles through experiential, hands-on programs delivered largely by volunteers from the business community. Currently 4.4 million students participate in the program every year in the US.

Ireland

The Junior Entrepreneurs Program⁸⁵ is aiming to have 250,000 primary school kids take part by 2020.

Wales

The government-funded Youth Entrepreneurship Services⁸⁶ is a comprehensive suite of programs to stimulate interest in entrepreneurship in primary, secondary and university students. It includes mentoring, guest talks, business idea competitions, school-based micro-business creation and company internships.

Singapore

The Singapore government's Young Entrepreneurs Scheme for Schools⁸⁷ provides schools with grants of up to A\$90,000 to put in place structured entrepreneurship learning programs for their students.

⁸¹ C. Jenner, 'Business and Education: Powerful Social Innovation Partners', Stanford Social Innovation Review (Aug. 27, 2012).

⁸² <https://www.gov.uk/government/news/young-enterprise-partners-with-virgin-money-and-department-for-business-to-launch-new-enterprise-challenge-for-primary-school-children>

⁸³ <http://bit.ly/19ZPJd8>

⁸⁴ <https://www.juniorachievement.org/web/ja-usa/about>

⁸⁵ <http://www.juniorentrepreneur.ie>

⁸⁶ <http://wales.gov.uk/newsroom/businessandconomy/2013/7134924/?lang=en>

⁸⁷ <http://www.spring.gov.sg/Entrepreneurship/FSP/Pages/young-entrepreneurs-scheme-schools.aspx>

University-based programs

Universities have an important role to play in educating and cultivating future entrepreneurs. However, in all but a few instances the quality of entrepreneurship education in Australian universities is extremely low, owing in part to the fact that most academics teaching entrepreneurship have no first-hand experience in a startup and therefore deliver courses that are heavy on theory and light on applied content.

Furthermore, Australian universities rarely offer entrepreneurship subjects to students in STEM disciplines, with the overwhelming majority of student enrolments coming from business and commerce students.

A small number of high value entrepreneurship courses do exist in Australian universities. Of particular note is the “Technology Venture Creation” course (ELEC5701) taught within the engineering faculty at the University of Sydney. The course was created and is delivered by Bill Barte⁸⁸ and Matt Barrie.⁸⁹

Despite its high quality content and experienced teachers the University of Sydney is only able to offer the Technology Venture Creation course to 40 students per annum, largely because the course is delivered by volunteers with busy schedules. Demand significantly exceeds the 40 places the university is able to offer, as evidenced by the fact that a further 200 or so students typically sit in on open lectures provided as an adjunct to the course.

Further evidence of unmet demand can be seen in the growth of privately run courses for entrepreneurs such as the range of short courses on technology, business and design offered by General Assembly⁹⁰ in Sydney, including the free Massive Open Online Course (MOOC) entitled *Introduction to Startup Entrepreneurship* developed in collaboration with Google Australia and currently being taken by over 5,000 aspiring entrepreneurs.⁹¹

The federal government should mandate a minimum level of entrepreneurship education to be provided in Australian universities.

A high quality university entrepreneurship course would have the following attributes:

- Applied content supported by minimal theory
- Offered to students in all discipline areas with a particular focus on STEM
- Focus on high-growth companies as opposed to small business entrepreneurship / self-employment / intrapreneurship
- Experiential programs / placements for students within existing technology companies with which the university has built a relationship
- Delivered by experienced practitioners and entrepreneurs, not generalist business teachers or academics with no first-hand experience
- Augmented with experienced entrepreneurs as guest lecturers

⁸⁸ Serial entrepreneur, investor and StartupAUS board member

⁸⁹ Serial entrepreneur, currently CEO of Freelancer.com (ASX: FLN)

⁹⁰ <https://generalassemb.ly/sydney>

⁹¹ <http://course.introtostartups.com/faq>

In order to ensure universities are able to develop the necessary capabilities the government should offer funding support for the following activities in the form of competitive grants:

- Engaging Entrepreneurs-in-Residence within IT and engineering schools
- Entrepreneurship sabbaticals to give academic staff the opportunity to acquire first-hand practical experience by working with an existing high-growth company or launching their own
- Business plan / startup idea competitions
- Student entrepreneurship bootcamps and hackathons offered during orientation week and delivered by successful entrepreneur alumni

International benchmarks

US

The Stanford Technology Ventures Program⁹² is an entrepreneurship program run by Stanford University's School of Engineering specifically to equip students with the skills they need to become successful tech startup entrepreneurs.

Stanford also runs the Entrepreneurial Thought Leaders weekly lecture series in which the university invites successful entrepreneurs back to the university to share their experience with students, and the Entrepreneurship Corner which hosts a collection of 3,000 free videos and podcasts featuring entrepreneurship thought leaders.

Europe

The European Commission⁹³ recently committed A\$23 million to support development of entrepreneurship education programs to be delivered via accelerators, incubators and hubs and aimed primarily at university students.

Singapore

The National University of Singapore's Entrepreneurship Centre has provided experiential technology entrepreneurship education programs for students since 1999. The university also runs an annual intensive Entrepreneurship Summer Schools for foreign students, a New Venture Creation workshop for professionals in the workforce, a student accelerator program and the NUS Entrepreneurship Society. The Entrepreneurship Centre is financially supported by the Singapore Government.

Action 2.2 – Support a national network of student startup incubators

A student startup incubator is a program that provides education, mentoring and financial support to students who wish to create tech startups whilst, or immediately after, pursuing their studies.

Student incubator programs have several important objectives:

1. To raise the profile of entrepreneurship and to legitimise it as an activity that belongs within the university
2. To provide practical training and mentoring to aspiring entrepreneurs delivered by experienced entrepreneurs
3. To inspire students to pursue high-growth startup opportunities before they reach a stage in their lives where a startup is considered too risky.

⁹² <http://stvp.stanford.edu/about/>

⁹³ http://europa.eu/rapid/press-release_MEMO-13-1154_en.htm

The creation of successful businesses will be an occasional positive outcome, but is not the primary objective.

A small handful of Australian universities have launched student incubator programs in the last two years:

Incubator	No. of students supported to date
Incubate ⁹⁴ (University of Sydney since 2012; University of Adelaide, Curtin University and Bond University since 2014)	80
Melbourne Accelerator Program ⁹⁵ (University of Melbourne since 2012)	30
University of Newcastle Slingshot Accelerator Program ⁹⁶ (since 2014)	20
Venture Incubator Space ⁹⁷ (UNSW School of Computer Science and Engineering since 2012)	20

The 150 students who have taken part in these programs since they emerged in 2012 represent 0.01% of the 1.2 million students currently enrolled at Australian universities.⁹⁸

All of the above programs aim to engage a much wider student audience than the handful of companies in the formal incubator program. They do this through events, guest lectures and other outreach programs.

With support from the federal government it should be possible for every Australian university to host a student incubator program and for it to operate at a sufficient scale to impact the number and success rate of technology entrepreneurs among university students and graduates.

International benchmarks

US

Stanford University has a long history of encouraging and supporting student entrepreneurs, dating back to the formation of Hewlett Packard by Stanford graduates William Hewlett and David Packard in the 1940s with help from Stanford's then vice president and provost Frederick Terman.⁹⁹

In 2011 Stanford systematised their support for student startups by creating the StartX entrepreneurship education and accelerator program with an annual grant of \$1.2 million. Over 500 student entrepreneurs have already participated in the program¹⁰⁰ and 85 percent of the companies formed have attracted angel or VC funding within three months of joining.¹⁰¹

⁹⁴ <http://incubate.org.au>

⁹⁵ <http://map.eng.unimelb.edu.au>

⁹⁶ <http://www.slingshotters.com/uon-slingshot-program-announcement/>

⁹⁷ <http://www.cse.unsw.edu.au/engage-with-us/graduates-alumni/venture-space/>

⁹⁸ <http://www.universitiesaustralia.edu.au/resources/391/389>

⁹⁹ https://alumni.stanford.edu/get/page/magazine/article/?article_id=42103

¹⁰⁰ <http://startx.stanford.edu>

¹⁰¹ <http://techcrunch.com/2012/08/23/startx-the-accelerator-for-stanford-students-wins-800k-grant-from-the-kauffman-foundation/>

Action #3 – Increase the number of people with ICT skills

Capitalising on the digital economy will only be possible if Australia has the ICT skills with which to create products that can compete globally. The computerisation of many industries has also meant that demand for ICT skills is not limited to the ICT industry, but is increasing across a wide range of industries and occupations.

Australia is currently facing a significant skills shortage in the ICT sector, with demand for ICT workers having doubled over the period 1999 to 2012, whilst applications for tertiary ICT courses have dropped approximately 60% over the same period, as shown in the chart below produced by Group X.¹⁰²

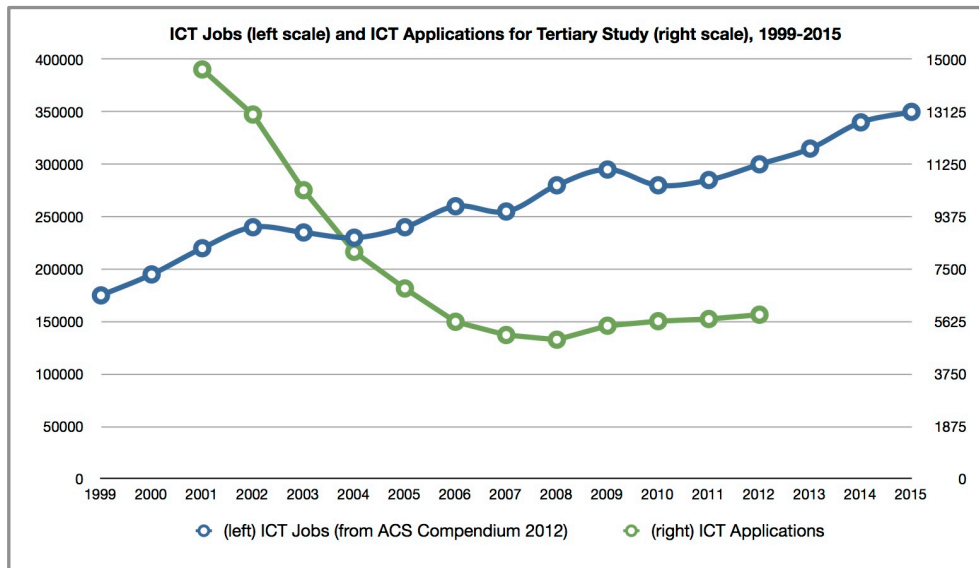


Figure 9: ICT jobs and ICT tertiary applications (1999-2015)¹⁰³

The Australian Computer Society has estimated that an additional 35,000 ICT professionals will be needed over the next three years,¹⁰⁴ which is three times the projected number of domestic ICT graduates from Australian universities over that period. At the same time data from the Department of Industry shows a decline in domestic ICT graduates of 52% between 2003 and 2010, with computer science majors currently representing just 2% of domestic graduates each year.

