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Australia's Innovation Ecosystem

Over the Last 20 Years

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Abstract: Australian innovation ecosystem experienced a very dynamic transformation over the last 20 years. The article presents the keydrivers that brought this change and summarizes the main periods of that process: the investment landscape (2001-2005), the difficult times up to 2011 followed by the vital recovery between 2011-2015 and further growth till now. The article presents current landscape strongly affected by the COVID-19 that affects many businesses. Finally, a possible future scenarios are drawned and discussed.

Keywords: Australia, Cluster, Ecosystem, Innovation, Enterprise, Impact

1. The environment leading up to 2000

Back in 2000, Australia had been through a decade-long bull market, with mining and agriculture as the major investment classes. The dot.com bubble also meant technology was becoming more widely accepted as an alternative investment option. Australia's scientific research was already recognised as on par with the best in the world, so it made sense that it should produce some great commercial opportunities.

Despite this favourable backdrop, the Australian venture capital industry was still very immature. The Australian Government had backed the first Innovation Investment Fund (IIF) managers in 1998 with a $200m investment, but there remained a low pool of venture funds—particularly for early-stage investments. At the time, early-stage venture capital represented just 1% of the Australian Gross Domestic Product (GDP) compared with 4% of GDP in the United States.

In addition to the IIF, the START grant scheme was in place, providing matching funding for investment to support the commercialisation of Australian research. There was also an R&D Tax Concession in operation, whereby R&D investment was 125% deductible—though only after a company became profitable.

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Despite this, technologies developed in Australian research institutes were not being funded to a significant extent. Put simply, Australian venture capital funds were not interested in university technology or seed-stage investment because it was too early and too risky. Research-based ventures had historically been poorly organised, had intellectual property that was poorly defined and managed, had high science and people risk, and needed intensive hands-on assistance. There was excellent Australian science, but virtually no assistance to commercialise it. The first university-focused fund in Australia, Uniseed, was established in October 2000 to bridge this gap. Initially, a proof of concept fund, Uniseed, was a $20m partnership between the Universities of Queensland and Melbourne (UQ and UoM).

2. The investment landscape 2001–2005

In 2000, the dot.com bubble burst. The subsequent economic downturn saw the Federal Government introduce several initiatives that were critical for assisting innovation.

Four further IIFs totalling $160m were established in 2001. That same year, the Government supported the establishment of four new Pre-Seed Fund (PSF) managers (totalling $100m) that were designed to invest in companies spinning out from universities and public sector research organisations. The program had a significant positive impact on the availability of pre-seed funds in Australia—as both the first investors in new start-ups, and as follow-on or co-investors in already established start-ups.

Unfortunately, the PSF scheme was not renewed. The ethos behind the scheme was flawed in that it assumed that an earlier, riskier fund would make a significant return on capital over 10 years at a time when later stage venture funds in Australia had been unable to do so. Another disappointing aspect of the PSF scheme not being renewed was that several VC managers who had learnt the trade was lost. In addition, the IIF scheme was not supported again for many years—eventually being resurrected in 2007.

Other schemes, such as the introduction of the $40m Biotechnology Innovation Fund (BIF) and Venture Capital Limited Partnerships (VCLPs), saw the pool of venture capital in Australia grow rapidly. From a level of $230m in 1999–2000, capital levels reached $478m by 2000–2001 and continued to grow in the subsequent years.

ANU Connect Ventures, a fund focused on the Australian National University and supported by MTAA Super, was also established in 2005.

However, despite the growth in VC funds, there were still limited funding options for early-stage university spinouts, and follow-on rounds were usually at or close to flat valuations due to the limited pool of capital. It was still a “buyer’s market”.

3. 2006–2010: A Near Death

In 2006, Uniseed closed what was Australia’s first Commercialisation Fund. The Superannuation Fund Westscheme and the University of NSW joined UQ and UoM to commit $10m each over the next 10 years. Apart from a focus on seed investment, a unique aspect of

the operational model relative to traditional venture funds was an open fund structure, making investments throughout the entire life of the fund.

The Medical Research Commercialisation Fund (MRCF) was established in 2007, managed by Brandon Capital. In contrast to Uniseed, this fund was focused on Australia's medical research institutes, with each organization paying a modest annual membership fee. The fund received significant support from Federal and State Governments, and this allowed the MRCF to attract superannuation support due to its low fee structure for investors.

One of the biggest negative events for the innovation sector over the next decade was the collapse of Lehman Brothers in September 2008 and the onset of the Global Financial Crisis (GFC). Investment funding availability dried up considerably as funds moved away from riskier alternate assets and into safe havens.

Notably, the GFC came on the back of the axing of the Commercial Ready grant scheme in May that same year—CommReady being the grant scheme that effectively replaced the START and BIF schemes. This left many small growth companies in the difficult position of having to secure alternative private funding quickly, which was not an easy feat.

These events led to superannuation funds and other investors pulling back on venture investment, and the number of new venture funds formed subsequently decreased significantly. Fortunately, funds like Uniseed, ANU Connect Ventures and the MRCF were able to continue investing and ride out this tough period.

