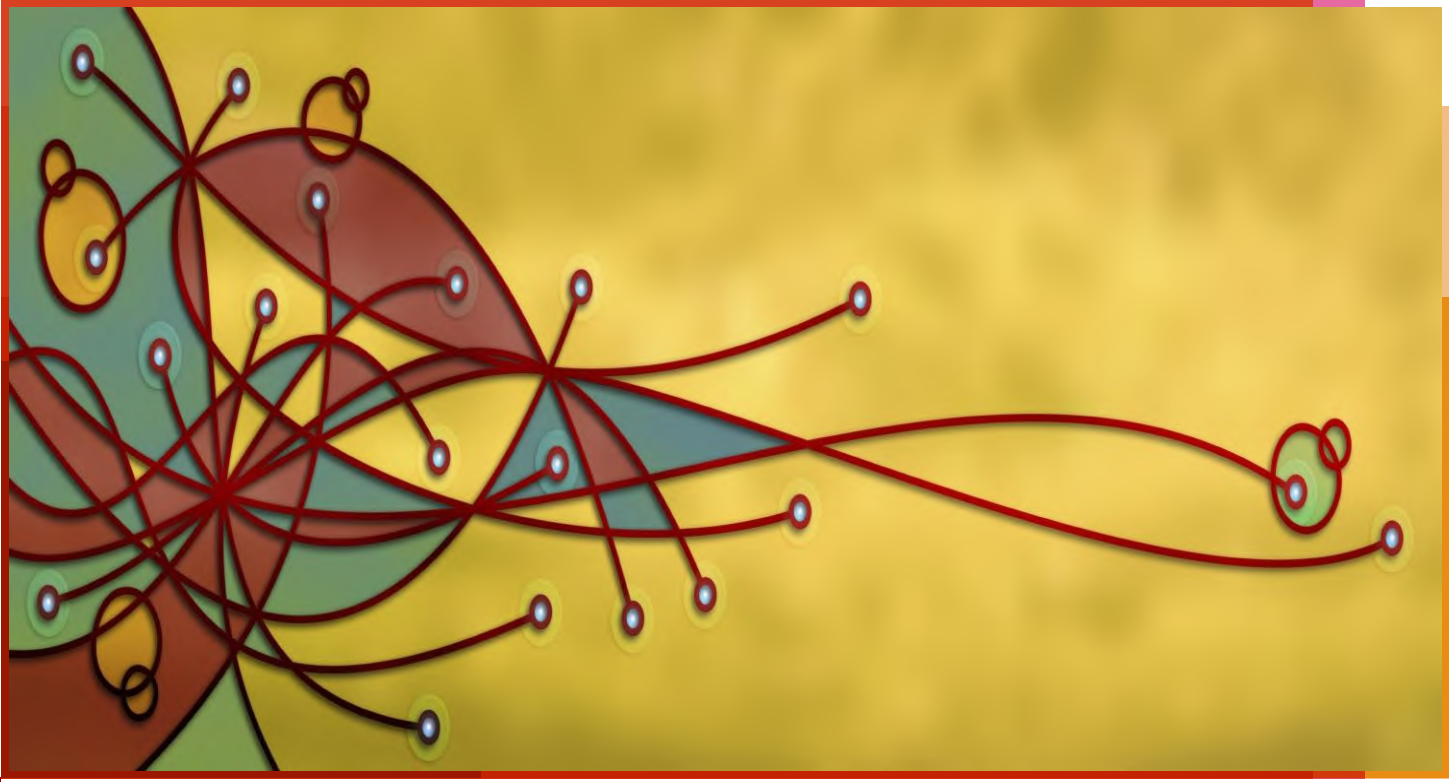
Consulting

The startup economy

How to support tech startups and accelerate Australian innovation



Commissioned by
Google Australia
April 2013

pwc

Introduction

In 2013 Google commissioned PwC to conduct research to identify potential ways to accelerate the growth of the Australian technology startup sector (see appendix for research definitions and disclaimer).

Concurrent to this research StartupAUS, a community group with an initial 50 members of the tech startup ecosystem including Google and PwC, was created to inform the research and take the necessary actions to accelerate the growth of the sector (www.startupaus.org).

Startup: high growth company

Technology: innovative products and services that result from the practical application of knowledge

Characteristics of a tech startup:

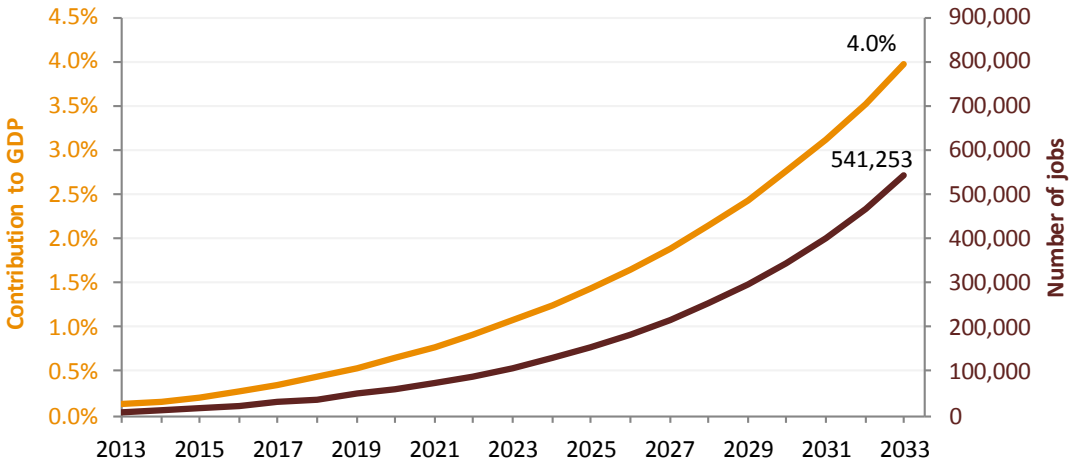
- Technology is central to the product or service being provided
- High leverage of the labour input to the product or service so that the business can scale rapidly
- Product or service is a 'disruptive innovation' in that it helps create a new market or new supply chain / network which disrupts an existing market
- Revenue under $5 million per year

The Australian tech startup sector has the potential to contribute $109 billion or 4% of GDP to the Australian economy and 540,000 jobs by 2033 with a concerted effort from entrepreneurs, educators, the government and corporate Australia.

Analysis of the growth of global tech ecosystems emphasise the importance of leadership, communities, culture, education and the need to stop trying to emulate Silicon Valley. International comparisons show that entrepreneurship can thrive with the right culture and perceptions, regardless of basic regulatory conditions.

Global comparisons with other technology startup ecosystems suggest there is no better time to be an entrepreneur in Australia, but achieving the projected economic contribution will require a significant and persistent effort to encourage more people to create more tech startups.

Figure 1 – Potential economic contribution of the tech startup sector



Source: PwC analysis

Short term actions:

- Encourage over 2,000 additional tech entrepreneurs annually to join the community from the existing workforce
- Community and culture are vital - existing participants need to build their community and cheer success stories
- Startups need to make further inroads into selling to larger corporations and the government
- Keep working on increasing the pool of funding

Long term actions:

- Adjust education system to produce more skilled tech entrepreneurs
- Further improve regulatory environment to reduce barriers to participation

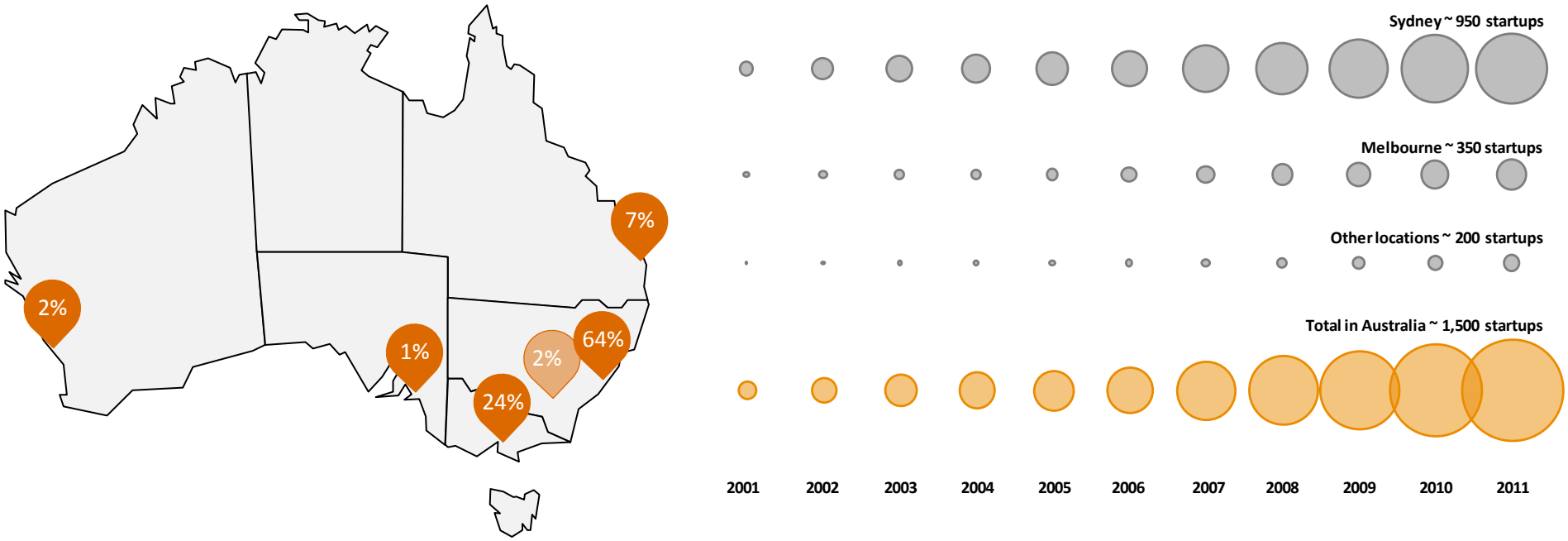
2013 Snapshot

- *Approximately 1,500 tech startups with hubs in Sydney and Melbourne*
- *Approximately 2,000 founders*
- *Rapidly expanding support ecosystem*
- *Open dataset developed and available for reuse on www.startupaus.org*

The Australian tech sector is currently small, with great potential for growth. In 2012, there were 1,500 tech startups in Australia with key hubs in Sydney and Melbourne.

The Australian tech sector comprises around 1,500 firms ranging from one or two person startups created in the last 12 months, to more established businesses which have been around for a decade. There are very few startups between 2001 to 2006 which still exist today but a significant increase of activity from 2007 onwards has created many of current startups.