A similar trend is seen in enrolments in other Science, Technology, Engineering and Maths (STEM) disciplines, with Australia now near the bottom of the OECD in producing graduates in STEM disciplines.



"There is an absolutely incredible opportunity before us right now. I can't think of one industry that isn't rapidly turning into a software business. We're in the grips of a technology gold rush."

Matt Barrie – CEO, Freelancer Limited (ASX: FLN)

Many Australian universities have downsized ICT courses and reduced teaching staff numbers, with some not undertaking the curriculum development necessary to ensure relevant skills are being taught.

¹⁰² Group X is a collaboration between industry, educational institutions and government focused on raising awareness and interest in ICT careers and growing and diversifying the pool of tertiary students preparing for a career in the ICT industry. See <https://www.nicta.com.au/education/groupx>

¹⁰³ ACS Statistical Compendium 2012, DIISRTE Higher Education reports, analysis by Group-X

¹⁰⁴ <http://www.startupsmart.com.au/leadership/how-to-hire-staff/tech-start-ups-lament-labors-living-away-from-home-crackdown/201202135361.html>

One of the impacts of this atrophy has been that more than 70% of ICT students drop out and do not complete their studies. According to the Department of Industry, of the 16,000 students who commenced an IT degree in 2009, only 27% graduated in 2012.

Many countries are experiencing an ICT skills shortage, with a global shortfall of 1 million computer science graduates predicted by 2020.¹⁰⁵ The increasing mobility of the workforce means greater international competition to attract the most capable graduates. Of the 12,000 ICT graduates each year in Australia, 8,000 are overseas students.

Anecdotally there are a large number of entrepreneurs in Australia with viable business ideas but with no capacity to implement them in software. Whilst these entrepreneurs can succeed by contracting with providers of outsourced technical skills, they face great challenges compared to entrepreneurs with coding skills who can build the first iterations of their product at zero cost.

What is already happening?

A number of promising initiatives are underway in Australia, albeit at a small scale and with little co-ordination. For example:

- Google Australia and the University of Adelaide have collaborated to develop a free open online course¹⁰⁶ to support the implementation of the new national Digital Technologies Curriculum. The course, which launches in April 2014, will equip Australian primary school teachers with skills to help them effectively teach computer science and computational thinking under the new curriculum.
- Group-X is working to build the profile of IT as a career path, mainly focusing on children in secondary school. An important feature of their work is to promote computation thinking¹⁰⁷ as a valuable problem-solving skill with relevance to many non-computing disciplines.
- The Learnable for Schools program,¹⁰⁸ founded by Australian online learning startup learnable.com, last year donated \$10m worth of free computer science courses to enable 10,000 Australian school students to learn to develop websites, apps, and other software products.
- The National Computer Science School¹⁰⁹ is a summer school that delivers an intensive week of computer programming, web design and related activities for year 10 and 11 children. It is run by the University of Sydney and NICTA, and supported by the NSW government plus local technology companies including Freelancer, Atlassian and Google Australia.
- CoderDojo¹¹⁰ is a volunteer-led extra-curricular program that teaches children aged 5 and 17 how to create websites, apps, games and other computer programs. It was started in Ireland in 2011 and now has 200 registered dojos with 6,450 participants in 22 counties. CoderDojo was launched in Brisbane by Brisbane City Council in 2013¹¹¹ and is now operating in seven libraries across Brisbane.



"Australia is near the bottom of the OECD in educating students interested Science, Technology, Engineering and Maths (STEM). I'm concerned that Aussies kids are missing out on the huge opportunities created by the technology revolution. If we don't teach our kids the skills we need as a nation, we run the risk of being left behind."

Leni Mayo – Serial entrepreneur and investor

¹⁰⁵ <http://www.good.is/posts/google-engineer-says-vietnamese-11th-graders-know-enough-computer-science-to-pass-their-interview-process>

¹⁰⁶ <http://google-au.blogspot.com.au/2013/11/google-and-university-of-adelaide-team.html>

¹⁰⁷ a set of problem-solving skills and techniques employed by software engineers

¹⁰⁸ <https://learnable.com/student-press-release>

¹⁰⁹ <http://www.ncss.edu.au>

¹¹⁰ <http://coderdojo.com>

¹¹¹ <http://coderdojobrisbane.com.au>

Action 3.1 – Implement and extend the Digital Technologies Curriculum

The government recently committed to implementing a significantly updated Digital Technologies Curriculum which will be the nation's first coordinated effort to teach computer science in every primary and high school.

Currently the draft Digital Technologies Curriculum has computational thinking as a mandatory subject until year eight, and an elective for years 9 and 10.

StartupAUS recommends that the government formally adopt the updated Digital Technologies Curriculum as an immediate priority to allow for its effective and speedy implementation.

StartupAUS further advocates extending the Digital Technologies Curriculum to make computer science and computational thinking a mandatory component of the school curriculum starting in year one and running to year ten, and an elective subject in years 11 and 12.

This would make the curriculum consistent with trends in computer science education in countries such as the USA, the UK, New Zealand, the Netherlands and Vietnam, where it is a required subject in schools from kindergarten to year 10 or beyond.

In order to implement an extended Digital Technologies Curriculum it will be necessary to provide teacher training so that teachers are adequately prepared to deliver the content.

International benchmarks

Estonia

All publicly educated students now learn how to code starting in first grade and continue to age 16 in their final year of school.

Vietnam

Computer science education now begins in year four and continues as a mandatory subject through to final year of high school.

UK

From September 2014, coding will be a mandatory part of the school curriculum for all students aged 5-16 years old.¹¹²

Action 3.2 – Launch a national learn to code promotion program

Many countries have recognised the urgency with which they need to address the problem of declining computer science enrolments and have implemented programs to reverse the trend.

The federal government should make computer science education a national priority and launch a campaign to drive awareness of the value of computer science. It could do this in partnership with Group X, which is already active in raising computer science awareness in Australian schools.

Particular effort should go to engaging girls in high school, as girls currently comprise only 12% of university computer science students.¹¹³ This could be achieved in part by enlisting successful female IT entrepreneurs to act as role models and guest speakers.

¹¹² <http://yearofcode.org>

¹¹³ <http://code.org/stats>

International benchmarks

US

Code.org is a non-profit organisation launched in 2013 that aims to aggressively expand participation in computer science education by making it available in more schools, and increasing participation by women and minority groups. It is supported by a large number of major tech companies in the US, and has an advisory board comprising some of the world's most successful IT entrepreneurs. The "Hour Of Code" promotional campaign saw 20 million students and 35,000 teachers participate worldwide, and delivered online courses to 10,000 schools.

Code.org has raised donations of over \$10 million, and its promotional campaign was spearheaded by an address from President Barack Obama during US Computer Science Education Week.¹¹⁴

Action 3.3 – Implement a tertiary scholarships program to drive participation in CS education

A prestigious scholarship program would be an effective way to attract the brightest high school students to tertiary computer science education, and the best undergraduates to advanced postgraduate studies in computer science.

The Australian government already offers the prestigious Australian Postgraduate Awards (APA) scholarships¹¹⁵ administered by the Department of Industry for research students. An analogous tax-exempt scholarship program could be created for computer science studies and could readily be modelled on the APA program. It is highly likely that some of Australia's fast growing technology companies would support the program financially and by ensuring it is widely promoted.

The government could also provide HECS debt waivers for computer science students as a means of attracting more undergraduate enrolments.

Action 3.4 – Relax restrictions on 457 visas for startups

Australian tech startups that are growing rapidly are without exception unable to recruit enough skilled Australian ICT workers. This is currently a major impediment to growth in the Australian startup sector and is one of the reasons these companies rely heavily on recruiting from overseas.

Currently 19% of Atlassian's 320 Sydney-based staff are employed on 457 visas, a trend which is mirrored in other rapidly growing Australian startups.

Overseas ICT workers are not only helping Australian startups to bridge the skills gap, they are also providing much needed management and product development experience to Australian tech companies as they scale and begin to enter global markets. The ability to recruit alumni of large international tech companies such as Google, Apple, Microsoft and Amazon is especially valuable to the Australian tech sector as it can allow growing companies to fast-track the learning curve based on experience that does not yet exist within the Australian tech sector.

Currently the challenges associated with obtaining 457 visas are impeding efforts of Australian tech companies to recruit skilled ICT workers in both of the above categories.

StartupAUS acknowledges that the government is currently undertaking a review of the 457 skilled migration visa, and encourages the government to relax restrictions to the visa to enable Australian startups to employ sufficient skilled overseas ICT workers to meet the current skills shortfall.

¹¹⁴ <http://csedweek.org>

¹¹⁵ <http://www.innovation.gov.au/Research/ResearchBlockGrants/Pages/AustralianPostgraduateAwards.aspx>

The government would be right to take steps to ensure any changes are not abused by industries seeking to replace Australian workers with workers from lower cost-of-labour locations. StartupAUS believes that the use of an appropriate definition of a *tech startup* would assist greatly in achieving a fair outcome.



"Our businesses (99designs, flippa, sitepoint and learnable) compete with businesses in the US and Europe. We are in a global race for talent. As we're based in the "most livable city in the world" we are often contacted by superbly talented people in the US and Europe who want to move to Melbourne to combine a great lifestyle and entrepreneurial success. I wish it were easier to bring them out."

Leni Mayo – Serial entrepreneur and investor

Action 3.5 – Ensure foreign workers in Australian startups can access the Living Away From Home Allowance

Australia has a relatively high cost of living that is currently acting as a disincentive for foreign ICT professionals to accept offers of employment with Australian startups. Relaxing the 457 visa requirements should be accompanied by a re-introduction of the Living Away From Home Allowance. The LAFHA program was widely available to overseas workers until the previous government significantly tightened the program in February 2012,¹¹⁶ making it effectively inaccessible for startups. The LAFHA program was a valuable and relatively low cost means of defraying some of the living costs of foreign workers and ensuring Australian startups were able to attract the highest calibre workers.

Changes to the LAFHA program were reportedly made in response to rorting of the system in some sectors. StartupAUS believes that the response was too heavy-handed and an acceptable outcome could be achieved by reviewing the program to ensure it operates to the benefit of startups without being open to abuse by sectors which are not experiencing a market failure.

¹¹⁶ <http://www.lafha.com.au/EmployersOld.aspx>

Action #4 – Improve access to startup expertise

The best people to advise first-time entrepreneurs are those who have first hand experience in starting, growing and exiting a startup at least once before.



"Startups beget startups. People who work for startups start their own. People who get rich from startups fund new ones. I suspect this kind of organic growth is the only way to produce a startup hub, because it's the only way to grow the expertise you need."