Despite this, the negative economic environment produced some positives. Following the resurrection of the IIF scheme in 2007, two further IIF managers were supported (a total of $90m in capital). In 2009, the Federal Government provided further IIF funds and also introduced the Innovation Investment Follow-On Fund (IIFF)—a pool of $83m made available to 20 venture managers to support companies after the GFC.

4. 2011–2015: The Recovery

The introduction of the refundable R&D Tax Credit in July 2011 provided a further boost, with a 45% cash rebate on eligible R&D for non-profitable companies with turnover below $20m. This has proved to be by far the most important scheme for start-ups as the relative certainty of the rebate means that start-ups can plan their budgets around this.

However, in 2014–2015, scientific research funding was cut to less than 0.6% of GDP, and the Government also commenced a reduction of the R&D tax credit from 45% to 43.5% in July 2016 and then cut again in 2018 from 43.5% to 41%. Further cuts were also proposed by linking the rate to the company tax rate, though this has been deferred until a later review.

On the positive side, changes were announced to the Significant Investor Visa Program in 2015 to mandate that $500,000 of the $5m investment application fee needed to be invested into alternate assets such as venture capital. The National Innovation and Science Agenda also set a focus on science, research and innovation as long-term drivers of economic prosperity, jobs, and growth, with $1.1b committed over four years to 24 measures.

In 2014 and 2015, the mood changed considerably, following high-value deals such as Fibrotech Therapeutics (sold to Shire for US$75m plus milestone payments), Spinifex Pharmaceuticals (sold to Novartis in a US$700m deal), and Hatchtech (sold to Dr Reddy's Laboratories for US$200m), which returned significant capital to shareholders.

Atlassian's IPO on the Nasdaq in December 2015—the largest float from an Australian company on US markets—was also heavily oversubscribed, further demonstrating that Australian technology was an attractive investment class.

5. Since 2016

On the back of these deals and incentive schemes, there was a groundswell of interest in innovation and entrepreneurship, and the mood of the Australian economy shifted positively. Entrepreneurship became fashionable, and some superannuation funds have returned to support venture capital.

The Federal Government established a $500m Biomedical Translation Fund (BTF), with $250m of Commonwealth funding that has been matched by private sector investors. Three funds were set up, managed by Brandon Capital, OneVentures, and Bioscience Managers.

All major research organisations now have programs in place to support innovation, including incubators and accelerators.

More venture firms and angel investors became focused on research-based start-ups. On the back of the Fibrotech, Spinifex, and Hatchtech exits over 2014 and 2015, international investors also showed an interest—an example being the IP Group Australian Go8 fund established in 2017.

Looking at past lessons, the innovation sector has been an easy target to achieve the desired fiscal result. In 2004, the START grant scheme morphed into the CommReady Scheme after a change in Federal Government, whereby the START and BIF schemes were absorbed into the new scheme. This started an alarming trend over subsequent years where each new Government (with each change in a political party) would throw out the old scheme and introduce a new, slightly less friendly, and less generous grant scheme. In each case, the changeover was tedious and provided uncertainty to start-ups and investors.

6. 2020 – COVID-19 and coping post the pandemic

In early 2020, the innovation sector has sustained a second major setback with COVID-19, and this will arguably be of even greater impact than the 2008 GFC. With an unforeseeable end to the COVID-19 crisis, this pandemic is going to be with us for a long time, and we have to prepare for an unknown future. Generally, sectors on the decline will continue to be so, differentiation will become minimal, and pressure on budgets will get tighter. The demand for evidence will be greater, and the quality of the evidence will need to be higher.

Just as occurred after the GFC, new funds will not be formed as frequently, and existing funds will focus investment on supporting their existing portfolio at the expense of new investments.

All universities have received a significant negative impact on their budgets due to the loss of international student revenue, which will last for some time. In some cases, budget holes as large as $600m have been reported. Furthermore, students may not return immediately when travel restrictions are finally lifted, so this problem may last for several years.

Start-up companies have also been impacted to varying degrees by COVID-19, with only a minority benefiting from the current situation. As an example, there is increased customer interest in Cardihab's remote cardiac rehabilitation program due to reimbursement codes for telehealth being opened by Federal Government and clinicians now unable to perform cardiac rehab face to face as the patient group is very vulnerable to COVID-19. Examples of some of the negative impacts of COVID-19 on start-up companies are:

- Clinical trials postponed or put on hold;
- International sales impacted;
- Some research programs at university laboratories delayed or on hold;
- Delays in the supply of components for products; and
- Delays in the progress of commercial discussions.

The amount of money invested in some sectors, especially healthcare, either through VC funds or PE will increase, but finding a good "home" for that cash will become increasingly difficult.

7. Increased national protection

At the moment, nations are redefining their relationships with the rest of the world. The sale and transfer of tech on a cross-border basis will be limited, with increasing levels of regulatory supervision. There will be a rush toward protectionism and increased regulatory scrutiny—an example being the recent changes to FIRB exemptions on foreign investment and ownership. It is expected that a cultural significance, fuelled by the effect of COVID-19 on employment, will ensure that "locally manufactured and sourced" will command value. This will have a significant effect on companies looking to internationalise their business, but also provide local market flexibility and agility.