Figure 2 – Location of today's tech startups



Bubble size = total number of startups active in each year that are still active as at 1 Jan 2013

Source: PwC analysis

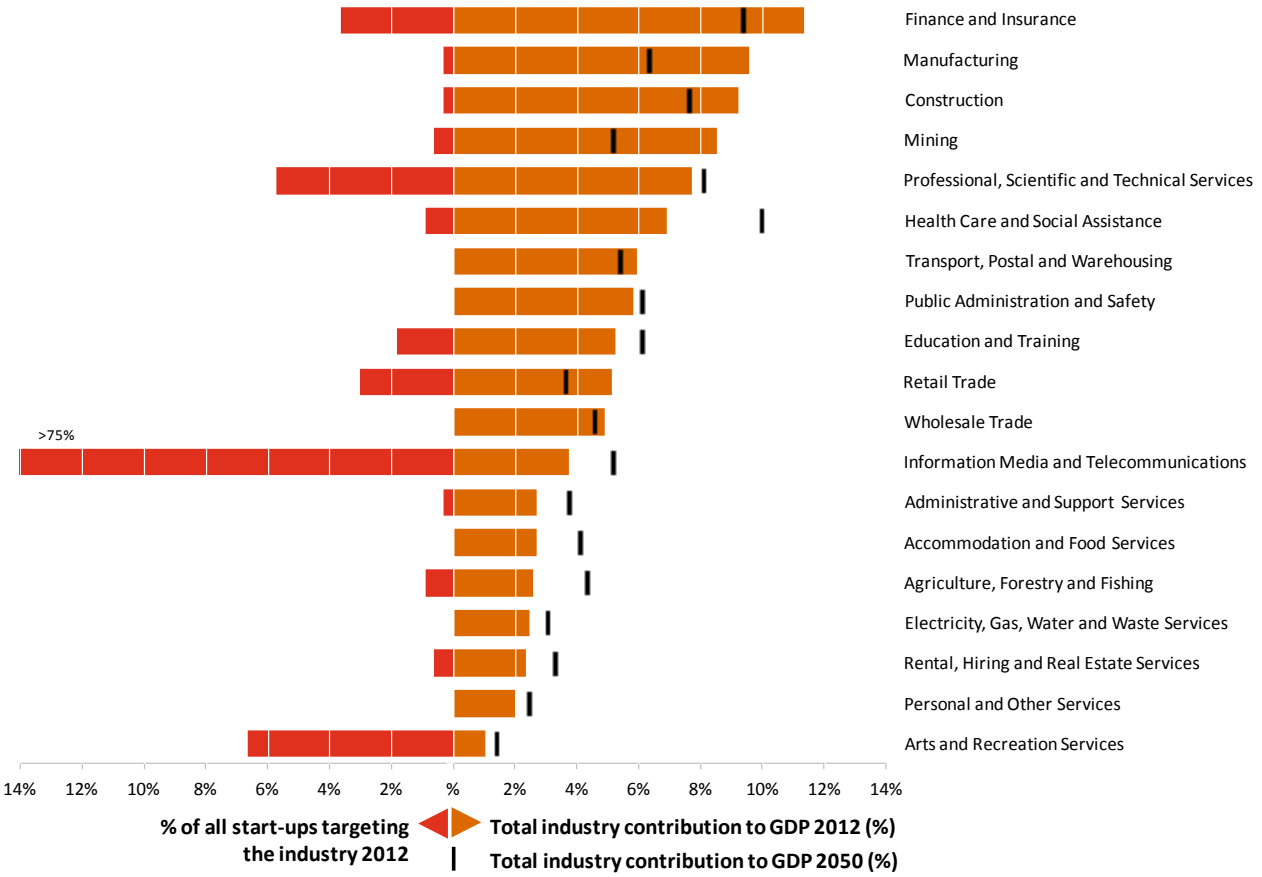
More than 3 out of 4 tech startups are targeting the Information Media and Telecommunications sector – but significant opportunities exist throughout the Australian economy.

There are additional opportunities for startups to tap into other larger industries in Australia today such as Finance and Insurance and Manufacturing. Over the longer term, the Health Care and Social Assistance industry, will provide significant opportunities as the fastest growing industry in Australia and the expected highest contributor to GDP in 2050.

Through the application of technology to existing industry challenges tech startups are well placed to drive productivity growth throughout the economy by reducing both the (per unit) labour and capital inputs required to produce goods and services.

Productivity growth is the only way of growing the economy without necessarily requiring additional physical inputs – Australian Productivity Commission

Figure 3 – Target industry of Australia's tech startups compared to industry size



Source: PwC analysis and IBM (2012) A snapshot of Australia's digital future to 2050

Australian tech startups are supported by a rapidly expanding ecosystem with strong recent growth in incubators, accelerators and angel groups. Entrepreneurs today have access to a wide network of support.

Support for Australian tech startups has expanded rapidly over the last two years. To take advantage of this growing support t is time for Australian tech entrepreneurs to step up and demonstrate to the ecosystem that they're worth investing in and create a self sustaining cycle of success and support.

Startups follow a trajectory towards success that includes a number of stages including ideation/prototyping, incubation where the concept is validated, commercialisation where the business model is validated and finally scaling to growth. The rate of progress may vary greatly.

As startups move along this trajectory they may draw from a wide range of supporters. Entrepreneurs and supporters form an ecosystem of people and groups that create and support startups for their mutual benefit.

There are differences in the maturity of areas of support as well as levels of support during the startup lifecycle. In particular, support during the ideation/prototyping and incubation stages and funding overall are young and developing. Significant progress has been made in the last two years (Figure 4 and Figure 5) although there is still a need to deepen the level and quantum of support.

Figure 4 – Startup support ecosystem (2010)

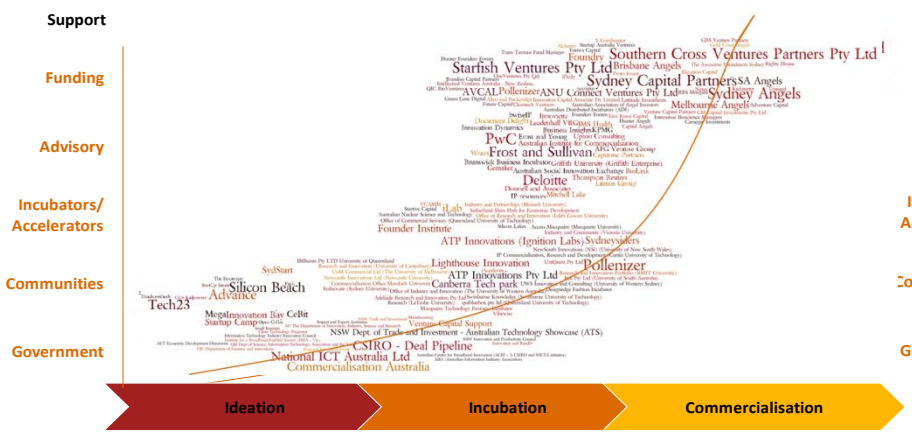
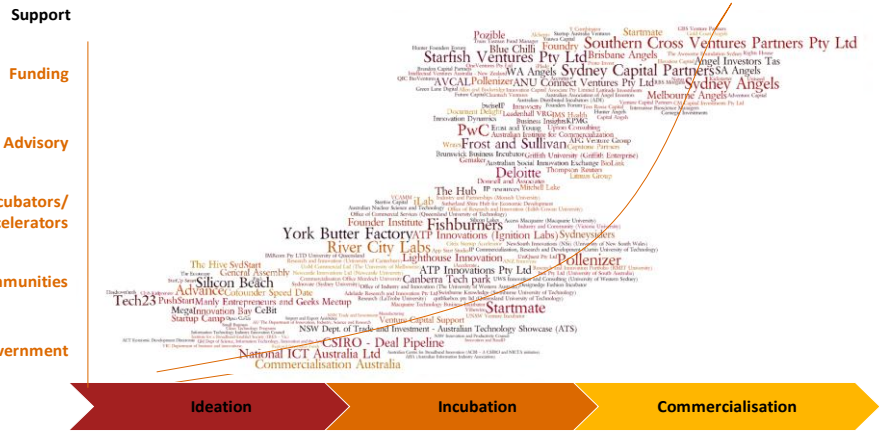


Figure 5 – Startup support ecosystem (2012)



Source: PwC analysis

The national imperative

Australia needs to accelerate the use of technology in industry to ensure we maintain our global economic position. The Internet and computing power are allowing technology companies to disrupt the global economy, leading to a redistribution of industry revenues (and wealth) across geographic borders.

With acceleration of growth, the tech startup sector could contribute 4% of Australian GDP by 2033 and directly employ approximately 540,000 people.

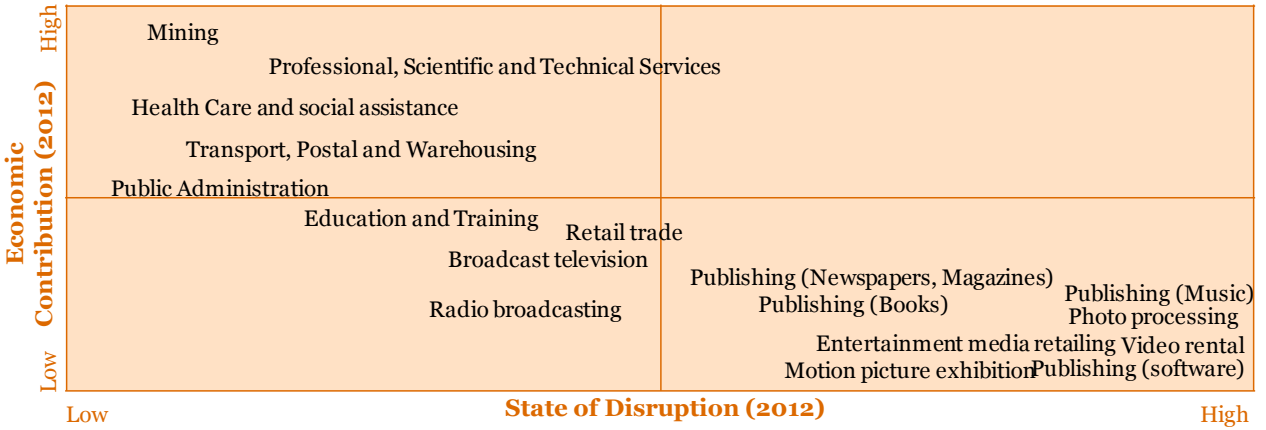
The growth of the Australian technology sector is essential to the future success of the economy.