Paul Graham – Founder, Y Combinator¹¹⁷

Unfortunately the current lack of experienced startup entrepreneurs in Australia is a chicken-and-egg problem that is limiting growth in the sector. Our ability to create startups that succeed on a global scale is heavily dependent on having experienced mentors, investors and advisors who have first-hand experience in taking tech companies global. However we will only have a cohort of such skills when we have grown the tech startup sector to a point where it spawns successful exits that enable successful entrepreneurs to be recycled back into the ecosystem. As noted earlier, the creation of unicorns has been a major factor in developing this capability in other countries.

We have a small cadre of entrepreneurs in Australia with global experience. Those individuals are in huge demand and generally give their time extremely generously. However, most incubator and accelerator programs in Australia are lacking this sort of expertise and are therefore limited in the quality and quantity of support they can provide to entrepreneurs.

A small number of accelerator programs such as Startmate in Sydney and the ANZ Innovyz Accelerator in Adelaide have sought to address the lack of local startup expertise by basing their mentoring programs largely on experienced entrepreneurs from outside Australia – in the case of Innovyz by flying them in, and in the case of Startmate by taking the entire cohort of startups to Silicon Valley for two months.

Sydney and Melbourne's startup ecosystems have developed more than any other Australian city, but would still benefit from the injection of outside expertise. All other capital cities are significantly below critical mass of startup expertise, and artificially introducing startup expertise for a period of time would greatly increase the speed at which those ecosystems develop.



"We seem to be in the middle of a startup revolution in Australia. But if we don't put an equal focus on growing the startups, we'll have a lot of failed companies and "startup fatigue". Starting is not difficult, but growing a company is hard work, and the best teachers and mentors are those who have done it themselves."

Jana Matthews – Program Director, ANZ Innovyz Accelerator and board member, StartupAUS

Action 4.1 – Implement a national Visiting Entrepreneurs Program

The pool of experienced entrepreneurs in Australia will continue to grow organically over time, and will eventually reach a point where there is sufficient expertise to guide new entrepreneurs. However, if Australia is to accelerate the growth of its startup sector it will be necessary to introduce some of this expertise to short-circuit the learning curve.

StartupAUS encourages the government to create a national Visiting Entrepreneurs Program in which a series of experienced entrepreneurs, angel / VC investors and startup advisors can be brought to Australia for periods of time to work with all parts of the startup ecosystem to accelerate its maturation.

¹¹⁷ <http://www.paulgraham.com/siliconvalley.html>

The role of the visiting entrepreneurs would be to:

- Advise incubators, accelerators and other parts of the startup ecosystem to ensure they are operating in line with international best practice and to help them broaden their international connections
- Work with angel investment groups to help them grow and professionalise their activities and to improve the profile of angel investing and attract more investors
- Provide coaching and mentoring to entrepreneurs
- Evangelise entrepreneurship as a career path by giving public lectures and talks to university students

A pilot Visiting Entrepreneurs program was launched in Brisbane by the city's economic development agency Brisbane Marketing¹¹⁸ in 2013. Similarly, Curtin University in Perth has engaged Bill Tai, a successful Silicon Valley entrepreneur and investor, as a visiting Innovator In Residence.



"The Brisbane City Council funded Visiting Entrepreneurs Program has been a huge success. With just three visits so far it has lit the innovative imaginations of startup founders, investors and government, and serves to greatly embolden the Brisbane startup scene. Australia needs more of this."

Steve Baxter – Founder & Managing Director, River City Labs and board member, StartupAUS

The expansion of such programs nationally would be a key factor in accelerating the growth of the sector, and would achieve economies of scale by having visiting entrepreneurs spend time in multiple Australia cities.

International benchmarks

New Zealand

The New Zealand Government launched a highly successful visiting entrepreneur initiative in 2010 by engaging an experienced US entrepreneur and angel investor, Bill Payne, for a five month visit.

According to Franceska Banga, CEO of the New Zealand Venture Investment Fund, "The New Zealand entrepreneurial ecosystem, including Universities, Incubators, Seed Funds, Angel Networks and the entrepreneurs are five years ahead of where they would have been after Bill's visit."

According to Phil McCaw, Chairman of the Angel Association of New Zealand, "Bill has been helping the development of the NZ Angel scene extensively. During his stay he had a dramatic impact on raising the profile of angel investment, assisting angels groups and providing one-on-one mentoring to a huge number of NZ entrepreneurs."

Stockholm, Sweden

Stockholm's local government engaged startup ecosystem specialist Tyler Crowley (who was also Brisbane's first visiting entrepreneur under the program of that name) for a 12 month period to reside in the city and help to develop the local startup ecosystem.

"I am extremely pleased with the impact we have achieved by having Tyler Crowley work with us in the Stockholm startup community over the last year. Stockholm already had a significant number of startups including several notable successes, but we lacked a clear direction. By sharing with us some of the crucial factors in the growth of ecosystems such as Los Angeles and London, Tyler has enabled us to accelerate the maturation of our startup ecosystem to the point where it can be an important driver of economic growth." - Torbjörn Bengtsson - Project Manager, Stockholm Business Region

¹¹⁸ <http://www.startupsmart.com.au/growth/tyler-crowley-returns-to-oz-as-brisbanes-first-visiting-entrepreneur/201304189506.html>

Action 4.2 – Remove disincentives for experienced Australian entrepreneurs to repatriate

A growing cohort of Australians are acquiring first-hand knowledge of how to build a global technology company in the US and elsewhere. As this pool of expertise grows over time, some of these Australian entrepreneurs might be encouraged to return to Australia and engage in the local startup ecosystem as founders, advisors or investors in Australian startups.

However, there are significant tax disincentives for successful Australian entrepreneurs to repatriate. The current capital gains tax treatment of assets held by Australians living overseas encourages non-residents not to hold Australian assets, and to sell assets with significant capital gains while they are still overseas. A 50% capital gains tax deduction was in place until its removal by the previous government in May 2012.

StartupAUS encourages the government to review the tax treatment of entrepreneurs repatriating to Australia and ensure that as far as possible any disincentives are removed.

Action 4.3 - Create a national network of Entrepreneurship Centres

Unlike many countries, Australia has no centrally supported system of startup incubators. There are around 20 tech startup incubators, accelerators and startup co-working spaces in Australia that in aggregate provide support to around 200 tech startups per annum¹¹⁹.

The operating models for these programs are varied, and most rely on financial support from a combination of state government, corporates, universities, local governments, philanthropy, and membership fees. Accelerators, being a relatively new addition to the landscape, are generally privately funded by investors and entrepreneurs, and take an equity stake in each of the companies they support in return for expertise and a small cash investment.

The economic impact of startup incubators is clear: In the US for every dollar of public investment in incubators an additional thirty dollars in tax revenue is generated, and 87% of incubator graduates stay in business. For every \$10,000 of government funding invested in incubator programs an additional 58 local jobs are generated, which is 20 times the job creation rate of infrastructure projects.¹²⁰

Given the relative immaturity of the startup sector in Australia, StartupAUS believes the role of incubators needs to be expanded to encompass entrepreneurship education and training, and to act as a central hub for some of the initiatives set out in this paper. Such a program would be more aptly described as an entrepreneurship centre.

StartupAUS calls on the federal government to establish a national network of Entrepreneurship Centres (one in each capital city) to act as a focal point for startup-related activities and events.

A national network of Entrepreneurship Centres would provide:

- An environment in which startup founders can learn from other entrepreneurs
- Entrepreneurship training and mentoring, including hosting Visiting Entrepreneurs
- Ideation clinics to encourage aspiring entrepreneurs to develop startup ideas
- A base from which university student incubator and entrepreneurship training programs could operate
- A location from which angel groups could hold pitching events and deal screening meetings, and an office from which these groups could operate

¹¹⁹ Some have a broader focus than tech startups and also support digital small businesses

¹²⁰ http://www.nbia.org/resource_library/works/index.php

- A location from which economic development professionals such as Commercialisation Australia case managers could work and engage directly with entrepreneurs
- A venue for startup-related events such as hackathons, ideas competitions and demo days
- A base for extra-curricular learn-to-code programs such as the proposed national roll-out of CoderDojo
- Dedicated streams to support indigenous startups and social ventures
- Opportunities for engagement with universities to facilitate student internships, augment the university's technology commercialisation capabilities and foster interactions with academics with an interest in entrepreneurship

Several entrepreneurship and incubator programs with some of the above attributes exist or are in development. For example:

- **ATP Innovations**¹²¹

ATP Innovations is widely regarded as Australia's leading startup incubator. It is currently supported by the New South Wales government which provides 6,500m² of high quality incubator space in the Australian Technology Park under a long term peppercorn lease arrangement.

It provides mentoring and advice to entrepreneurs in a wide range of disciplines, and acts as a base for accelerator programs, angel investment groups and numerous startup networking and training events.

ATPI is supported by four universities¹²² to which it provides incubation services, and is staffed by a highly skilled team with experience in working with over 80 startup companies.

- **New Venture Institute**^{123,124} - Flinders University, Adelaide

The NVI is a collaboration between the Flinders University Business School and the University's commercialisation arm, Flinders Partners.

It has a stated objective of promoting entrepreneurship and supporting high-growth businesses to create economic impact in South Australia by externally focusing the resources of Flinders University.

Services include a co-working space for startups, entrepreneurship education, mentoring and innovation management consulting services to industry.

It also runs a student internship program that places students with startups as interns to boost exposure of students to entrepreneurship as a career option.

From 2015 it will be housed in a 2,000m² facility as part of the planned Tonsley Park Innovation Precinct.

- **iAccelerate**¹²⁵ - University of Wollongong

An entrepreneurship training and incubator program for students and staff at the university. It provides free workshops, events, mentoring, seed funding and a student entrepreneurship club.

¹²¹ <http://atp-innovations.com.au>

¹²² UNSW, University of Sydney, UTS and ANU

¹²³ <http://nviflinders.com.au>

¹²⁴ <http://www.startupsmart.com.au/growth/business-advice-and-education/flinders-university-launches-program-to-connect-students-with-entrepreneur-opportunities/2013091810745.html>

¹²⁵ <http://www.iaccelerate.com.au/about>

International benchmarks

New Zealand

The New Zealand Incubator Support Program is a national network of eleven startup incubators established by the New Zealand government in 2001 and now administered by Callaghan Innovation (the country's national innovation agency).

The New Zealand government recently announced an extension of the program with grants to support a further cohort of tech startup incubators and funding for startups via repayable grants of up to A\$420,000 per company.^{126,127}

The latest addition to New Zealand's incubator programs is the Wynyard Quarter Innovation Precinct, a 48,000m² facility being built on the waterfront in Auckland with funding from the New Zealand government and City of Auckland. When completed, the precinct will house and support a wide range of technology-based businesses ranging from tech startups to international technology companies, venture capital firms and angel investors. The precinct will also act as a hub for entrepreneurship education to foster the next wave of Auckland's budding entrepreneurs.