8. Flexibility in relation to supply chains

There are massive implications for the supply chain moving forward, the level of stock being held, with a significant impact on companies developing products with a specific shelf-life. With a culture of protectionism arising, the need for onshoring and flexibility in the supply chain will increase.

A changing mindset for both companies and purchasers can have a long-term market effect:

The global response and need for ventilators have identified a significant opportunity and potential threat to the health tech industry. There are examples of companies that have written 12 months' worth of software code or R&D in two months to get a product on the market, and others that have re-tooled and started making ventilators from a new. Burberry (a high-end UK fashion chain) switched from clothes to protective gowns, and Rolls Royce now makes ventilators as examples. The mind shifts from both the companies and the purchaser's perspective have been significant.

9. Strive to achieve agility

Historically, most M&A transactions were based around either a cost reduction or revenue generation strategy. There seems to be a shift toward capability acquisition as companies try to re-align for the future and the increased acceptance of data monetization. This will accelerate as companies begin to look to develop strategies to increase agility. The search for capability and new business models will be one of the primary drivers for acquisitions moving forward.

10. Restricted access—break in traditional selling mode, and need for digital engagement

A change in the traditional selling model will take place. While little change has happened to the "sales representatives" culture, this situation will accelerate the pressing need for companies to engage in more digital marketing. As engagement in new digital ways ensues, the significant reduction in SG&A expenses will become the new normal as companies manage their cash flow more closely and examine the return on expenditure.

Peter Devine is CEO of Uniseed and has extensive experience at board and executive management levels in the commercialisation of early-stage technologies, having held senior R&D, business development and commercialisation positions in several Australian companies and Australian universities. Has served on the Board of numerous start-ups which have collectively raised over AU$300m, with a number of these being successfully sold to large multi-nationals in deals collectively worth over AU$1.75b.

Peter holds a PhD from the University of Queensland and received the Dean's Prize for his MBA studies at the Australian Graduate School of Management. He is a Graduate and Fellow of the Australian Institute of Company Directors and holds a Diploma of Financial Services (Financial Markets) and a Graduate Diploma in Applied Finance from Kaplan Professional. Peter was previously VP of Business Development at ASX-listed Progen Industries Ltd. He was Research, Development and Commercialisation Manager at Brisbane-based PanBio Pty Ltd from 1996 to 2000, which ultimately was sold to Inverness Medical. He received a Federal Government Centenary Medal in 2003 for outstanding contribution to the business of biotechnology.

Recent Uniseed successes include Fibrotech Therapeutics' sale to Shire in 2014; the Spinifex Pharmaceuticals sale to Novartis in 2015; the Hatchtech sale to Dr Reddy's in 2015 and FDA approval in 2020; the Smart Sparrow sale to Pearson on 2020 and Exonate's collaborative agreement with Janssen in 2020.

Rabab Nasrallah is an investment analyst with Earlybird Venture Capital based in Germany, with a major focus on investments in the health care space. Prior to this role, Rabab was the program manager for the INCUBATE accelerator based at the University of Sydney, Australia. With an extensive research background, Rabab has held roles in leading global research organisations in Australia and the UK, including The George Institute for global health, Lowy Cancer Research Centre, Cancer Research UK, and Cambridge University.

Rabab has a PhD in regenerative medicine from UNSW, Australia. Following her postdoctoral fellowship at the Babraham Institute, Cambridge, she published a first author Nature paper in 2020.

John Kurek is the Biotechnology Investment Manager at Uniseed, Australia's longest-running venture fund, operating at the Universities of Melbourne, Queensland, Sydney & New South Wales, and the CSIRO, with investment capital provided by these research organisations. At Uniseed, John is responsible for identifying new investment opportunities from the five research partners, and also covers Uniseed's overall biotechnology and life sciences portfolio. Uniseed has returned significant capital to its investors, including Novartis acquisition of Spinifex for US$700m; Shire plc acquisition of Fibrotech Therapeutics for US$557m; and Hatchtech sale to Dr Reddy's Laboratories for ~US$200m.

John brings 20 years of industry experience as a Biotechnology Manager with a focus on the strategic design and implementation of drug development programs. John's previous roles have been with ASX listed biotech companies BioDiem Ltd and Amrad Corporation Ltd., where he was responsible for the management of preclinical and early clinical stage drug development projects. His experience extends from late drug discovery to the phase I-II clinical phases of drug development. John's experience covers a range of areas, including 1) Acting as Director on investee company boards, 2) Biotechnology project management, 3) Investment analysis and due diligence, 4) Financial modelling, 5) Intellectual property management, 6) Business development, 7) Risk management, and 8) Relationship management.

John has a PhD in Neuroscience and a Post Graduate Diploma in Drug Evaluation & Pharmaceutical Science, both from the University of Melbourne, and is a graduate of the Australian Institute of Company Directors.