Australia needs to accelerate the use of technology in industry to ensure we maintain our global economic position. The Internet and computing power are allowing technology companies to disrupt the global economy. Startups have great potential because:

- can reach ~2 billion potential consumers at low cost using global distribution platforms on the Internet (e.g. iTunes, Google Drive, eBay, 99designs, Freelancer, Airtasker).
- have high labour productivity (revenue per employee), and lower capital requirements than industry incumbents providing a competitive advantage in price
- can offer a better 'customer experience' in many industries they through the use of the Internet as a delivery channel and through automation of processes using computing technology.

The disruption of industries by technology companies is leading to a redistribution of industry revenues (and wealth) across geographic borders. Wealth is becoming concentrated in regions which can address large/global markets.

Figure 6 – Australian industries with high potential for disruption through technology



Source: PwC analysis and IBM (2012) A snapshot of Australia's digital future to 2050

"Innovative industries bring good jobs and high salaries to communities where they cluster and their impact on the local economy is much deeper than their direct effect. Attracting a scientist or software engineer triggers a multiplier effect, increasing employment and salaries for those that provide local services. In essence, a high tech job is more than a job ... research shows for each high tech job, five additional jobs are created outside the high tech sector."

Source: Enrico Moretti (2012) The New Geography of Jobs

By accelerating growth the sector could contribute 4% of GDP by 2033 and directly employ 540,000 people.

PwC developed an assumption based model to understand the potential growth prospects of the technology sector. Key assumptions include:

- A tech startup reaches $200m in revenue per annum in its 8th year and generates $300,000 revenue per employee (only a handful of Australian startups have reached $200m in revenue as shown later in this report, indicating that this would be a significant achievement)
- Only 1% of Australian tech startups reach $200m in revenue.

In order for tech startups to contribute 4.0% of GDP in 2033 it is estimated that the sector needs to generate revenues of $160b (600 firms with $200m annual revenue and 5,000 younger firms also contributing, value add to GDP estimated at 67% of revenue).

The growth path of the sector is unlikely to be linear. However, the model provides indications of the levels of activity needed to achieve this outcome through linear growth.

- By the end of 2013 it is expected that 1,100 of the current 1,500 tech startups will 'fail' and 1,500 new tech startups need to be founded in 2014 (1,000 new tech startups were founded in 2012).
- Based on a 'serial founder' rate of 40% (2 in 5 founders try again according to Startup Genome) another 1,600 new founders need to join the community in 2014. Australia has a 20% conversion rate of interested entrepreneurs to founders (based on Global Entrepreneurship Monitor survey data) suggesting that 8,000 potential founders need to be interested in joining the tech startup community in 2014.
- By 2023, 5,600 new tech startups and 5,600 new tech startup community members are required.

Clearly this is a significant task for the ecosystem to achieve.

Figure 7 – Economic contribution of tech startup sector

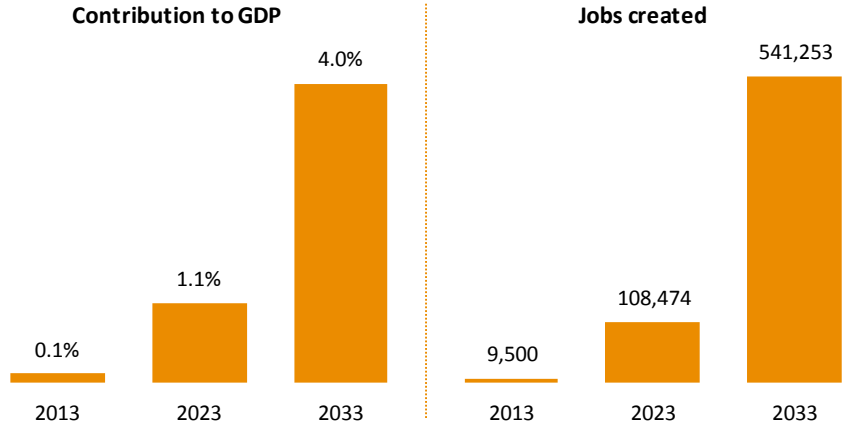
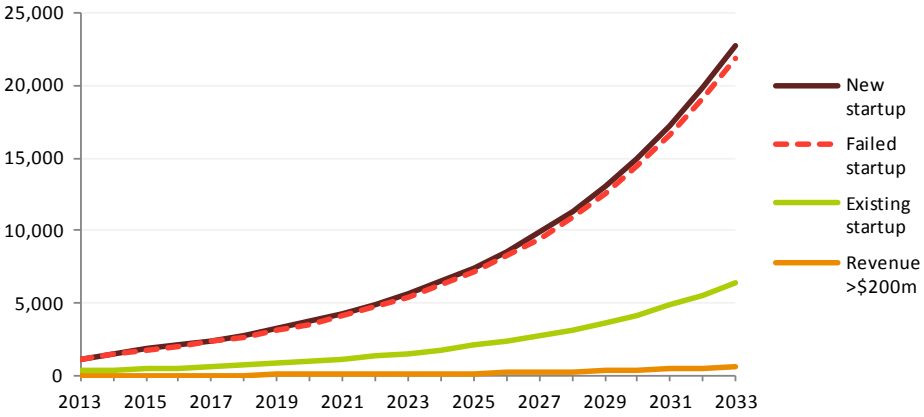


Figure 8 – Movements in the number of startups each year



Source: PwC analysis

Actions for growth

Accelerate the growth of the Australian tech startup ecosystem

Enhance culture and community engagement

More entrepreneurs with the right skills

Open up markets to Australian tech startups

More early stage funding

Improve the regulatory environment

Culture, skills, opening markets, funding and regulation are the five main areas of action that can accelerate the growth of startup ecosystems.

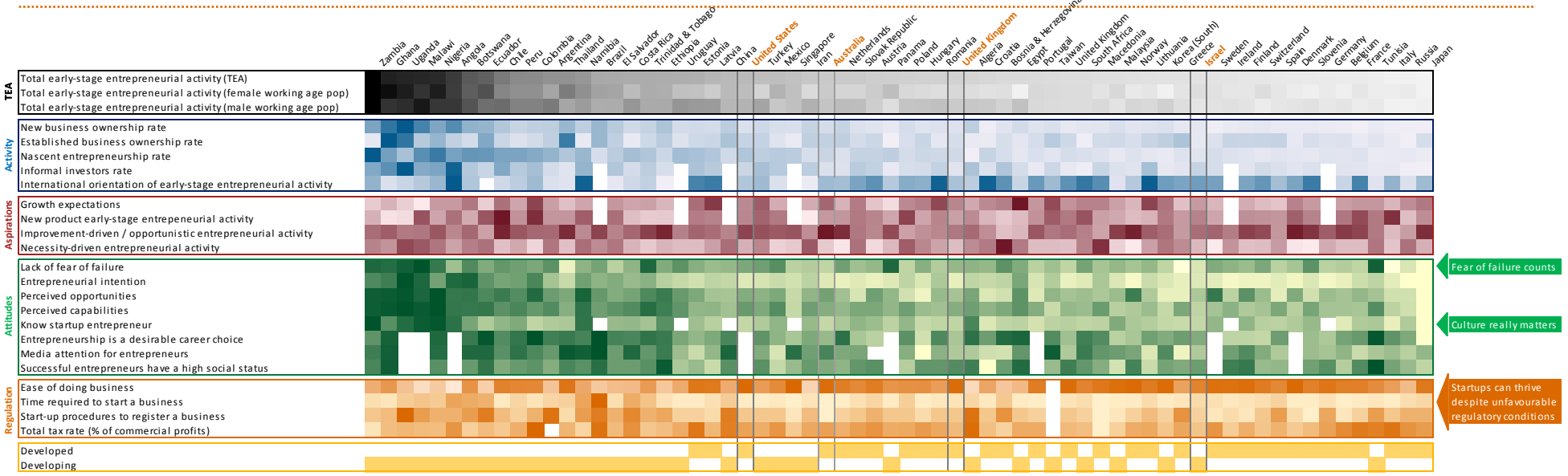
Culture and community and more entrepreneurs are the ones the matter most for Australia.

Australia already has one of the most favourable environments for entrepreneurship. There is no better time to be an entrepreneur.

Entrepreneurialism, being all entrepreneurial activity not just tech startups, differs greatly between nations. To identify the key characteristics for success this analysis compiled data on entrepreneurial activity, culture and regulatory environments from around the world. Countries in Figure 9 are ranked from left to right according to the amount of early-stage entrepreneurial activity. Each characteristic is graded, with darker colours representing a higher indicator than lighter.

Australia ranks number 29, compared to the US at number 24 and the UK at number 37. Developing countries have high entrepreneurial activity for a number of reasons; needs and opportunities are more widespread in developing countries, having multiple ventures helps people in developing countries to spread their risk in an environment of regulatory uncertainty and high interest rates, but most importantly, research from Isenberg (Harvard Business Review, 2010) and Pennisi (Michigan State University, 2012) support the findings of Figure 9 which show that the cultural aspects in developing countries are one of the most critical explanatory variables for higher entrepreneurial activity.

Figure 9 – Comparison of characteristics of entrepreneurship across economies



Source: PwC analysis of Global Entrepreneurship Monitor (2012 survey results with the exception of Australia and the United Kingdom which are 2011 survey results) and World Bank (2012 indicators)

International comparisons show that entrepreneurship can thrive with the right culture and perceptions, regardless of regulatory conditions.

Culture really matters

Entrepreneurial activity is heavily influenced by the cultural environment surrounding entrepreneurs. Ecosystems where people see opportunities to start a business, where people believe in the skills and knowledge they hold, and where entrepreneurial successes are highly visible in the media are good indicators of the population's entrepreneurial intentions and total early-stage entrepreneurial activity.

Entrepreneurship can thrive despite unfavourable regulatory conditions

Stable, simple and conducive regulatory environments are often the first and exclusive focus of those who try to accelerate the growth of startup ecosystems. However the data shows that contrary to conventional wisdom, entrepreneurial activity can flourish regardless of the regulatory environment. The ease of doing business is actually lower in countries with high levels of early-stage entrepreneurial activity. Similarly, the time and procedures required to start a business do not appear to inhibit entrepreneurial activity. However, regulation may have a greater impact on tech startup entrepreneurialism than it does on other types, as tech startups are inherently more dependent upon finely tuned regulatory systems such as content regulation or intellectual property.

Fear of failure counts

Countries where people are not plagued by the fear of failure, which can prevent them from starting a business, consistently outperform others in terms of early-stage entrepreneurial activity. Whether it's the nature of the economic climate which has sparked fear of failure (e.g. Greece) or the ingrained culture of relatively higher risk aversion (e.g. Japan), fear of failure can be a real impediment to entrepreneurial activity.