In announcing the precinct, Auckland's Mayor Len Brown said *"Innovation is key to Auckland and New Zealand's future. The innovation precinct at Wynyard Quarter will support the region's thriving ICT and digital media sectors, and attract international attention. The precinct will generate jobs and encourage rapid economic growth."*

Sweden

Sweden (population 9.5 million) has a national network of 43 startup incubators, 12 seed investment funds and 33 science parks that have been supported by the Swedish Government and regional economic development agencies for the last twenty years.¹²⁸

The government-funded startup incubators together support 950 high-growth technology companies per annum, of which approximately 150 attract venture capital investment.

The tax revenues generated from companies that have been supported by the incubators now exceed the cost of running the program by a factor of ten.¹²⁹

Ireland

Enterprise Ireland directly funds a network of 30 startup incubators,¹³⁰ all of which are located on the campus of one of the country's universities. The incubators accept applications from startups whether or not connected with the host university, and aim to stimulate collaboration between academia and startups as well as to support commercialisation of university-generated IP.

The network of Irish incubators currently supports over 200 companies employing over 1,000 people.¹³¹

¹²⁶ <http://www.callaghaninnovation.govt.nz/what-we-do/funding-and-grants/incubators>

¹²⁷ <http://www.nzte.govt.nz/en/how-nzte-can-help/programmes-and-services/incubator-support-programme/>

¹²⁸ <http://www.sisp.se/about-sisp?language=en>

¹²⁹ <http://www.slideshare.net/OECDLEED/lundin-swedish-incubators-and-science-parkspolish-ministry-of-econom>

¹³⁰ <http://www.enterprise-ireland.com/en/Researchers/Spin-Outs/Start-Up-Incubation-Space.html>

¹³¹ <http://www.enterprise-ireland.com/en/Researchers/Spin-Outs/Start-Up-Incubation-Space.html>

Israel

In 1991 the Israeli government established the Technological Incubators Program,¹³² administrated by the Office of the Chief Scientist in the Ministry of Economy. Israel currently has 22 incubators which together support approximately 180 companies in various stages of development at any given time.

Each company receives between A\$550,000 and A\$880,000 in government funding via a grant repayable as a royalty on sales.

The government effectively acts as a co-founder and seed investor, having so far helped launch 1,700 companies with cumulative government investment of over A\$760 million. Of these graduates, 60% have successfully attracted private investment, with total private investment in graduated incubator companies now exceeding A\$3.9 billion (a five times multiplier on government funds).

The Israeli government invests A\$50 million per annum in the program, equating to 85% of the incubators' budgets.

As a direct consequence of the Israeli government's focus on the tech sector, the internet economy now contributes 6.4 percent of Israel's GDP.¹³³ In the decade to 2012, 772 Israeli startups were acquired for a total of A\$46 billion, and the third quarter of 2013 saw 162 companies raise A\$725 million in private capital.¹³⁴

Singapore

The Technology Incubation Scheme is a network of fourteen tech startup incubators established by the Singapore government in 2008 and modelled on Israel's Technological Incubators Program.^{135,136}

Companies in the incubator network are able to access co-funding investments from the government of up to A\$550,000 (on an 85:15 ratio) on recommendation from the Technology Incubator.¹³⁷

Singapore's national entrepreneurship centre of excellence is the Entrepreneurship Centre at the National University of Singapore. It provides a comprehensive suite of entrepreneurship education, support and investment in spinouts and incorporates a A\$4.5 million seed fund.

US

Startup incubators have been prevalent in the US for over 50 years, with 1,400 currently in operation. Each year US incubators support more than 27,000 startups which employ 100,000 workers and generate revenue of more than \$17 billion. 94% of US incubators are not-for-profit entities and receive 52% of their funding from government and economic development agencies, with a further 20% from universities.¹³⁸

¹³² <http://www.incubators.org.il/category.aspx?id=606>

¹³³ <http://www.freerangefarm.co.nz/accelerating-nzs-startup-ecosystem/>

¹³⁴ <http://www.forbes.com/sites/gilpress/2013/11/04/start-up-nation-news-israeli-startups-acquired-and-funded-in-october/>

¹³⁵ <http://www.techinasia.com/singapore-nrf-chief-hints-at-changes-in-store-for-technology-incubation-scheme/>

¹³⁶ <http://bit.ly/1mqID55>

¹³⁷ <http://www.nrf.gov.sg/innovation-enterprise/technology-incubation-scheme>

¹³⁸ http://www.infodev.org/infodev-files/resource/InfodevDocuments_896.pdf

India

Since 1982 the Indian government has been building a national network of tech startup incubators via the National Science & Technology Entrepreneurship Development Board.¹³⁹ It now has 120 startup incubators operating across the country.¹⁴⁰

The incubator program has the stated objective of promoting knowledge-based and innovation-driven enterprises in India. As well as supporting tech startups, the incubators provide comprehensive entrepreneurship education and awareness raising through hackathons and startup bootcamps.

China

The Chinese government began establishing tech startup incubators in 1987 under the Ministry of Science and Technology's Torch Program,¹⁴¹ the world's largest government program to support technology entrepreneurship.

China now has 1,034 startup incubators that together support around 60,000 startups. By 2015 China is predicted to have 1,500 incubators supporting more than 100,000 tech startups.¹⁴²

Companies that have graduated from China's startup incubators include Huawei and Suntech Power.

UK

Tech City¹⁴³ is a technology precinct located in the Shoreditch area of East London. Established by the UK government in 2010, Tech City was based on an existing cluster of 15-20 technology companies around the Old Street Roundabout. The area has grown into a major European startup hub, with over 5,000 technology companies currently located in the area.

Tech City has attracted a number of large tech companies including a major Google campus which has become a focal point for the startup local community. Between 2009 and 2012 the number of technology companies in London grew by 76% between 2009 and 2012, representing 27% of all job growth. Approximately 582,000 people are now employed in the tech sector in London.

British Prime Minister David Cameron launched Tech City in November 2010, saying *"As part of our strategy for growth, we've made a really important decision. We're not just going to back the big businesses of today, we're going to back the big businesses of tomorrow. We are firmly on the side of the high-growth, highly innovative companies of the future. [This is] our vision for East London Tech City."*

In December 2013, David Cameron announced continued support for Tech City, noting that he is *"determined to make the UK the best place in the world to start and grow a company". He added that "Tech City serves not only as an example of how a city can be transformed into an engine for growth and innovation, but is also a blueprint for fostering growth that has been recognised globally."*



"The first thing you notice as a startup in the UK is that you feel wanted. Not only are there amazing incentives for seed investment, the government attitude to startups and immigration makes the UK an obvious European startup hub."

Chris Kettle – Founder & CEO, Hungry Hero Pty Ltd

¹³⁹ <http://www.nstedb.com/institutional/tbi-center.htm>

¹⁴⁰ http://www.ieri.org.za/sites/default/files/outputs/IERI_WP_2010_005.pdf

¹⁴¹ <http://steveblank.com/2013/04/11/chinas-torch-program-the-glow-that-can-light-the-world-part-2-of-5/>

¹⁴² http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1972791

¹⁴³ http://en.wikipedia.org/wiki/East_London_Tech_City

Action #5 – Increase availability of early stage capital to startups

In the US, high-growth venture capital-backed companies, of which there are 24,000, account for 21% of GDP (\$3.1 trillion in revenue) and 11% of private sector employment (12 million jobs).¹⁴⁴ In Israel, 70% of economic growth has been attributed to high-growth, venture capital-backed technology companies.¹⁴⁵ The US and Israel are two examples of countries that have embarked on a deliberate and sustained effort to develop a knowledge economy with a particular focus on companies that can grow rapidly using external capital.

In contrast, Australian VC-backed firms (of which there are around 500 in total) generate only 0.01% of GDP.¹⁴⁶

Notwithstanding the paucity of venture capital in Australia, it has been recognised¹⁴⁷ that:

- For every dollar of assets owned, VC-backed companies innovate at a much greater rate than other companies
- VC-backed firms are responsible for 10% of all business R&D expenditure in Australia
- VC-backed companies spend on average 200x more on R&D per employee than other businesses; and
- VC-backed companies are IPO-ready in half the time needed by non-VC-backed companies

A profound lack of early stage capital for startups in Australia is one of the clearest market failures in the Australian startup ecosystem. As a nation Australia is significantly below many other developed countries in terms of deployment of early stage capital, despite having the world's fourth largest pool of superannuation funds under management at \$1.4 trillion.¹⁴⁸

A lack of early stage capital has a direct impact on the rate of formation of startups, since aspiring startup founders are acutely aware of the challenges associated with raising capital in Australia, and also on the success of those startups that are formed.

Angel investment

Before considering access to venture capital, it is important to discuss the availability of angel investment,¹⁴⁹ since most startups need to raise an angel round before they are ready to raise venture capital. Australia needs a healthy angel sector if companies are going to progress to a point where they can raise VC funding.

In 2012 there were 10 angel investor groups active in Australia that collectively invested \$22m in 40 startup investments.¹⁵⁰ In contrast, angel investors in the US committed US\$20 billion in angel deals in 2012 across 60,000 investments.^{151,152}

A more meaningful comparison can be made by looking at angel dollars invested per capita of population, as shown in the following chart.

¹⁴⁴ www.nvca.org

¹⁴⁵ http://www.city-journal.org/2009/19_3_jewish-capitalism.html

¹⁴⁶ <http://cch.practicesource.com/blog/category/venture-capital/>

¹⁴⁷ <http://www.avcal.com.au/documents/item/610>

¹⁴⁸ <http://www.theaustralian.com.au/business/wealth/apra-says-total-superannuation-pool-worth-14-trillion-at-june-3/story-e6frgac6-1226550483075#mm-premium>

¹⁴⁹ Investment in startups by high net worth individuals investing their own funds, typically \$100k to \$500k (as opposed to VC in which a fund manager invests funds placed by institutional investors such as superannuation funds – typically \$2-10m).

¹⁵⁰ <http://www.startupsmart.com.au/growth/what-does-an-australian-start-up-need-to-get-investment-nicta-new-ventures-director-crunches-the-numbers/2013121911406.html>

¹⁵¹ <http://www.startupsmart.com.au/financing-a-business/venture-capital/spreets-founder-dean-mcevoy-says-australia-needs-to-get-better-at-angel-investment/2014010911458.html>

¹⁵² <http://www.bancat.com/wp-content/uploads/2013/05/Halo-report-2012.pdf>

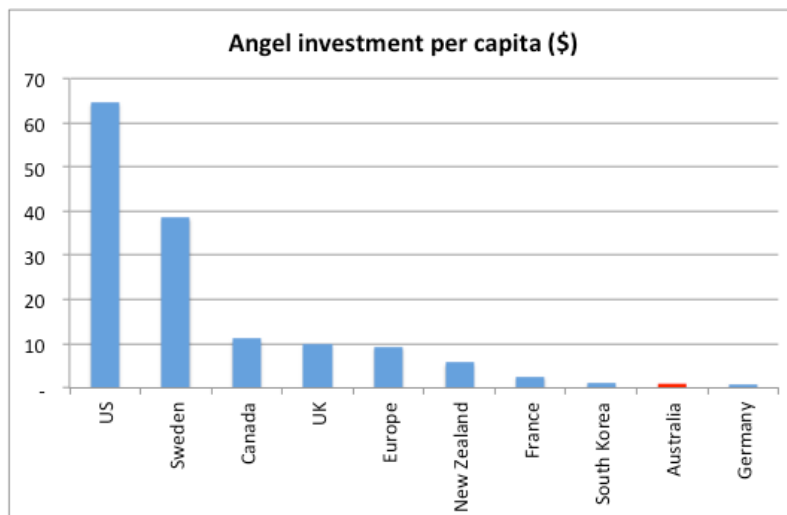


Figure 10: Angel Investment per capita – selected countries¹⁵³

On a per capita basis the US leads the world with angel investment of US\$64 per capita, followed by Sweden (US\$39), Canada (US\$11) and the UK (US\$10). Australia has one of the lowest rates of angel investment in the developed world at US\$0.95 per capita.

Notably, New Zealand has approximately six times Australia's level of angel investment (US\$5.70 per capita), due largely to sustained (and increasing) investment by the New Zealand government in creating an environment conducive to tech startups, including creation of a A\$37 million seed co-investment fund aimed specifically at simulating greater levels of angel investment.

Similar observations can be made about the number of active angel investors in Australia versus other countries. Australia only has around 300 active angel investors (or 14 angels per million of population) compared to 258,000 angels in the US (or 832 per million of population), Sweden (105 per million) and New Zealand (91 per million), as shown in the following chart.

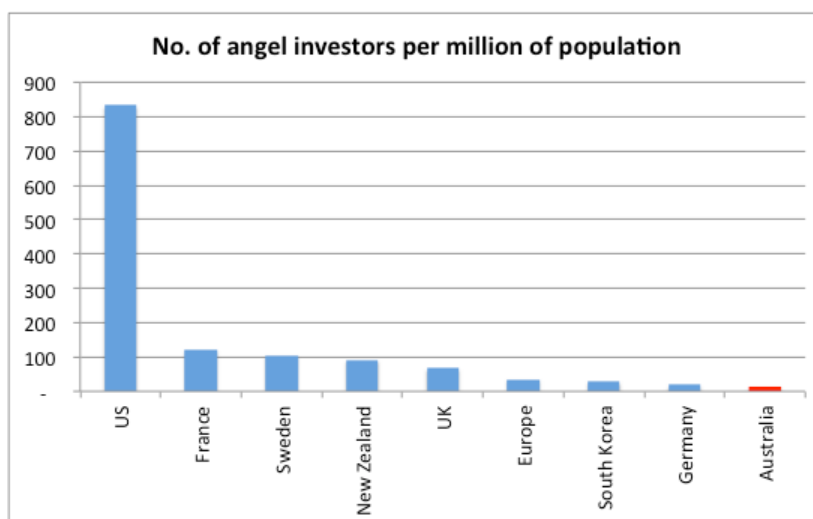


Figure 11: Number of angel investors per capita – selected countries¹⁵⁴

The demographic profile of Australian angels is also conspicuously lacking female investors, with women estimated to represent less than 2% of all angel investors in Australia.¹⁵⁵

¹⁵³ Sources: NACO, EBAN, HALO Report, besuccess, Andrew Stead, AAAI members

¹⁵⁴ Sources: NACO, EBAN, HALO Report, besuccess, Andrew Stead, AAAI members, Angel Resource Institute, Angel Capital Association, Angel Investment Network

¹⁵⁵ http://boss.blogs.nytimes.com/2014/02/12/leaning-in-can-be-uncomfortable/?_php=true&_type=blogs&_r=0

Australia is not lacking wealthy individuals, with the country's wealthiest 207,000 people holding a combined \$684 billion worth of assets¹⁵⁶.



"As a nation Australia is more than capable of taking investment risks - as evidenced by our predisposition to backing mining and exploration stocks. What's needed is to expose investors to the opportunities in the tech startup space and to unlock capital that would otherwise be deployed in other asset classes."

Alan Jones - Chief Growth Hacker, Blue Chilli

Notwithstanding Australia's low rate of angel investment, it has been shown that angel investing can be a source of superior investor returns. A large scale study undertaken by the Kauffman Foundation and NESTA¹⁵⁷ found that angel investors in the US and UK generated an average return of 2.5 times the amount invested in a mean time of four years from investment to exit, equating to a very healthy 26% internal rate of return.

The study incorporated data from 539 individual investors in 86 angel groups over a 15 year timeframe, and included 1,200 exits.

Venture Capital investment

Australia has one of the lowest rates of VC investment into startups in the developed world.

In 2013 Australian venture capital funds invested \$79 million across 97 seed, startup and other early stage deals.^{158,159} This rate of venture capital activity places Australia 21st in the world in availability of venture capital according to the 2012 World Economic Forum Global Competitiveness Report.¹⁶⁰

A more meaningful comparison can again be made on a per capita basis. As can be seen in the chart below, VC investment in startups in Australia is currently US\$4.70 per capita per annum, compared to US\$170 in Israel, US\$85 in the United States, US\$20 in South Korea, US\$15 in the UK and \$5 in New Zealand.

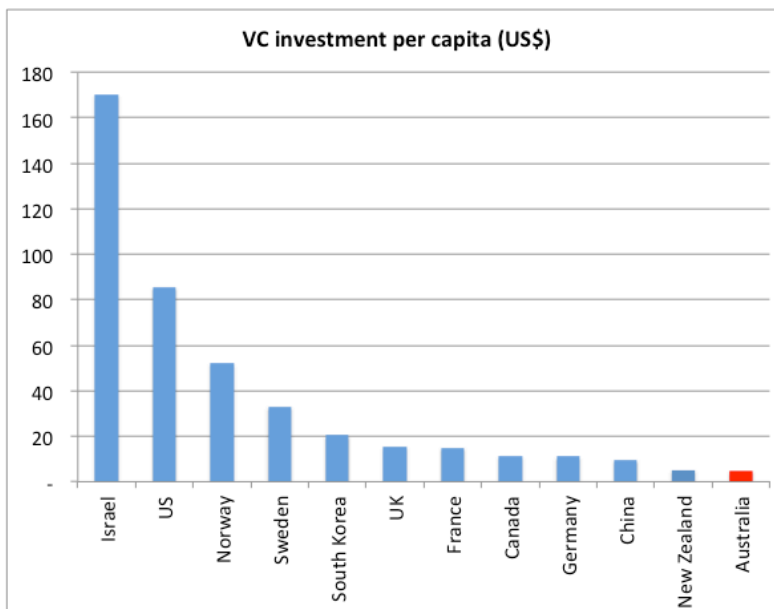


Figure 12: VC investment per capita (2012) – selected countries¹⁶¹

¹⁵⁶ <http://www.smh.com.au/small-business/finance/artesian-launches-venturecrowd-20131212-2z77n.html>

¹⁵⁷ <http://techcrunch.com/2012/10/13/angel-investors-make-2-5x-returns-overall/>

¹⁵⁸ <http://www.startupsmart.com.au/growth/what-does-an-australian-start-up-need-to-get-investment-nicta-new-ventures-director-crunches-the-numbers/2013121911406.html>

¹⁵⁹ AVCAL 2013 Yearbook

¹⁶⁰ <http://reports.weforum.org/global-competitiveness-report-2012-2013/>

¹⁶¹ Sources: The Economist, Reuters, AVCAL, US National Venture Capital Association, European Private Equity and Venture Capital Association, Israel Venture Capital Research Centre, NZVCA, UN

The recent Deloitte / Pollenizer Startup Genome study¹⁶² found that US companies are raising 4.8 times more capital in the early stages of growth than their counterparts in Australia, and 100 times more when they are ready to scale their operations.

It has been observed with some concern that on one day of the year Australians bet more on the Melbourne Cup (\$200m in total or \$9 per capita) than the entire Australian venture capital industry invests in startups in a year. Even more alarmingly, the amount gambled by Australians on poker machines each year is \$10.2 billion, or 130 times the national VC investment in startups.¹⁶³

Not only is Australia's VC industry faring poorly, it has been on a steady decline for the last decade, currently having fewer active VC fund managers than at any time in the last ten years.

Australia has the world's fourth largest pool of superannuation funds at \$1.4 trillion. However, only 0.006% of our superannuation funds are invested in local venture capital. In contrast, US pension funds commit around 2% of funds under management to this asset class, representing a 350 times multiple relative to Australia.

What is already happening?

Angel investment

Currently the federal government has no programs aimed at addressing the shortage of angel investment in Australia.

A number of private sector initiatives have recently started to tackle the recruitment and education of angel investors (eg. AngelEd¹⁶⁴ and Angel Education Australia¹⁶⁵), and also to address the gender imbalance among angel investors (eg. Scale Investors,¹⁶⁶ a female-focused angel investor network based in Melbourne).

Venture Capital

The government first identified a lack of venture capital as a market failure in Australia in 1997, and sought to address this with the introduction of the Innovation Investment Fund (IIF), a matching fund to stimulate the creation of domestic venture capital funds.

Over the past decade the IIF program has invested more than \$300 million in Australian VC funds. The government currently has a commitment of \$350m in further funding for the IIF program, or \$25m a year over the next 14 years.

Despite playing an important role in catalysing the creation of new venture capital funds, the IIF program has clearly been unsuccessful in growing a healthy venture capital industry in Australia. According to AVCAL, of the 37 venture capital funds created in Australia between 1985 and 2007, the average rate of return was -5.4%, with an upper quartile return of only 3.3%.¹⁶⁷ It is therefore hardly surprising that superannuation fund managers have been reluctant to consider allocations to venture capital as an asset class.

Worryingly, of the three funds that were offered IIF licences in the latest round (2013), all have struggled to raise matching funds and one (GBS Venture Partners) declined the government's offer of \$30m in matched funding on the basis that it was not sufficient to establish a viable fund.

¹⁶² Deloitte – "Silicon Beach: A Study of the Australian Startup Ecosystem", Nov 2012

¹⁶³ <http://www.australiangambling.com.au/online-pokies/revenue/>

¹⁶⁴ <http://www.smh.com.au/small-business/smallbiz-experts/blogs/ask-our-experts/how-do-you-find-startup-investors-20131105-2wyav.html>

¹⁶⁵ <http://aaai.net.au/education/>

¹⁶⁶ <http://scaleinvestors.com.au>

¹⁶⁷ <http://startup88.com/vcadvisors/2013/11/18/australian-venture-capital-can-we-escape-from-past-failures-ian-maxwell/1441>

As identified in a recent submission by Yasser El-Ansary, CEO of the Australian Private Equity and Venture Capital Association (AVCAL), “This year’s federal budget will provide the government with its first comprehensive opportunity to rebuild Australia’s reputation as having a stable policy environment in which to engage in business, and to position our economy as a ‘knowledge nation’ that is capable of delivering world-class ideas and innovations.”¹⁶⁸

StartupAUS echoes AVCAL’s sentiments and strongly urges the government to ensure there are no cuts to the \$350 million currently committed to the IIF program.