Australia has one of the best regulatory environments for entrepreneurship, and an engaged and strengthening culture of inclusion and openness. However, we have a considerably higher 'fear of failure' rate than many other innovative countries (e.g. US & Canada) which is constraining the growth of our tech startup sector.

Enhance culture and community engagement

Culture is the key to accelerating the growth of a tech community. Australia's tech startup community needs to continue to build a culture to promote increases in:

- *participation in the sector (1,600 new founders are needed for 2014 and 1,840 in 2015)*
- *success rate of startups (more than 1% of startups reaching $200m in annual revenue)*
- *serial entrepreneurship and mentorship (knowledge transfer and retention)*
- *rate of growth of firms (startups reach $200m revenue faster)*
- *angel funding from successful entrepreneurs (larger pool of funds for startups)*

Acceleration of growth requires greater inclusion and outreach to the broader ecosystem.

Culture is the key to accelerating the growth of a tech community. In the 1970s the tech communities of Silicon Valley and the area around MIT (Boston's route 128) were similar in size. But by the 1990s Silicon Valley was dominant. The accepted explanation for the difference in growth rates is the open and collaborative culture of the Valley (Anna Lee Saxenian 1994). This same culture is what is driving growth in both Boulder Colorado (Brad Feld 2012) and Israel (Senor & Singer 2009).

To make a significant impact on the Australian economy Australia's tech startup community needs to continue to build a culture of openness and inclusion to promote increases in the participation in the sector through:

- celebrating entrepreneurship and encouraging the broader community to participate
- encouraging entrepreneurs to try again and again... and again
- recycling knowledge and capital back into the community

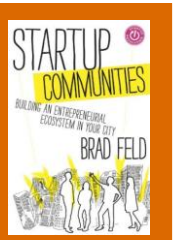
Culture is what drives benefits of network effects

Network effects are the benefits to individual startups as additional participants are added to the startup community. Strong horizontal social networks between connected entrepreneurs create information spillover effects from one part of the community to the next such that one person's knowledge becomes the community's knowledge.

Geographical proximity facilitates horizontal networks through social collisions – this includes quick conversations passing someone on the street, an introduction to another member of the startup community, a coffee meetup, or discussions in a co-working space.

Network effects generally require geographic clustering within walking distance. For example, everyone in the emerging startup hub in Boulder, Colorado USA is located within six blocks of each other – creating a natural momentum for the startup community to interact with each other in the sharing of ideas, mentoring and partnering together.

Four key principals of the Boulder thesis:



1. **Entrepreneurs must lead** the startup community and a critical mass of leaders is required for the startup community to be sustainable over time.

2. Leaders must have a **long term view** and commitment (around 20 years).

3. There needs to be a **culture of inclusiveness** from the community. The startup community must be inclusive of anyone who wants to participate in it.

4. The startup community must have continual activities which **engage the entire entrepreneurial stack**. This means engaging not only serial entrepreneurs but also potential entrepreneurs (e.g. students), aspiring entrepreneurs, mentors, investors and service providers

Australians invented the Cochlear bionic ear that allows thousands of people to hear and the wi-fi technology that connects billions of devices around the globe. Flaunt these successes to the world.

Australia's Computershare was founded by Chris Morris in 1978 in Melbourne. Today, it is the world's largest provider of investor services, has market capitalisation of over $6b, 11,000 employees, and generates revenues of $1.6b. The company continues to expand having recently acquired its US counterpart, the Bank of New York Mellon Corp.

The Cochlear bionic ear was invented by Professor Graeme Clark at the University of Melbourne in 1979. Three decades later, over 125,000 people around the world have been given the gift of hearing thanks to this Australian innovation. In FY12, Cochlear employed 2,390 staff and had revenues of $783m.

Australia's SEEK was founded by brothers Paul and Andrew Bassat along with co-founder Matthew Rockman in Melbourne in 1997. Today, SEEK is the destination of choice for Australian job seekers with ~150,000 jobs online and ~15m visits each month. SEEK recorded revenues of $475m and NPAT of $132m in FY12.

Realestate.com.au, Australia's top residential property website, was founded by Simon Baker in Melbourne in 1995. It has now evolved into the REA Group, operating 13 real estate sites globally including Australia's No.1 commercial property website, realcommercial.com.au. In FY12, REA Group generated revenues of $286m and NPAT of $87m with 500 employees.

Ozsale, one of Australia's earliest sites based on the shopping club model, was founded by Jamie Jackson in 2006 and has grown into the Apac Sale Group to tap into international markets such as New Zealand, Singapore, Malaysia and Thailand. Today, Ozsale has ~5m members and a new product is purchased every 5 minutes. Ozsale has 320 employees and is expected to generate revenues of $250m in FY13.

Australia's Catch of the Day was founded by Gabby and Hezi Leibovich in 2006. It has grown rapidly since but activity has really taken off in the past few years. The startup launched added group buying site Scoopon, online grocery store Grocery Run, online wine retailer vinomofo, lifestyle and shopping site Mumgo and online food ordering site Eat Now to its portfolio. In FY12, Catch of the Day generated revenues of $250m with 600 employees.

Carsales.com.au was founded by Greg Roebuck in 1997. Today, it employs 370 staff and is Australia's leading automotive, motorcycle, construction and equipment classifieds business. Carsales.com.au listed on the ASX in September 2012 following its strong FY12 results of $186m in revenue and $72m NPAT.

Australia's Wotif was founded by Graeme Wood at the height of the dot com crash of 2000 in Brisbane. The specialist in online accommodation bookings not only survived the crash but has expanded to five overseas countries. Today, Wotif employs around 450 employees and had revenues of $145m and NPAT of $58m in FY12.

Australia's Atlassian was founded by Scott Farquhar and Mike Cannon-Brookes in 2002 with a $10,000 credit card loan. Today, Atlassian is a worldwide leader in software development, employing 450 staff and generating revenues of $102m in CY11 with no sales people. Boeing, IKEA, Cisco, MIT, Deutsche Bank, Nike, Adobe, UPS, Apache, NASA, EA, HP, HSBC, American Express and Sony are all customers of Atlassian.

Australia's brandsExclusive, an invitation-only online shopping boutique, was founded in 2008 by Daniel Jarosch and Rolf Weber. In 2012, brandsExclusive had revenue growth of 1,335% to ~$70m with 130 employees. Jarosch and Weber also co-founded group buying site Spreets (acquired by Yahoo!7 for $40m in 2011) and popular online shoe retailer Styletread.

Freelancer.com started in 2009 when Australian Entrepreneur Matt Barrie bought Swedish marketplace GetAFreelancer.com. Barrie improved the business model, growing the marketplace from 500,000 users to one which connects over 7m emloyers and freelancers globally from over 230 countries. The startup recently hit revenue of $66m and has ~270 staff around the world.

Wireless LAN (WLAN), the core technology of Wi-Fi hotspots, was invented by researchers at the CSIRO in the 1990s. By the end of 2013, WLAN technology is expected to be in over 5b devices worldwide connecting homes, offices and public areas. CSIRO has earned revenue of $430m from licensing the invention to 23 companies.

Sources: IBISWorld (2012) Company reports, Seek (2013) About us, REA Group (2013) About REA Group, The Wall Street Journal (2013) Ozsale's gain reflects high street rivals pain, Smart Company (2012) Catch of the Day hits $250 million revenue and some hurdles, Carsales.com.au (2013) About Carsales, Wotif (2013) About us, Tech Crunch (2012) Atlassian 2011 revenues were $102 million with no sales people, Australian Financial Review (2012) APN adds brandsExclusive for e-tail expansion, Freelancer (2013) About us

More entrepreneurs with the right skills

Australia needs to rapidly increase the number of tech entrepreneurs to ~43,000 by 2033. Australia already has a high rate of converting people interested in entrepreneurship into founders. We just need more people interested.

- *In the short term, focus on getting the existing workforce interested in entrepreneurship.*
- *In the longer term, encourage more Australians to study computer science and this education needs to start early.*

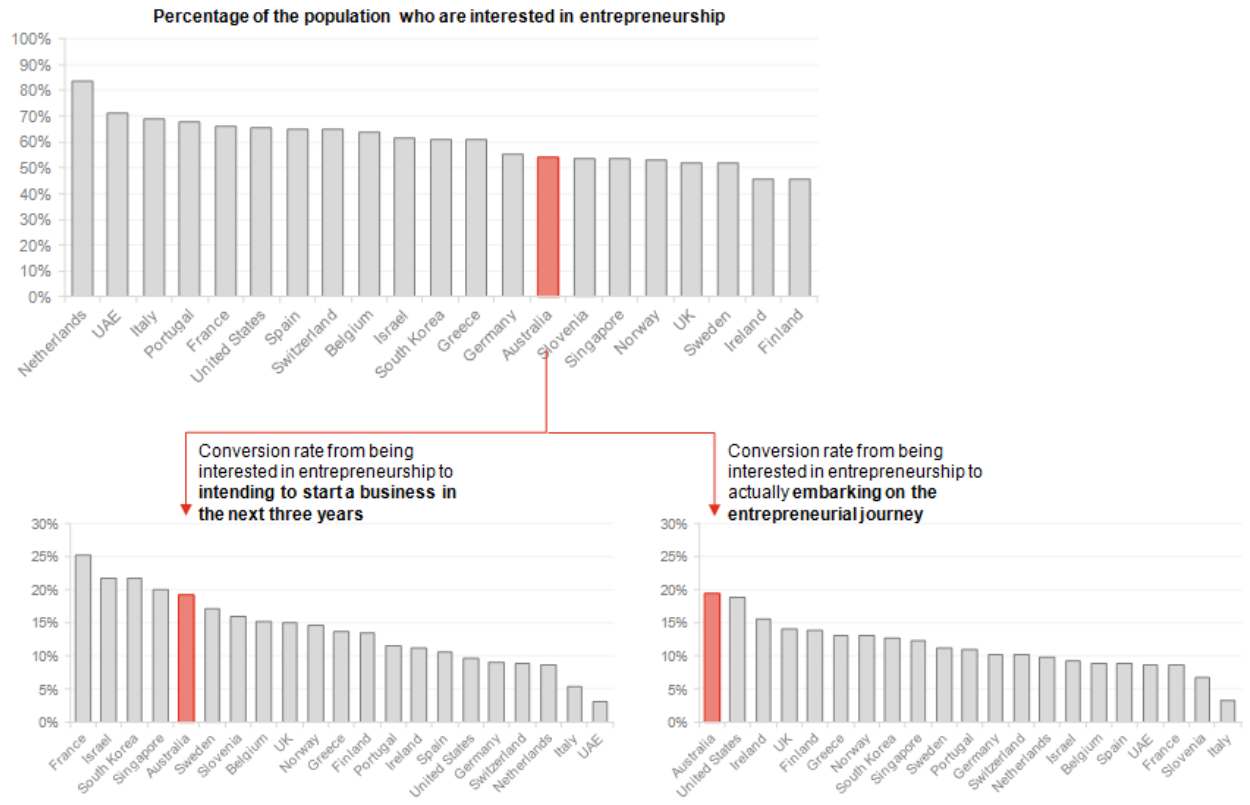
Increase the number of people interested in entrepreneurship. Australia is already great at supporting interested people to become entrepreneurs.