Action 5.1 – Continue the Innovation Investment Fund program

Development of a healthy Australian venture capital industry is vital to the success of the country’s startup sector.

StartupAUS encourages the government to continue its funding commitment to the IIF program, but to undertake a comprehensive review of the program’s operations to ensure it develops and supports a world-class cohort of VC fund managers, allocates capital to the most deserving funds, adopts a transparent decision-making process and effectively deploys funds to stimulate a vibrant VC industry in Australia.

Action 5.2 – Establish a seed co-investment fund

The two most common approaches taken by governments around the world to stimulate angel investment are co-investment funding (where the government invests alongside angel investors) and tax incentives for angel investment in high growth companies.

The Australian government could stimulate greater levels of angel investment by matching private capital with funding from a seed-stage co-investment fund. Returns from investments could in time make the fund self-sustaining.

Such a fund should be based on successful international models such as the New Zealand Seed Co-Investment Fund, which in turn is based on the Scottish Co-investment Fund.

International benchmarks

Scotland

The Scottish Co-Investment Fund¹⁶⁹ is a A\$135 million stimulus package that invests *pari passu* alongside angel investors on a 1:1 basis. It is managed by Scottish Enterprise on behalf of the government.

The fund invests between A\$185,000 and A\$1.9 million per company. A total of 230 companies have been funded to date with an average leverage of 2.4 (ie. each dollar of government investment has triggered \$2.40 of private investment).¹⁷⁰

New Zealand

The New Zealand Seed Co-Investment Fund¹⁷¹ is a A\$37m early stage direct investment fund established by the New Zealand government in 2006.

It provides matched investment alongside approved angel groups on a 1:1 basis into high growth New Zealand startups. So far it has made 108 investments and unlocked A\$110m of angel capital.

¹⁶⁸ <http://www.startupsmart.com.au/financing-a-business/venture-capital-calls-on-fed-government-to-commit-350-million-to-support-start-up-investment/2014013111606.html>

¹⁶⁹ <http://www.hie.co.uk/business-support/funding/scottish-investment-bank/scottish-co-investment-fund.html>

¹⁷⁰ <http://www.scottish-enterprise.com/~media/SE/Resources/Documents/GHI/Investments-annual-review-2011-12.pdf>

¹⁷¹ <http://www.nzvif.co.nz/seed-co-investment-overview.html>

Approximately 100 angel investments were made in startups in New Zealand in 2012, compared to around 40 in Australia. The growth in angel investment activity in New Zealand has been largely attributed to the SCIF combined with other initiatives that in parallel have increased the number and quality of investable startups.

UK

The UK Angel CoFund is a A\$185 million early stage matching fund established in 2011 by the British Business Bank (a state-backed economic development bank) with the dual objectives of supporting promising businesses and helping to develop the UK business angel market.

The fund invests between A\$185,000 and A\$1.9 million alongside angel investors. So far it has invested A\$26 million in 38 companies alongside a further A\$93 million from private investors.

Netherlands

The TechnoPartners Seed Facility is a government co-investment program that provides loan funding to startups to match private investment dollar-for-dollar, up to a maximum of A\$6 million. The loan is repayable only once the company is generating revenues. The program has a budget of A\$40m per annum.¹⁷²

Israel

Israeli start-ups that graduate from any of the country's 22 government-supported incubators are eligible for government funding on a five to one basis.¹⁷³

Singapore

Two schemes operate in parallel:¹⁷⁴

1. The Singapore government's Startup Enterprise Development Scheme (SEEDS) co-invests with private investors at a rate of 1.5:1 up to A\$660k per company; and
2. The Business Angel Scheme (BAS) co-invests with pre-approved Business Angel groups at a rate of 1.5:1 up to a maximum of A\$1.3 million per company.

Companies in the Singapore Technology Incubation Scheme are also able to access co-funding investments from the government of up to A\$440,000 (on a 5:1 ratio) on recommendation from any of the government-run Technology Incubators.

¹⁷² <http://mapeer-sme.eu/en/programmes-for-smes/search-in-the-online-database/technopartner-seed-facility-NL2>

¹⁷³ <http://www.startupsmart.com.au/government-and-regulation/israel-start-up-sector-boosted-by-government-initiatives-says-expert.html>

¹⁷⁴ <http://bit.ly/1mqID55>

Action 5.3 – Create a capital gains exemption and/or tax deduction for angel investments

StartupAUS encourages the Australian government to explore the creation of a tax incentive for angel investment – via a capital gains exemption and/or a tax deduction to enable up-front tax deductibility of angel investments.

The Grattan Institute recently observed that generous tax breaks worth \$6.8 billion per annum are available to property investors in Australia, and that these have significantly skewed investors toward property as an asset class.¹⁷⁵

A number of countries have used tax incentives to stimulate angel investment, and StartupAUS believes there is a clear case for government to now focus on measures that will shift investment activity toward asset classes that are of national importance.

International benchmarks

UK

The UK government's Seed Enterprise Investment Scheme (SEIS) is designed to help startups to raise capital by providing a tax incentive to angel investors. The SEIS provides tax relief to investors who invest up to A\$185,000 a year in qualifying shares and claim 50% of the cost against income tax.¹⁷⁶

The SEIS was launched in April 2012 with a stated objective to "stimulate entrepreneurship and kick start the economy."¹⁷⁷

Tax relief is also available to investors in later stage companies via the UK government's Enterprise Investment Scheme (EIS) which reduces investors' income tax liability by 30% of the amount invested.¹⁷⁸

In 2013 the UK government processed a total of 4,075 applications under the EIS and SEIS.¹⁷⁹

US

Twenty seven US states offer tax relief to angel investors,¹⁸⁰ ranging from a 10% tax rebate in New Jersey to a 60% rebate in Maine and Oregon.¹⁸¹

These state-based incentive schemes are widely credited with having had a positive impact on the level of angel activity across the US, particularly in those states which have not historically had a vibrant angel investment sector.

Singapore

The Singapore government introduced the Angel Investors Tax Deduction Scheme in 2010. Its stated goal is to encourage more investors to support startups by providing a 50% capital gains exemption for angel investors. Through the scheme, the Singapore government hopes to catalyse A\$550 million of angel investments in Singapore over the next five years.¹⁸²

¹⁷⁵ <http://grattan.edu.au/publications/news-and-opinion/post/generous-investor-tax-breaks-contributing-to-unequal-housing-market/>

¹⁷⁶ <https://www.gov.uk/seed-enterprise-investment-scheme>

¹⁷⁷ <http://www.seis.co.uk>

¹⁷⁸ <http://www.seis.co.uk/enterprise-investment-scheme/>

¹⁷⁹ <https://www.dropbox.com/s/6owm03n3iz9y5c4/2013%20Tech%20City%20Report.pdf>

¹⁸⁰ <http://www.angelcapitalassociation.org/public-policy/existing-state-policy/>

¹⁸¹ <http://www.angelresourceinstitute.org/resource-center/~media/ARI/Files/Non%20Research/ARI%20Overview%20State%20Angel%20Tax%20Credit%202010.pdf>

¹⁸² <http://www.world-entrepreneurship-forum.com/Do-Tank/Members-Initiatives/Encouraging-Entrepreneurial-Venturing-in-Youths2>

Tax incentives are also provided for startups via a tax exemption on the first S\$100,000 of income.¹⁸³

France

The French government offers a 25% tax deduction on angel investment plus a 75% wealth tax reduction.

Germany

The German government is currently considering committing A\$230m to provide angel investment rebates equivalent to 20% of amount invested, over the period 2014-2016.^{184,185}

Israel

The Israeli government allows angel investors to recognise startup investments as losses in the year of the investment. This effectively provides a tax break for those who have capital gains in other businesses or startups.

Action 5.4 – Enhance Commercialisation Australia to improve support for entrepreneurs

Commercialisation Australia is a federal government competitive grants program with the stated objective of “building the capacity of and opportunities for Australia’s talented researchers, entrepreneurs and innovative firms, to convert intellectual property (IP) into commercially viable new products, processes and services, creating high skills jobs and increasing Australia’s global competitiveness”.

Aside from the R&D tax incentive, Commercialisation Australia is the government's primary program aimed at supporting innovation. It has received funding of \$278 million over the five years to 2014, and currently has an ongoing funding commitment of \$82 million a year from 2015.¹⁸⁶ It is administered by an experienced CEO, a national network of 26 case managers and an independent board.

Commercialisation Australia provides grant funding to promising companies that can match the grant with either internal capital or investor funds. The program addresses a clear funding gap, and in doing so has been a valuable supporter of the startup ecosystem.

However the program is not widely accessed by startups, with only 8% of Australian startups having applied for funding from Commercialisation Australia.¹⁸⁷

Feedback from the startup community has identified that Commercialisation Australia could be made more valuable to startups by addressing the following issues:

1. It is heavily focused on commercialising intellectual property resulting from technological innovation and research, with less emphasis on business model innovation and entrepreneurship.
2. It is required to attempt to pick winners – a task for which government programs are not well placed. Research sponsored by the European Commission¹⁸⁸ found that governments are generally ineffective at picking winners and that better decisions are made when grants are awarded based on market factors such as external investment.

¹⁸³ http://www.enterpriseone.gov.sg/Government%20Assistance/Tax%20Incentives/Start-Ups/gp_iras_startup.aspx

¹⁸⁴ <http://venturevillage.eu/german-government-angel-fund>

¹⁸⁵ <http://venturevillage.eu/german-government-boost-angel-investments-by-providing-20-per-cent-of-funding-amount>

¹⁸⁶ Although it is understood CA's funding is currently under review

¹⁸⁷ <http://fromlittletthings.co/wp-content/uploads/2012/11/SiliconBeachStartupEcosystem.pdf>

¹⁸⁸ http://ec.europa.eu/enterprise/policies/innovation/files/proinno/inno-grips-policy-brief-2_en.pdf

3. It requires applicants to submit comprehensive business plans and financial projections. These may be reasonable requirements for established firms, but are generally not appropriate for startups given the reality that most startups are still in the process of determining a business model. For startups the notion of writing a business plan is no longer accepted as good practice, as highlighted by Steve Blank (Professor of Entrepreneurship at UC Berkeley) who notes that “No business plan survives first contact with a customer.”¹⁸⁹

One undesirable consequence of the requirement for comprehensive business plans is that a large number of applicants have found it necessary to engage grant writing consultants to assist them to meet the application requirements of the program. This has added to the cost of accessing the program and has made it less accessible to those companies that cannot afford to engage consultants.

4. The program has gone through several stop-start cycles as it has undergone reviews by government, and these “pauses” have greatly reduced confidence in the program.
5. Applicants do not find out for an extended period whether they will receive funding. The lengthy assessment process is out of step with the timing of angel investment activity, often resulting in investors viewing Commercialisation Australia funding as an “added bonus” that may or may not kick in some months after their investment.
6. Commercialisation Australia applies a “need-for-funding test” to applicants such that companies are ruled ineligible if it is believed that they could have raised all of their funding from non-government sources such as private investors. This has the obtuse result of effectively excluding the most promising opportunities from government support, instead providing funding to companies that have growth potential but struggle to raise all of their required funding from investors. It has also created an undesirable situation in which some startups shop around for letters of rejection from angel investors so that they can demonstrate to the government that they pass the need-for-funding test.

StartupAUS recommends repositioning Commercialisation Australia as “Entrepreneurship Australia” and enhancing the program to better support startups via the following operational changes:

1. Streamline and simplify the application process so that funding decisions are based on market factors such as commitment of capital by angel investors, with release of funds triggered automatically by the commitment of investor funding.
2. Make the decision process more transparent so that after a brief initial assessment entrepreneurs can have a high degree of certainty that once they raise external investment the funds will automatically be released.
3. Make rapid funding decisions on a rolling basis rather than tied to the timing of Commercialisation Australia board meetings.
4. Remove the need-for-funding test to ensure that the program accelerates the growth of the most promising startups, even if they are able to attract private capital.
5. Commit to funding the program on an ongoing, uninterrupted basis.

¹⁸⁹ <http://steveblank.com/2010/04/08/no-plan-survives-first-contact-with-customers---business-plans-versus-business-models/>

Action 5.5 – Establish a young entrepreneurs startup loans scheme

A startup loans scheme would provide financial support to first-time entrepreneurs under the age of thirty. The program would provide pre-seed capital of up to \$50,000 to entrepreneurs who can demonstrate the beginnings of a viable tech startup and a commitment to pursuing it, and should be based on successful international models such as the UK government's Startup Loans program.

The program would be aimed at entrepreneurs who are not yet ready to raise significant capital from angel investors and would therefore not qualify for support from the Seed Co-Investment Fund.

The only program in Australia that currently addresses this pre-seed funding gap is the \$3.75m Minimum Viable Product (MVP) grants that form part of the Innovate New South Wales¹⁹⁰ grants package. The MVP grants provide early stage funding of up to \$15,000 for around 250 digital startups to build and market test early iterations of their product.

International benchmarks

UK

The Startup Loans scheme¹⁹¹ was established in late 2012 by the UK government to provide seed capital and mentoring to early stage businesses.

Prime Minister David Cameron's recent announcement of a further funding commitment of A\$57m has taken the total program funding to A\$285 million. Loans totalling A\$125 million have been awarded to 12,700 businesses since the program commenced.

Ireland

The Competitive Start Fund¹⁹² is an Irish government initiative to accelerate the growth of startup companies by government directly investing up to A\$77,000 for a 10% equity stake.

There is no requirement for co-investment and the program funds early stage startups only. Funded companies receive access to a startup mentor. Over 200 companies have been funded since the program launched in 2011.

Finland

Tekes¹⁹³ is the Finnish government's funding agency for technology and innovation. It provides non-dilutive grants to startups to match angel and VC investments on a 2:1 basis. Total funding of A\$875 million has been committed to the program, of which A\$200 million has been provided as grants to 680 startups.¹⁹⁴

Taiwan

Taiwan's National Youth Commission is a government-funded agency tasked with supporting young entrepreneurs via concessional loans and business advice delivered by a network of 140 entrepreneurial mentors. It currently provides loans totalling A\$77 million to around 2,500 young entrepreneurs per year.¹⁹⁵

¹⁹⁰ <https://www.business.nsw.gov.au/doing-business-in-nsw/innovate-nsw>

¹⁹¹ <http://www.startuploans.co.uk>

¹⁹² <http://bit.ly/1dN1WTN>

¹⁹³ <http://www.arcticstartup.com/2011/12/28/getting-started-with-tekes-financing>

¹⁹⁴ <http://www.tekes.fi/en/funding/>

¹⁹⁵ <http://www.bloomberg.com/news/2013-01-24/singapore-joins-hunt-for-new-zuckerberg-with-stanford-style-dorm.html>

Action #6 – Address regulatory impediments

StartupAUS believes there are two regulatory issues that require immediate reform in Australia:

1. The tax treatment of Employee Share Schemes (otherwise known as Employee Stock Ownership Plans or ESOPs); and
2. The enablement of crowd-sourced equity funding for startups.

Employee Share Schemes / ESOPs

Employee share schemes are an essential ingredient to a successful startup ecosystem, and are in widespread use in every successful startup ecosystem in the world.¹⁹⁶

According to Michael Fox, founder of Australian startup Shoes of Prey, employee share schemes:

- Drive employee motivation and loyalty
- Align the interests of the employee and the company, leading to greater success for the company, financial reward for the employee and growth of the economy as a whole
- Help attract top talent from overseas to Australia, and help retain top performing Australian employees
- Allow wealth to be spread more evenly by ensuring a large number of employees benefit, and not just the founders and investors.¹⁹⁷

In the US, ESOPs have helped drive growth in the economy over several decades, and it is estimated that 28 million US employees participate in an employee share ownership plan,¹⁹⁸ about one fifth of the entire private sector.

In most countries, options are taxed in the year in which the option is exercised. However, a bizarre situation exists in Australia in which options are taxed in the hands of the employee at the time of issue, rather than at the time they received the proceeds.

Unless the employer sets up a complex and costly arrangement, the employee is required to pay tax on options that are illiquid, and given the high risk nature of startups, may never have any realizable value.

In this regard Australia is out of step with the rest of the world. The current tax treatment of ESOPs is having a detrimental impact on Australia's ability to attract and retain the best workers.

As observed recently by Malcolm Turnbull MP,¹⁹⁹ Australia's current laws on employee share and option schemes make it "either impossible or absurdly expensive for start-up companies to issue shares and options to their employees and consequently they stopped doing so for the most part".

While in Opposition, Treasurer Joe Hockey described the current tax treatment of ESOPs as a "massive handbrake on startups in Australia".²⁰⁰

According to a survey by Deloitte and Norton Rose,²⁰¹ only 57% of Australian startups have an ESOP scheme, despite ESOPs being recognised as the single most important way of incentivising early employees in a startup. Of those companies, only 37% had actually issued share options in the last three years.

¹⁹⁶ Pollenizer, from Little things, Startup Genome, Deloitte (2012) – "Silicon Beach : Building Momentum"

¹⁹⁷ <http://www.22michaels.com/2013/01/employee-share-options-plans-at.html>

¹⁹⁸ <http://www.esop.org>

¹⁹⁹ <http://www.malcolmtturnbull.com.au/media/reform-on-employee-shares-and-crowdfunding-important-priorities-notes-from>

²⁰⁰ http://www.brw.com.au/p/entrepreneurs/coalition_to_change_labor_employee_5odzZTUfc48RkU7UJOPUmI

²⁰¹ https://www.industries.tmt.com.au/Deloitte_esop_%20survey_report_Mar2013.pdf

Workarounds such as the use of convertible notes, preferred equity, option premiums, buy backs and non-recourse loans exist, but are costly and complex to implement, and act as a disincentive to use of ESOPs by startups.

The Deloitte / Norton Rose report found that “Australia is further disadvantaging its startup entrepreneurs by imposing unnecessary obstacles to the use of flexible arrangements, such as ESOPs, to help them grow their businesses here.”

“Those obstacles boil down to two main issues: the complexity – and therefore expense – to set up an ESOP, and the current rules regarding the taxation of ESOPs in the hands of employees at the time they are awarded, rather than at the time the proceeds are received. If Australia is to compete on a level playing field, retain talented Australian entrepreneurs and generate a strong pipeline of startups, then these two issues must be addressed.”

An increasing number of Australian startup founders are incorporating in the US (most commonly as a Delaware C-Corp) without forming an Australian Pty Ltd company, and one of the reasons for this is the more favourable tax treatment of ESOPs in the US compared to Australia.

Action 6.1 – Change the tax treatment of ESOPs

ESOPs are regulated under the *Income Tax Assessment Act* which was amended in 2009 under the Gillard-Labor Government. An unintended but undesirable impact of those changes was to make it difficult for startups to issue shares to employees without significant cost and complexity.

In June 2013 the federal government committed to reviewing taxation treatment of ESOPs. StartupAUS is pleased to note that the Government recently announced its intention to finalise the review and undertook direct consultations with interested stakeholders between 28 January and 7 February 2014.

StartupAUS urges the government to ensure that the review is completed in as short a timeframe as possible and that it fully addresses the problem and makes Australia's tax laws at least as favourable as those in other countries.

StartupAUS has provided a submission to the government's review of Employee Share Schemes. The key elements of the approach recommended by StartupAUS are as follows:

STEP 1: Impose the tax upon and at the time of sale of the employee shares - ie. during or after a liquidity event

This would mean that tax is paid when the value of the employee shares are realised, recognising the fact that employee shares in startups are an incentive and not a salary bonus. By enabling the employee to have “skin in the game”, local and overseas skilled professionals will be attracted to work for Australian startups, increasing the chances of success of those companies and thereby the prospects of adding to Australia's GDP and tax revenue for government.

STEP 2: Define Startup clearly and broadly with appropriate metrics to achieve certainty of the ESS, and with sufficient flexibility to be beneficial to the appropriately eligible startups

This would ensure the Employee Share Scheme is targeted to the relevant sector whilst giving confidence and certainty to startups to readily deploy Employee Share Schemes without apprehension of breaching tax or company laws. Administrative, legal and accounting costs would be reduced, enabling more of the company's capital to be focused on growth of the business.

STEP 3: Deploy clear, simply drafted and standardised Employee Share Option Programs and Employee Share Schemes, and a reporting system for startups

A standardised ESS, ESOP and reporting system would substantially reduce legal, accounting and administrative costs for startups, enabling more of the company's capital to be focused on growth of the business.

The StartupAUS submission to the government's review of Employee Share Schemes is available for download from the StartupAUS web site.²⁰²

Crowd-Sourced Equity Funding

Crowdfunding has become an important source of funding for innovative companies and projects. As a sector it has grown 1,000% since 2009, generating \$1.5 billion in funding in 2011, \$2.7 billion in 2012 and \$5.1 billion in 2013.²⁰³

It is predicted that in 2014 crowdfunding will generate \$65 billion in funding globally, and that this will support the creation of 270,000 new jobs. By 2020, crowdfunding is projected to reach \$500 billion per annum, generating \$3.2 trillion a year in economic impact and creating more than 2 million jobs.²⁰⁴ Much of this will be via equity-based funding in those countries which are supportive of crowd-sourced equity funding.