Growing the total pool of potential and interested entrepreneurs by promoting the sector and education are the keys to growing the entrepreneurial community. While Australians in general have lower entrepreneurial interest, those who are interested are more likely to become entrepreneurs in Australia than any other innovation-driven economy in the world (Figure 10).

Currently only 54% of the Australian adult population consider entrepreneurship to be an interesting career path.

However, of those in Australia who are interested in entrepreneurship, around 19% will plan to start a business in the next three years ('entrepreneurial intention') and the same proportion will actually embark on the entrepreneurial journey.

Figure 10 – The entrepreneurship funnel



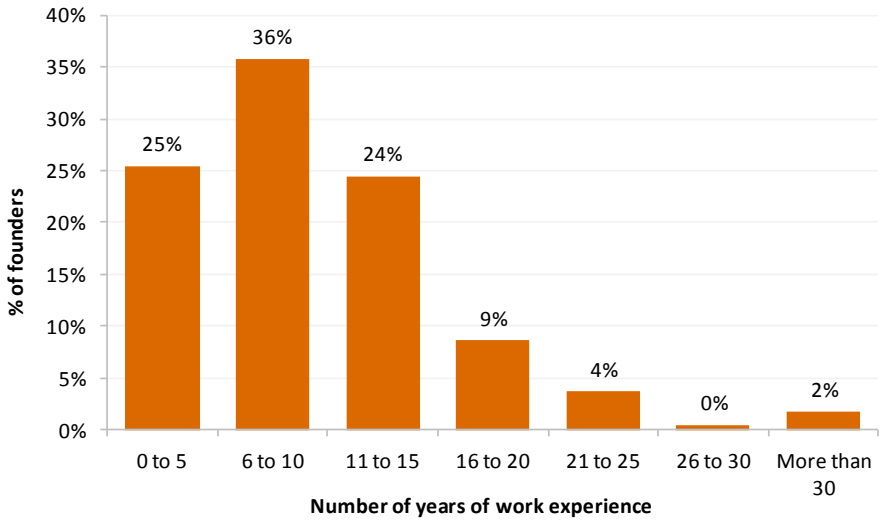
Source: PwC analysis of Global Entrepreneurship Monitor (2011 survey results)

In the short term, focus on attracting the existing workforce – of the current pool of founders 3 out of 4 have over 6 years work experience.

Tech startups need software engineers to get their ideas off the ground. Yet the supply of new computer science graduates is falling. Increasing the pool of potential entrepreneurs through education is a slow process so a greater focus on attracting the existing workforce is needed. Furthermore, founders today typically have a few years of work experience under their belt.

The shift from employee to entrepreneur is a difficult step to take as it generally involves leaving behind a relatively stable source of income with a large support network. As the startup ecosystem develops, innovators and risk-takers will have a wider support network from the onset. In the interim, other measures can be taken to support this transition.

Figure 11 – Founders by years of work experience



Source: PwC analysis

Case study: Entrepreneurship leave in France

In France, an innovative law fosters entrepreneurship by allowing employees to take up to two years of leave from their company to start their own business or work in another job part-time. At the end of the 'entrepreneurship leave', the employee can choose to return to their previous job or if all goes well, continue with their own business.

Source: McKinsey & Company (2011) The power of many: realising the socioeconomic potential of entrepreneurs in the 21st century

'We need a nation of coders, and we need them to start now. Training up more through education is important, but in the mean time we need to get people to jump from their corporate jobs and start changing the world."

- Mick Liubinskas, Pollinizer

In the longer term, encourage more Australians to study computer science. 29% of founders studied computer science, but only 2% of domestic graduates each year have a computer science qualification.

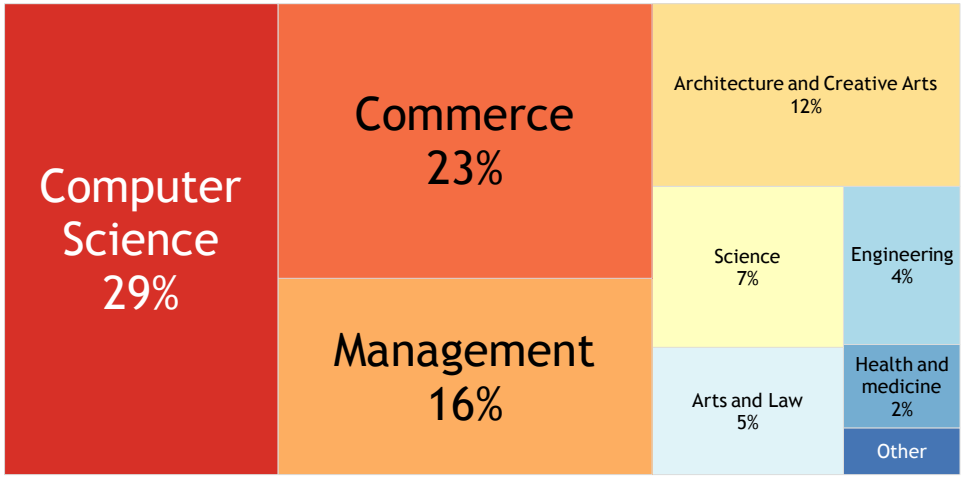
More founders are needed to grow the startup sector. Based on the qualifications of current Australian tech startup founders, there appears to be two types of skills that are important for founding a tech startup - computer science and business skills. More Australians need to be encouraged to acquire these skills, but the impact is not going to be felt for at least four years if they are educated traditionally.

Including through double degrees around 29% of founders with a higher education degree studied computer science, a further 4% have computer science skills from their engineering qualifications.

Yet computer science has become increasingly unpopular with domestic students, with the proportion of domestic students graduating in computer science falling two-thirds in the last decade.

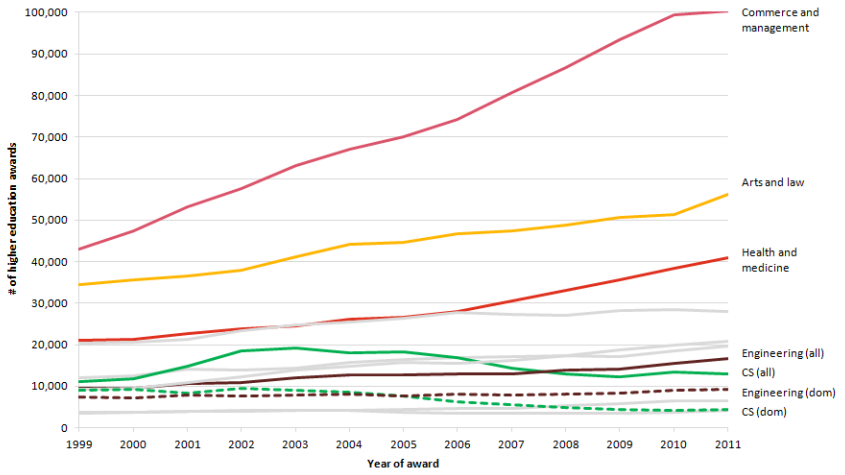
In 2011, there were only 12,850 computer science graduates and 16,750 engineering graduates of which ~4,500 (35%) and ~9,350 (56%) were domestic students respectively. Even if all international students were to stay in Australia post graduation, the supply of computer science and engineering graduates would still fall short of the numbers needed to accelerate growth.

Figure 12 – Educational background of founders



Source: PwC analysis

Figure 13 – Total number of higher education awards each year by field of study



Source: Department of Industry, Innovation, Science, Research and Tertiary Education (Student 2011 full year: selected higher education statistics publication)

To be globally competitive, computer science education needs to start early in life.

Case study – Computer science in Vietnam

In 2012 Neil Fraser, a software engineer at Google, visited a selection of schools in Vietnam (where computer science is in the school curriculum) to see how computer science was taught. He observed that in grade 5, students were already programming in Logo at a level on par with their grade 11 peers in the US.

Neil also visited a high school computer science class and observed the class working on an assignment question. He wrote the following in his blog.

"After returning to the US, I asked a senior engineer how he'd rank this question on a Google interview. Without knowing the source of the question, he judged that this would be in the top third. The class had 45 minutes to design a solution and implement it in Pascal. Most of them finished, a few just needed another five minutes. There is no question that half of the students in that grade 11 class could pass the Google interview process.

I had walked into that high school class prepared to help them in any way that I could. But instead of the school learning from my experience, I learned from them. They showed how computer science education should be done. Start everyone early, and offer those who are passionate about the subject limitless room to grow."

Source: Neil Fraser, http://neil.fraser.name/news/2013/03/16/

The rapid growth of the internet and the tech sector has created thousands of new programming jobs at companies like Google, Facebook and Twitter with lucrative salaries, yet the number of computer science graduates in OECD countries is on the decline.[1]

Supply has not kept pace with demand in Australia, largely because:

- Students are not exposed to computer science until they reach the later years of secondary school or university.
- Many people outside the tech industry are unaware of the job opportunities and career prospects of computer science graduates
- Industry commentary generally does not draw distinctions between the types of IT jobs that are being outsourced and computer science jobs that are in demand.

Developing countries like Vietnam shows us how computer science education should be done (see Case Study). In recognition of the need to equip students with these skills early on, developed economies are starting to do the same. For example New York City schools are currently teaching computer science in years 6 – 12 in 20 schools, and aiming to triple enrolments by 2016.[2]

It is not too late for Australia. The introduction of computer science in the Vietnamese school curriculum shows just how quickly results can be achieved.

[1] OECD (2013) Graduates by field of education
[2] Engadget (2013) 20 NYV schools starting Software Engineering Pilot program next year

Open up markets to Australian tech startups

The domestic market for Australian startups is relatively small with a population of only 23 million. Compare this with the sizeable population of the US (314 million) and the UK (63 million).

However, Australian governments and large companies are still significant consumers. The Australian Government had procurement contracts totalling $41 billion in the 2012 financial year. Australian businesses spent ~$2 trillion on total purchases of goods and services (including wages) in the same year.

However, it has traditionally been difficult for startups to reach governments and large companies. Australia needs to open up these markets and provide ways in for tech startups.

The challenge for startups is overcoming current procurement processes of governments and large corporations to compete with established tech companies for a piece of the multi-billion dollar pie.

Governments, large companies and tech startups are incredibly different by nature. Yet they can work well together, leveraging each other's strengths to achieve amazing outcomes.

For governments, tech startups can improve the services delivered to the community through innovative and agile technology at significantly lower cost.

For startups, governments and large corporations represent new markets and great customers in terms of their low default risk and relatively larger budgets. Governments are the largest unified buyers in the world.

The challenge is for tech startups is over-coming the current procurement processes to make this a reality.

Lengthy tender documents, multiple forms and stringent business requirements (e.g. size of insurance, workers compensation certificates) mean that very few startups can compete with large, established tech companies.

*Total Australian Government procurement contracts added up to ~**$41 billion** in FY12*

Of this, 39% ($16 billion) of contracts were awarded to Small and Medium Enterprises (0-199 employees). A much smaller portion would be attributed to small businesses only (0-19 employees).

Source: Department of Finance Deregulation (2013) Statistics on Australian Government Procurement Contracts

"Responding to an RFP for the City of Chicago is a herculean task... this approach to an RFP results in proposals from one type of contractor: firms that are very large and able to jump through all the hoops that the City has to ensure the minimum amount of risk and liability for the City itself"

Source: Chicago Lobbyists (2011) Our Response to Chicago's RFP for a Lobbyist Registration System

Simplifying procurement processes and open innovation will have mutually beneficial outcomes.

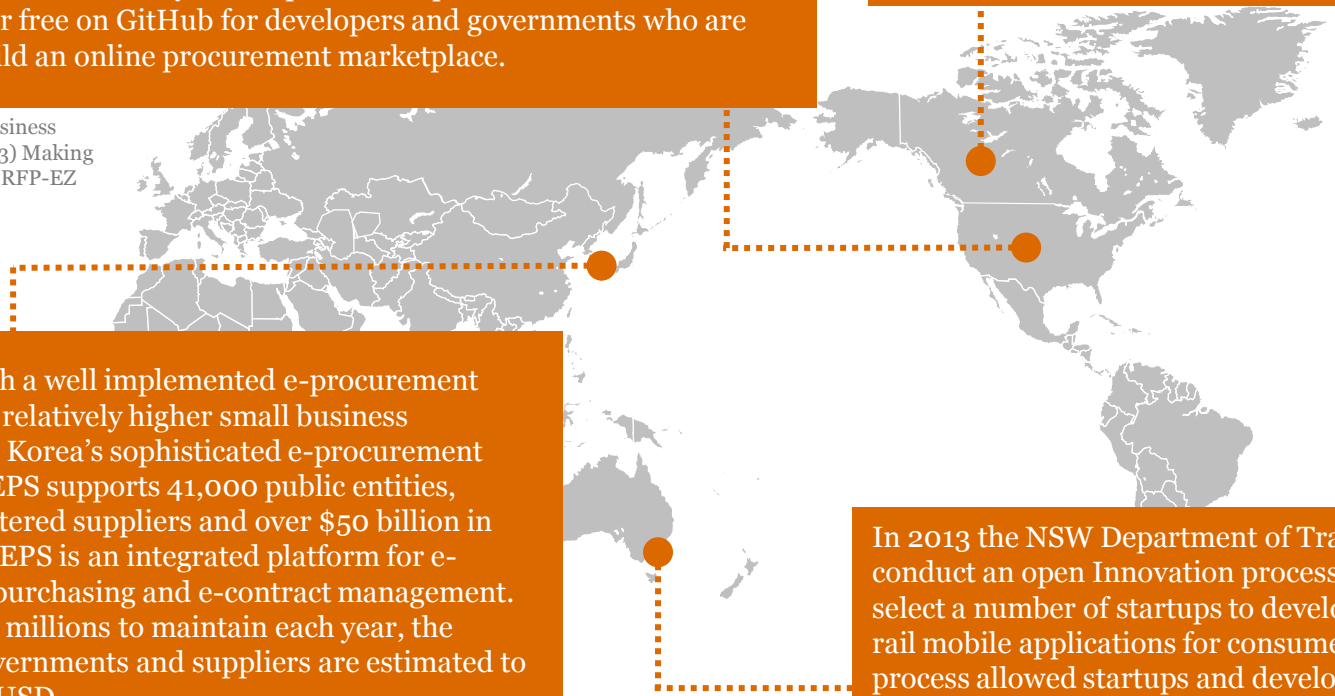
Governments around the world and the private sector are trying to be more startup-friendly through open innovation and procurement reforms.

The US Small Business Administration launched RFP-EZ in January 2013 to make it easier for startups to discover and compete for opportunities and for contracting officers to create statements of work. The best part is that RFP-EZ is built entirely as an open source platform. The source code is available for free on GitHub for developers and governments who are looking to build an online procurement marketplace.

Source: US Small Business Administration (2013) Making procurement better: RFP-EZ

The Canadian Government provides comprehensive walkthroughs on selling to the government, including the contracting process, procurement directories and bid preparation. There are almost a dozen webinars and seminars each week on these topics.

Source:Canada Business Network



Countries with a well implemented e-procurement systems have relatively higher small business participation. Korea's sophisticated e-procurement system KONEPS supports 41,000 public entities, 191,000 registered suppliers and over $50 billion in activity. KONEPS is an integrated platform for e-tendering, e-purchasing and e-contract management. While it costs millions to maintain each year, the savings to governments and suppliers are estimated to be $6 billion USD.

Source: Masiello, Betsy and Slater, Derek (2012) Embracing an Innovation Stimulus Package and United Nations Department of Economic and Social Affairs (2011) E-Procurement: Towards Transparency and Efficiency in Public Service Delivery

In 2013 the NSW Department of Transport had PwC conduct an open Innovation process ('appHothouse') to select a number of startups to develop real time bus and rail mobile applications for consumers. This accelerated process allowed startups and developers access to public sector IT roles. In under 6 months, 6 real time transport applications were released and downloaded more than 1 million times.

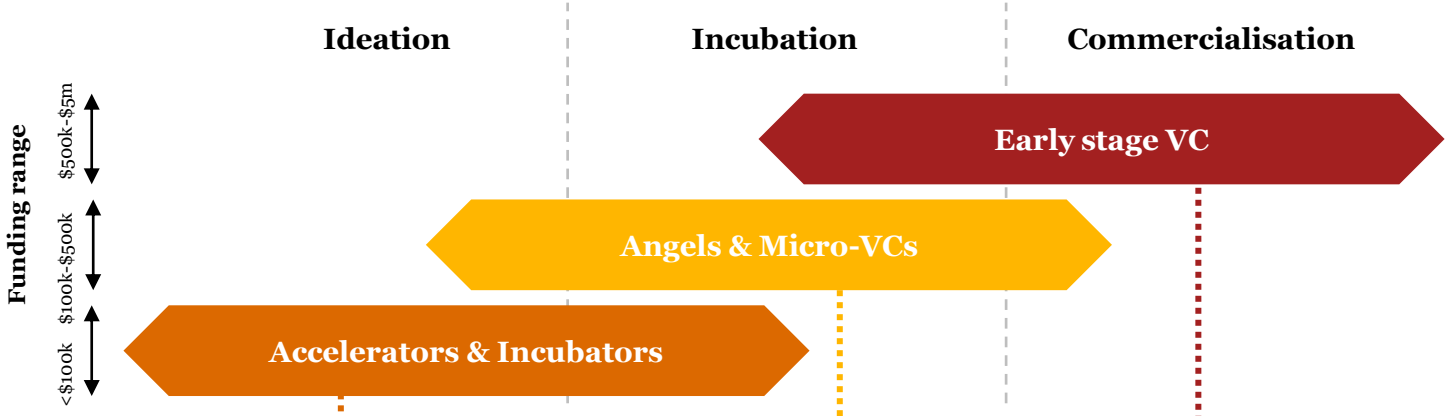
More early stage funding

Funding for the Australian tech startup sector exists, but it is in short supply. There is considerable competition for funding at all stages of the startup lifecycle, particularly in the early stages. A total of $53 million was invested in 62 first round deals in 2012.

Angels and micro-VCs are the currently the most active and fastest growing group of investors, with the value of investments more than doubling year-on-year since 2010 to $21 million in 2012. VC funds in Australia are relatively scarce ($10 million in early stage deals in 2012) but this is rational. VC funds are yet to generate sufficient returns to attract significant additional capital.

There is still a long way to go compared to other countries, but more funding isn't necessarily better. International case studies from Canada, Israel and Malaysia show low returns where funding has been made artificially more abundant.

Funding for the sector exists but is in short supply. In 2012, $53 million was invested in 62 first round deals.



- Accelerators are short-term mentor-driven programs to create investor ready businesses
- Incubators work with co-located businesses over the longer term to secure customers & funding
- Examples include: ATP Innovations, Blue Chilli, Ignition Labs, iLab, Incubate, Innovyz, PushStart, Startmate
- In 2012: 40+ accelerated deals (not counted as VC)

- High Net Worth Individuals invest their own money and time in startups
- Angel Groups are a collection of investors that assess deals together but invest individually
- Micro-VCs are small pooled funds with diversified investments
- Examples include: Sydney Angels, Artesian Capital Partners, Optus Innov8, Square Peg.
- In 2012: $21 million in 39 deals

- Targeted at startups that can already demonstrate, amongst many things, their revenue base and future exit plans
- Examples include Adventure Capital, Blackbird Ventures, OneVentures, Southern Cross Venture Partners
- In 2012: $10 million in 15 early stage deals and $22 million in 8 other first round VC deals

In 2012:

- ***12** accelerators & incubators*
- ***500** angels*
- ***10** angel groups*
- ***20** VC funds with **$600** million to invest*

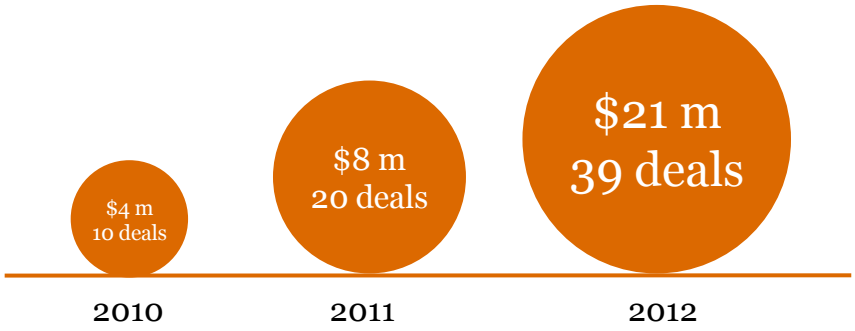
Source: ATP Innovations

Angels are the fastest growing investor group, but overall funding is relatively scarce. This is expected as VC funds are yet to generate sufficient returns to attract significant additional capital and deal values are currently too small for super funds to participate.