Currently many Australian startups are raising funds via crowdfunding sites such as Kickstarter and Pozible in which potential customers pledge funds in return for benefits (such as a first-run product) when the product is produced, subject to achieving the target funding goal.

Crowd-sourced equity funding has the potential to be a valuable tool for startups as it will extend the pledge-based model to enable companies to raise small amounts of capital from a large number of individual investors, increasing the speed with which promising startup ideas can be funded and unlocking capital from many more investors. It will also enable investors to commit small amounts of capital to a large number of companies, thereby spreading risk and facilitating early stage investment from individuals who do not have the capacity to back a portfolio of startups via angel investment.

In April 2012 the US enacted the Jumpstart Our Business Start-ups (JOBS) Act. One of the measures in the Act was to provide a regulatory framework for startups to raise capital via crowd-sourced equity funding. An object of the legislation was to lift the ban on public solicitation and allow companies to freely advertise that they are fundraising to the general public.

Although the Securities and Exchange Commission has yet to enact all of the provisions of the Act, it is expected that crowd-sourced equity funding will be operational in the US within the next 12 months, at which time all US citizens over the age of 18 will be able to invest directly in startups.

It is expected that once enacted, online platforms like AngelList will become a dominant force in capital raising for startups, with angel investors expected to use these platforms increasingly for deal sourcing and screening.

Similar legislation has been enacted in France that enables French startups to raise up to A\$1.5 million in crowd-sourced equity funding with minimal documentation required.²⁰⁵

²⁰² <http://startupaus.org/startupaus-calls-federal-government-urgently-amend-current-employee-share-option-plan-esop/>

²⁰³ <http://research.crowdsourcing.org/2013cf-crowdfunding-industry-report>

²⁰⁴ <http://www.entrepreneur.com/article/230912>

²⁰⁵ <http://techcrunch.com/2014/02/14/french-startups-can-now-raise-up-to-1-4-million-in-crowdfunding-and-syndicates-in-france/>

Crowd-sourced equity funding is currently illegal in Australia. The Australian Securities and Investments Commission (ASIC) released a guidance note on CSEF in August 2012²⁰⁶ highlighting that crowdfunding is regulated under the *Corporations Act 2001* (Corporations Act) and *Australian Securities and Investments Commission Act 2001* (ASIC Act), and noting that the maximum penalty for carrying on a financial services business without an AFS licence is \$22,000, two years imprisonment or both.

A number of crowd-funding platforms have recently been established in Australia, including VentureCrowd and Israeli crowdfunding platform OurCrowd. However both are currently limited to sophisticated investors.

A discussion paper on crowd-sourced equity funding was released by the government's Corporations and Markets Advisory Committee in September 2013²⁰⁷ seeking public comment on whether and how to enable equity-based crowdfunding in Australia.

The previous government committed to undertaking a review to determine a best practice framework for crowd-sourced equity funding by April 2014.

Action 6.2 – Implement legislative changes to enable crowd-sourced equity funding

StartupAUS believes that equity crowdfunding is well on its way to becoming an established, mainstream means of raising capital, and already enabling legislation has been passed in the United States, UK, Canada, Italy, France and New Zealand. It is clear that for Australian startups to compete on an equal footing we will need a regulatory environment at least as favourable as other countries in which crowd-sourced equity funding is enabled.

A detailed analysis of the regulatory changes needed in Australia is beyond the scope of this paper, however in broad terms the attributes of a regulatory environment supportive of crowd-sourced equity funding should include:

- Enables startups to publicly advertise that they are raising funding rounds
- Enables startups to raise small amounts from a large number of individual retail investors
- Adequate investor protection
- Strong penalties for fraudulent activity
- No requirement for a prospectus
- Minimum disclosure requirements on startups
- A combination of crowd-sourced and independent third party assessment of startups
- High quality investor education delivered via multiple channels to ensure investors have a sound understanding of the nature of early stage investing

²⁰⁶ <http://www.asic.gov.au/asic/asic.nsf/byheadline/12-196MR+ASIC+guidance+on+crowd+funding>

²⁰⁷

<http://www.camac.gov.au/camac/camac.nsf/byHeadline/Whats+NewCSEF+Media+Release+%26+DP?openDocument>

Action #7 – Increase collaboration and international connectedness

StartupAUS believes that Australia can learn a great deal by engaging with regions that have vibrant startup ecosystems.

According to the Australian Innovation System Report (2011), “Collaboration and networking have long been cited as consistent weaknesses in the Australian innovation system, compared with other OECD countries.”

A recurring theme for Australian entrepreneurs is the immense value gained from visiting startup hot-spots such as Silicon Valley, and the growing importance of having connections into that ecosystem.

Australian entrepreneur Adrian Turner notes in his book *Blue Sky Mining: Creating Australia's Next Billion Dollar Industries*, that “Not a month goes by without an entourage of senior government officials from China or India visiting Silicon Valley to learn what makes it work”, highlighting the seriousness with which our neighbours are seeking to replicate some of what happens there.

There are an estimated 100 Australian startups run by 300 Australian entrepreneurs in Silicon Valley, and as many as 10,000 Australians employed in tech companies in the Bay area.

StartupAUS was pleased to see a recent visit to San Francisco and Silicon Valley by Malcolm Turnbull MP, and to note his comments about some of the challenges facing Australia's tech sector.

Action 7.1 – Extend the Advance Innovation Program

The Advance Innovation Program is a Silicon Valley immersion program run by Advance (a network of 20,000 Australian professionals in 90 countries), and financially supported by the federal government.

Each year it identifies 25 of the most promising Australian tech startups, provides them with investor-readiness training and mentoring, and takes them to Silicon Valley for a two week trade mission including meetings and pitching events with some of Silicon Valley's leading entrepreneurs and investors.

The program has operated since 2012 and has been consistently rated by Australian startup founders as one of the most valuable experiences they have had.

The government's support for the Advance Innovation Program covers a part-time project manager and costs associated with hosting of events. Participants cover most costs associated with travel and accommodation.

Given the immense value of the program, and the fact that it engages only 25 startups per annum, StartupAUS urges the government to extend the support for the Advance Innovation Program so that 200 entrepreneurs per year are exposed to Silicon Valley and other startup hotspots such as Boulder, Colorado and Tel Aviv, Israel.

The program could also be extended to incorporate:

- An Australian tech startup showcase event in San Francisco / Silicon Valley
- Two-way trade missions between Australia and international startup hot-spots
- A Startup Ecosystem Fellowship program that funds a leading startup ecosystem supporter (incubator / accelerator manager, entrepreneurship teacher or policy advisor) from each Australian capital city to spend up to a year in a startup hotspot such as Silicon Valley learning about the ecosystem and making valuable connections – on the condition that at the end of that period they return to Australia and use their experiences and connections to further the development of Australian startup ecosystem.

International benchmarks

Germany

German Valley Week²⁰⁸ is an annual program that takes 100 entrepreneurs for a week-long trade mission to foster learning and networking in Silicon Valley. The program is organised by the German Startups Association and led by Germany's Federal Minister of Economics and Technology with the stated aim of building a bridge between the startup scenes in Germany and the US.^{209,210}

Singapore

The National University of Singapore's Entrepreneurship Centre (Singapore's national centre of excellence for entrepreneurship) arranges annual delegations of up to 150 students on a one-year internship to Silicon Valley and other ecosystems.²¹¹

Action 7.2 – Establish a Silicon Valley Landing Pad for Australian startups

A startup landing pad in Silicon Valley would support Australian entrepreneurs heading to the Valley. It would also facilitate learning trips from delegations of students, entrepreneurs, investors, educators and policy makers to facilitate an exchange of ideas and influence the entrepreneurial culture in Australia.

Until recently the New South Wales government ran a "Soft landing" office in Silicon Valley which was staffed by an experienced Australian entrepreneur and startup coach. The office was recently closed, with the NSW government instead opting to subsidise NSW startups accessing the facilities of Startup House, a startup co-working space in San Francisco started by Australian entrepreneurs Bardia Housman and Elias Bizannes.

Austrade and the Australian Consulate in San Francisco are a valuable resource for many businesses, but what is needed is a startup-focused resource that can help with:

- Short term office accommodation and meeting room facilities for 10-20 startups at a time
- Investor introductions
- Local market familiarisation and introductions to other tech companies and service providers
- PR and media support to help startups get traction in the media

International benchmarks

New Zealand

The New Zealand government established the Kiwi Landing Pad in 2011. It is a startup support program that operates out of the StartupHQ co-working space in San Francisco. It provides short or long-term office space and for selected New Zealand startups pays for flights, accommodation and desk space.²¹²

²⁰⁸ <http://germanvalleyweek.org>

²⁰⁹ <http://www.deutsche-startups.com/2013/04/11/german-valley-week-start-up-trip-to-the-silicon-valley-in-the-slipstream-of-philipp-rosler/>

²¹⁰ <http://siliconallee.com/silicon-allee/editorial/2013/05/23/berlin-in-san-francisco-what-can-we-learn-from-silicon-valley>

²¹¹ [http://media.economist.com/sites/default/files/sponsorships/\[KY56b\]Huawei/180114_SR.pdf](http://media.economist.com/sites/default/files/sponsorships/[KY56b]Huawei/180114_SR.pdf)

²¹² <http://www.idealogue.co.nz/blog/2012/06/kiwi-landing-pad-sweetens-deal-startups>

Germany

The German Silicon Valley Accelerator²¹³ in Palo Alto supports German tech startups by providing mentoring, access to networks, introductions to business angels and venture capital investors, and a three month training program in Silicon Valley. It is supported by the German government and a number of corporate sponsors.

Ireland

The Irish Innovation Centre (IIC) and the Irish Technology Leadership Group (ITLG) jointly operate a launch-pad organisation for Irish startups in Silicon Valley. Funded by Enterprise Ireland, the Irish state development agency, the launch-pad provides office space in San Jose, legal and administrative support, meeting facilities and media/PR support. It also organises Trade Missions for Irish startups to visit Silicon Valley.

Nordic region

Silicon Vikings²¹⁴ is a program to build connections between entrepreneurs in emerging and established technology companies from the Nordic regions (Denmark, Estonia, Finland, Iceland, Norway, and Sweden). It is funded by economic development agencies of participating nations, plus corporate sponsors.

Innovation House Silicon Valley²¹⁵ is a co-working and virtual office in Palo Alto for tech companies from Norway. It also runs an entrepreneur training program and startup incubator, and is supported by the Norwegian government.

²¹³ <http://germanaccelerator.com/program/program-overview/>

²¹⁴ <http://www.siliconvikings.com>

²¹⁵ <http://innovationhousesf.wordpress.com/about/>

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