Angels are the most active and fastest growing investor group.

Angel activity has increased significantly since 2010, with the number and value of deals doubling year-on-year. This is attributed to:

- High Net Worth Individuals becoming more willing to publish deal values.
- Deal values getting bigger, especially as Angels work with sidecar funds which co-invest with group deals (for example the Sydney Angels has a $10 million sidecar fund). Three of the 39 Angel deals in 2012 were over $1 million.
- The emergence of micro-VCs in the Angel space due to the lowering of initial capital requirements for many consumer tech startups.



Source: ATP Innovations

VCs need to believe in the vision of the future of the sector to participate. Entrepreneurs need to succeed.

VC funds in Australia are relatively scarce, yet this is to be expected given the lack of demonstrated returns to VCs. Unless VCs invest in the sector because they believe in the vision or until more successes are recorded, funding will likely remain scarce for the time being.

Recent global research suggests that almost 11 out of 12 startups will fail,[1] so the 1 in 12 needs to generate sufficient returns on the whole for the investor to find the asset class worthwhile. The fact is that Australian VCs have had an overall industry track record of poor returns.[2]

Deal values are currently too small and administration costs are too high for super funds to participate.

Australians have $1.4 trillion locked up in managed super funds, making it the fourth largest pool of retirement funds in the world. However the stage of investment in tech startups in Australia means managed super funds are unlikely to get involved:

- Deal values are too low at around $1 million for seed/startup VC and $1.5 million for other early stage VC.[3] Compare this to the $100 million investments super funds normally make.
- Investment in tech startups is high risk and requires significant due diligence – raising the costs of administration.
- Overall returns have been low.

[1] Startup Genome (2012) Why startups fail
[2] Australian Government (2012) Review of venture capital and entrepreneurial skills
[3] Discussions with AVCAL

There is still a long way to go compared to other countries, but more funding isn't necessarily better. There are hazards of artificially increasing funding before an ecosystem is ready.

Discussions with the Australian Private Equity and Venture Capital Association Limited (AVCAL) indicate that VCs invested $32 million (one quarter of total VC investment) in 26 web and software based startups in FY12. Industry estimates vary but regardless, total VC investment per capita in Australia has a long way to go until it reaches international standards (Figure 14).

There's no doubt that funding is important for a thriving startup ecosystem, but international examples show artificially increasing the pool of available funding is only a good thing if suitable returns are achieved to keep investors interested in staying.

A restricted pool of financing distributed through the rigors of the market can be an efficient way to weed out weak ideas and ensure that only the best ideas are funded. [1] This view of the world suggests that if more money is available before an ecosystem is ready for it, weaker ideas will be funded which will reduce the return on the entire portfolio of investments to the investor, hence reducing the attractiveness of startups as an investment proposal in the future.

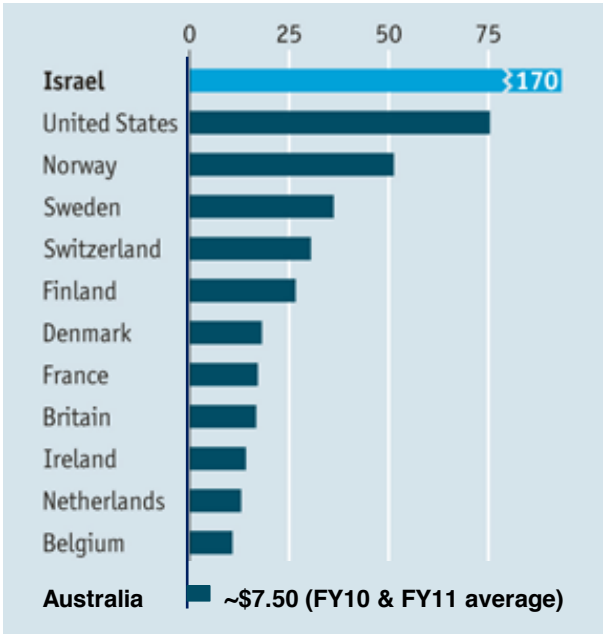
[1] Isenberg, Daniel (2010) The Big Idea: how to start an entrepreneurial revolution

A joint study in 2011 between the Business Development Bank of Canada and McKinsey concluded that low returns from venture capital investment (10 year IRR was -5%) have discouraged many traditional sources of funding for this asset class, contributing to a cycle of funding shortages in Canada.

Only 5% of Israel's exits were hatched in incubators despite Israel's renowned incubator program which launched over 1,300 startups and invested around $500 million.

Isenberg (2010) considers that Malaysia's loosely funded entrepreneurship-development programs have actually inhibited entrepreneurship by unintentionally increasing risk aversion.

Figure 14 – VC per capita (2010 US $)



Source: AVCAL and The Economist (2012) What next for the startup nation

Note: Per capita figures are for 2012
Original source: Spike Innovation

Improve the regulatory environment

Governments are often called upon to make sure the conditions are right for startups to flourish. The role of the government in the ecosystem however is limited to creating a supportive environment for innovation and entrepreneurship. Government initiatives are rarely a major driver of growth.

Australia's regulatory environment is relatively supportive of startups, with short times to start a business, low number of procedures required to register a business and total tax rates comparable to other developed economies.

There is always potential for the government to do more, for example by bringing Employee Share Option Plans in line with the UK and the US.

By international standards Australian governments are relatively supportive. R&D tax credits and the Innovation Investment Fund contribute positively to the sector. Government is unlikely to be the catalyst for growth.

Most governments around the world incentivise startups to undertake R&D activities, either at the front-end when R&D expenditures are incurred (e.g. through tax credits or super deductions for R&D expenditure) or at the back-end when revenue is generated (e.g. through patent / innovation box which reduced the rate of corporate tax on income generated from exploiting IP) (Table 1).

The Australian government is supporting the tech startup community via two main initiatives:

- *R&D Tax Incentive*: 45% refundable tax offset for smaller companies investing in innovation including some software development.[1]
- *Innovation Investment Fund co-investment scheme*: Government provides private sector fund managers (generally VCs) with capital for investment in early stage companies . The funds must be matched 1:1 with capital raised by the fund manager from the private sector. Total capital committed to date is $644 million. Recipients of another $100 million will be announced this month and a further $300 million has been announced for the next round.[2]

Experience around the world suggests that government initiatives are unlikely to be the catalyst for growth. The consensus of respondents in a PwC survey of over 100 tech companies in the UK was that governments should focus on creating a supportive environment for innovation and entrepreneurship, but should not intervene further.

Table 1 – Tax initiatives around the world[3]

Country	R&D Credit	R&D Super Deduction	Patent or Innovation Box
Australia	√		
Austria	√		
Belgium	√		√
Brazil		√	
Canada	√		
China		√	√
Czech Republic		√	
Denmark		√	
France	√		√
Hungary		√	√
India		√	
Ireland	√		
Italy	√		
Japan	√		
Korea	√		
Luxembourg			√
Mexico			
Netherlands		√	√
Poland		√	
Portugal	√		
Romania		√	
Russia		√	
Singapore		√	
South Africa		√	
Spain	√		√
Switzerland			√
Turkey		√	
United Kingdom	Note	√	√*
United States	√		

*The UK government has committed to enacting a 10-percent patent box regime effective April 2013.
Note: The UK government is currently consulting on the introduction of an R&D credit scheme. The intention is to implement this with effect from 1 April 2013.

[1] Australian Tax Office (2013) Research and development tax incentive
[2] Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education (2013) Innovation Investment Fund
[3] PwC (2012) Global research and development incentives group

There is potential for further government support removing barriers like upfront tax on employee share options and making programs more accessible

Changes were made to the Employee Share Option Plan (ESOP) in 2009 to tax receivers upfront when options are issued, not when they are sold, even though many share options prove to be worthless in time.

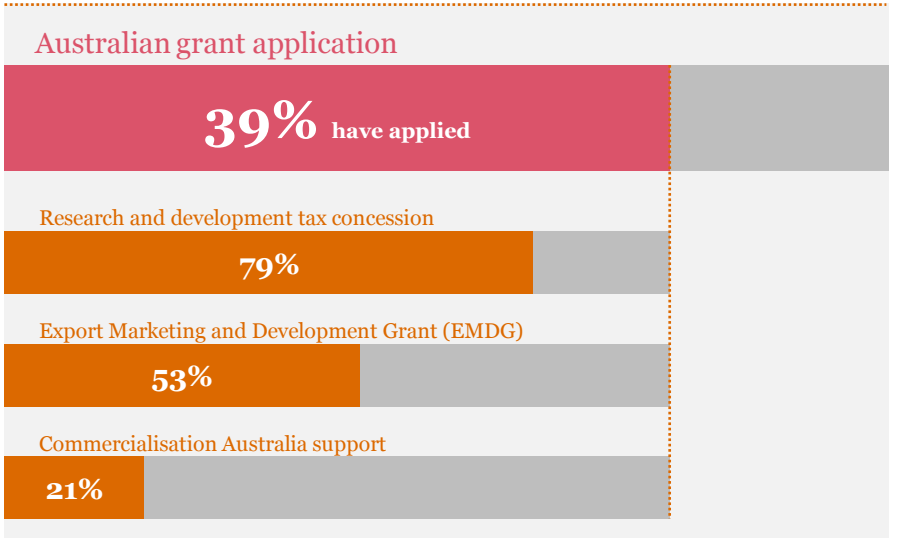
The change to ESOPs make it less attractive for employees of startups to accept shares – previously an important way for startups to reward employees and supplement wages in lieu of cash to compete with larger, more established companies.

The startup community would like to see ESOPs brought into line with the US and the UK where it is still treated as a capital gain and not as income. In the mean time, resourceful startups have managed to find workarounds – though at additional time and costs which startups cannot afford.

ESOPs allow employees to buy stock in the startup today and pay for the stock when it is sold, sharing in the financial upside from the fruits of their hard work and loyalty. In the US, the UK and previously in Australia, capital gains tax was applied when the shares were sold. Some larger companies were able to avoid paying tax by remunerating their top executives through an ESOP-type scheme using artificial structures. In response, changes to ESOP were made in 2009 to treat share options like compensation for tax purposes and tax them up front.

The startup community would also like Commercialisation Australia to be more accessible. Only 1 in 12 startups surveyed by Pollenizer and Deloitte applied for Commercialisation Australia support. Discussions in the StartupAUS Summit in March 2013 suggest the main reason uptake is low is the long lead time in the Commercialisation Australia process which is better suited to R&D heavy business models. Many consumer focussed tech startups have been able to market test their ideas without seeking government support.

Figure 15 – Applications by tech startups for Government grants



Source: Pollenizer, from little things, Startup Genome, Deloitte (2012)
Silicon Beach: Building Momentum

Appendix

Definitions

Literature scan

Defining the term 'tech startup' as used in this report

What is a 'tech startup'? The definition is somewhat 'fuzzy' but for the purposes of this report, we have defined it as having these characteristics:

- Technology is central to the product/service being provided
- High leverage of the labour input to the product/service so that the business can scale rapidly
- The product/service is a 'disruptive innovation' in that it helps create a new market or new supply chain/network which disrupts an existing market
- Revenue under $5 million per year.

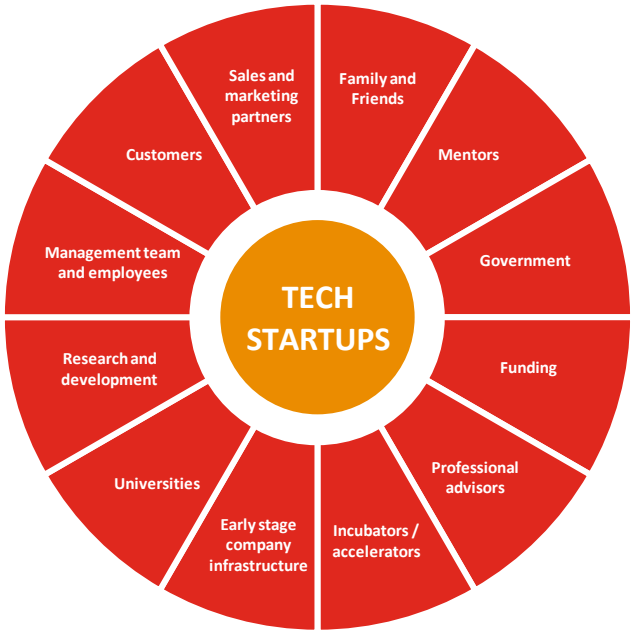
This definition typically excludes companies which are heavily reliant on labour or hardware inputs such as web design, web marketing and ISPs, but includes companies whose final product/service is not technology itself, but is technology dependent, such as Shoes of Prey.

Australian startups that have become established are defined as:

- Growth tech company - startup that has grown to $5 million to $50 million in revenue, such as 99 designs
- Late stage tech company - startup that has grown to over $50 million in revenue, such as Atlassian.

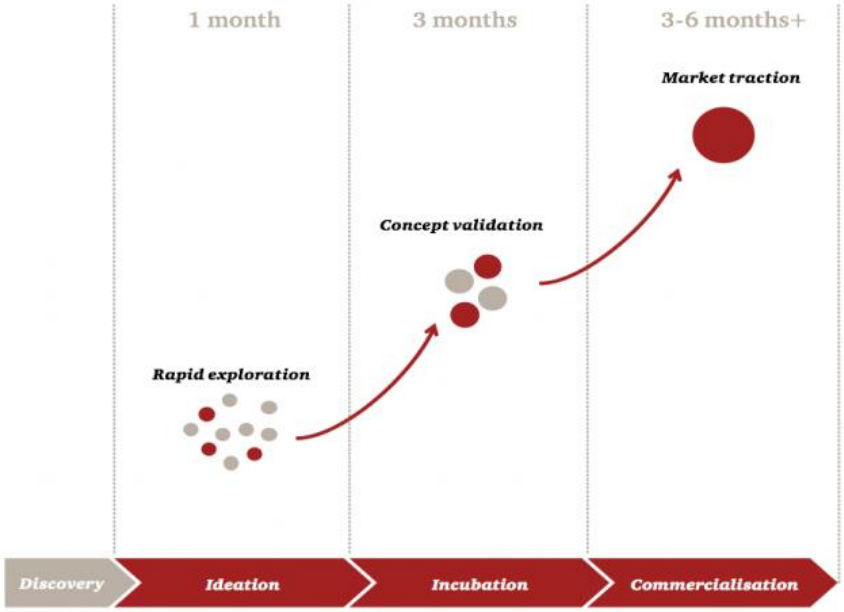
Defining the 'tech startup ecosystem' as used in this report

Like the ecological ecosystems described in most biology textbooks, the startup ecosystem comprises of communities of support organisations and startups. Each community will function somewhat separately, but are also linked to other communities through various relationships (e.g. friends, ex-colleagues, suppliers of inputs, buyers of outputs, university alumni, feeders). **As these relationships develop, the ecosystem becomes more than just the sum of its parts.**



Startups follow a trajectory towards success that includes a number of stages including ideation/prototyping, incubation where the concept is validated, commercialisation where the business model is validated, and finally scaling. The rate of progress may vary greatly.

As startups move along this trajectory they may draw from a wide range of supporters or 'feeders'. These 'feeders' create the ecosystem which surrounds the entrepreneurs and their startups.



Research about growing ecosystems emphasise the importance of leadership, communities, culture, education and the need to stop trying to emulate Silicon Valley.

Building a thriving tech startup community is a goal set by many nations. Not surprisingly, this has produced a great volume of research from academia and startup communities around the world. The most current and influential work converges on a narrow set of theories about growth. (see Appendix for literature review).

The contemporary literature on tech sector growth converges on themes of leadership, communities and networks, culture and perceptions, education, and the need to stop trying to emulate 'Silicon Valley'.

Building a thriving tech startup community is a goal set by many nations. Not surprisingly, this has produced a great volume of research from academia and startup communities around the world.

Report	*Theory*
Brad Feld (2012) Startup Communities	Boulder thesis gives four key principles of successful startup communities: • Entrepreneurial communities need to be led by entrepreneurs, while 'feeders' are there only to encourage and support the entrepreneurial community • The leaders must have a long term (20 year) commitment. • The leaders must welcome everyone into the entrepreneurial community and be inclusive of anyone who wants to participate. • The community must have continual activities which engage the entire entrepreneurial stack. Furthermore, 'cheerleaders' who regularly make noise about what is happening in the community to the world are important.
McKinsey & Company (2011) The power of many: realising the socioeconomic potential of entrepreneurs in the 21st century	Creating an enabling environment to boost growth, innovation and employment in entrepreneurial activities centres around three pillars of the ecosystem, financing and culture. Key factors include: • Shaping a fertile ecosystems (e.g. local initiatives, building the talent pool, collaboration, infrastructure, regulatory stability, and targeted tax incentives). A tight network of collaboration linking entrepreneurs, universities, research centres and large companies is also important. • Financing entrepreneurship from inception to critical size. • Promoting an entrepreneurial culture (e.g. endowing the population with an entrepreneurial mindset and proactive promotion of entrepreneurship). Australia is already considered to be a mature entrepreneurial economy, having a relatively high score in terms of ecosystem and financing. However emerging economies such as China and Brazil outperform mature economies in terms of culture.

Literature scan (cont…)

Report	*Theory*
World Economic Forum (2011) Global entrepreneurship and the successful growth strategies of early-stage companies	Successful growth strategies of different early-stage startups around the world include: • Viewing the world though an opportunity lens, requiring an enormous amount of optimism, stamina and ability to survive in order to thrive. • Taking early actions to prepare for and reduce the magnitude of down years, as most early-stage startups take a 'snakes and ladders' growth path. A major shift in the last 20 years has been the growing global dimension of funding, and in particular venture capital. Funds are moving freely around the world, consistent with the geographical dispersion of highly motivated and innovative entrepreneurs.
Daniel Isenberg (2010) How to start an entrepreneurial revolution (in Harvard Business Review)	Governments around the world have a somewhat misguided approach to building entrepreneurial ecosystems by trying replicate the 'gold standard' of ecosystems – Silicon Valley. There are nine principles for creating a thriving entrepreneurial ecosystem: • Stop emulating Silicon Valley because its ecosystem evolved under a unique set of circumstances which cannot be replicated elsewhere or even in Silicon Valley today. • Shape the ecosystem around local conditions by fostering homegrown solutions which are based on the realities of their own circumstances. • Engage the private sector from the start as they have the greatest ability to develop self-sustaining, profit-driven markets – governments cannot build the ecosystem. • Focus resources on high-potential ventures rather than spreading scarce resources amongst a greater quantity of ventures. • Get a big win on board and over celebrate the successes to highlight the rewards of being an entrepreneur. • Tackle cultural change head on – it is possible to change social norms about entrepreneurship in less than a generation. • More finance is not necessarily merrier; stress the roots and ensure that new ventures are picked through the rigours of the market. • Help existing clusters grow organically rather than building new clusters from scratch. • Removing administrative and legal barriers to startup formation is better than creating incentives to overcome these barriers, though startups can succeed despite inhibiting legal, bureaucratic and regulatory frameworks.

Literature scan (cont…)

Report	*Theory*
Elias Bizannes (2009) Silicon Beach Australia Lifeguard Paper	Policy document based on compiled responses from Australia's startup community. The paper identifies a number of strategic actions to help Australia become recognised as an undisputed global centre for technology innovation: • Skill up Australians through education (e.g. strong engineering and product skills). • Make it easier to hire top international talent (e.g. visas). • Create a more supportive and mentoring culture. • Facilitate faster, better and cheaper internet access (e.g. allocate a proportion of funding to improving international data pipes, remove filtration of the internet, and manage the NBN as a wholesale network. • Improve tax incentives (e.g. ESOP, R&D tax breaks, two year tax exemption for startups). • Improve innovation and research grants (e.g. remove requirements for matching funds, reduce administrative and time burden for applying for grants). • Level the playing field with other industries in Australia which receive far more attention.
Deloitte, Pollenizer, from little things, Startup Genome (2012) Silicon Beach: Building Momentum	Analyses the data on Australian and global startups from the Startup Genome Project and identifies a number of suggestions for improvement: • For entrepreneurs and founders: act as a community, be more ambitious and celebrate your successes. • For government: review ESOPs, look for ways to support angel investors and reform the grants process. • For corporations: make an effort to help and work with startups.
Startup Genome (2012) Startup Ecosystem Report	Ranks 20 global startup ecosystems based on data from more than 50,000 startups around the world. A deep dive of the Sydney and Melbourne startup ecosystems indicated that Australia could do better in the following areas: • For investors: increase seed stage activity, especially by super angels and venture capitalists. • For entrepreneurs: diversify focus beyond just targeting small and medium enterprise customers in niche markets. • For government: improve immigration policies, tax breaks and tax incentives for startups and their investors.

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