**BILL FERRIS AC**

**CEDA SPEECH – FRIDAY 8 DECEMBER 2017**

**THE FOUR SEASONS HOTEL, SYDNEY**

**'INNOVATION SHOULD BE CELEBRATED NOT HIDDEN AS AN 'ELEPHANT IN THE ROOM'"**

*****CHECK AGAINST DELIVERY*****

It's a pleasure to be here today to talk about how we can accelerate innovation in Australia.

I am always inspired by the incredible talent Australia has to draw on when it comes to innovation. Take **Anatomics,** a medical technologies company started by researcher and entrepreneur, Paul d'Urso, with a $1,200 grant from the Queensland hospital where he worked. Anatomics designs and manufactures surgical implants enabled by 3D imaging, and produced on 3D printers. These titanium and polymer composite parts have been exported to more than 40 countries! Most recently, a whole sternum replacement – a new-to-world innovation - has successfully been implanted in patients with life- changing outcomes.

I asked founder Paul d'Urso how could he make such bespoke manufacturing and service delivery scalable. He explained his future

business model this way: Anatomics will develop a distributed business model through a network of 3D printers owned and operated in accredited hospitals here and abroad. Paul's software and designs will be downloaded through this network, enabling surgeons to directly 3D print their patients' protheses using titanium powders sourced from processed Australian rutile. He expects his largest customerswill be in China.

My own career has been based on investing in similar Australian companies who can turn a big idea into a global success, and spread the benefits of that success locally.

My original start-up in 1970 was Australia's first venture capital company. I raised $500,000 as an initial war chest to which Hill Samuel (pre **Macquarie Bank**) later added another $2 million. I used the funds to invest in Australian businesses that were innovative or export-focussed – or that I believed could be if we assisted them. Although I might have been better to re-invest the lot back into Macquarie shares! Macquarie is another great Australian example of

the power of innovative management, ideas, and business models building jobs and wealth in the finance sector.

It was not until the mid to late 1990s I began investing in digital and internet-enabled businesses. These included **Looksmart**, a very early search engine (pre Google), where we made over 150 times our initial investment, and **SEEK** where the Bassatt brothers pioneered an online disrupter to the lucrative newspaper classified jobs business, then dominated by the traditional media, such as Fairfax. Looksmart was our first tech unicorn but ultimately got out-played by Microsoft, Google and others. But SEEK has continued its stellar performance, expanding into other markets, and today enjoying a market cap of over $6 billion – four times that of Fairfax post its exit of Domain.

Companies like this are critical to our country. They grow jobs, exports and profits in Australia, and provide superior products and services to consumers here and abroad. Their success is built on innovation, both through their own ideas and investments, and

through the support of the broader innovation system. Anatomics, for example, has collaborated with the CSIRO and benefited from the Research and Development Tax Incentive and Export Market Development Grant programs.

What has changed since I first began investing is the intensity of global competition for IP. Australia is now in a $1.6 trillion a year global innovation race, where the rate of investment in new technologies is increasing every year. To keep creating jobs and prosperity in Australia, we will need many more innovative companies like Anatomics and Seek. To do this, we need an innovation system that better supports and accelerates Australian innovation at scale.

In late 2015 I was invited to chair the Board of Innovation and Science Australia, an independent statutory board tasked by the Federal Government to provide advice as to how Australia can improve its innovation performance. ISA's Board is now comprised of

leading innovators, researchers, and private sector practitioners in innovation, including Chief Scientist Dr Alan Finkel as Deputy Chair.

We began by completing a comprehensive review of the existing innovation and science system which we published in February this year; and four weeks ago we delivered to Government a national strategic plan for innovation out to 2030. Our report is called "Australia 2030: Prosperity through Innovation". Pending the Government's response to and release of this Report, I am today sharing with you what I can about the intentions and nature of thinking behind this Report.

**Ultimately it is a plan for the sort of society and economy all Australians can aspire to by 2030.**

It is a plan for continuing national prosperity driven by innovation, a prosperity less dependent upon the performance of our commodities exports and highly favourable terms of trade, and more widely driven by an acceleration of the development and commercialisation of our ideas and inventiveness.

It is a plan to create more and better jobs, noting that fast-growing companies that innovate, export and scale are responsible for virtually all new net jobs in the economy.

And it is a plan to spread the benefits of innovation widely, such as giving Australians better access to breakthroughs in medical care.

The Plan is founded on the belief that innovation is good for Australia. Innovation drives productivity which drives GDP growth and, ultimately, improved living standards. Neither terms of trade nor labour force growth will provide the sort of productivity growth experienced during our recent history. **Given Australia's ageing population, the real challenge by 2030 is unlikely to be a shortage of jobs, but rather a shortage of workers appropriately skilled to fill these jobs.**

I acknowledge there are community concerns about the loss of jobs to innovation and disruptive technologies. We cannot let these fears make us circumspect as a country about championing innovation. Fears about jobs losses are not new. Automation has been a constant

feature of our economy for over 70 years. In fact, the rate of jobs lost to automation was higher in the 1950s than it is today.

Critically, this history shows us that in the long-term the places that practice innovation – new and better ways of making things and delivering services at home and abroad – are the ones that keep creating sustainable jobs and prosperity. It also shows the best way to prepare people for the impact of technology is to make sure education systems adequately prepare people with the knowledge and skills they need for jobs throughout their lives. The combination of innovation and education helps create new jobs to replace the ones lost, and helps people adapt as their role changes, or switch to a new role. This will be even more critical as technologies like AI expand automation in the service sector and knowledge-based work.

A great example is provided by Melbourne based company **TEXTOR TECHNOLOGIES**…. “an overnight success after its first 10 years”, as a CSIRO colleague recently described this most innovative business. Once a struggling small manufacturer, it is now supplying its novel

moisture absorption fabric for many hundreds of millions of nappies produced by Kimberley Clark in its facilities here and worldwide. The key to Textor's turnaround was the company's vision that with more innovative products and more efficient production facilities it could be a global exporter. Textor worked with CSIRO to develop novel fabrics. They upgraded their factory to a state-of-the-art, automated facility. In doing so, not a single job was lost. Rather, staff retrained to perform higher value roles. These innovations have transformed Textor into a healthcare and hygiene leader exporting across the Asia Pacific. The business has grown by 300 per cent, and has opened-up a multinational textile value-chain.

Stories like this highlight why innovation should be celebrated and encouraged in Australia, not treated like an "elephant in the room". Australians are smart enough to know that new technology is inevitable; and they already understand that innovation can enhance our competitiveness and future living standards. Without innovation they know that none of us should expect that "she'll be right mate". So let's get on with it!

Australia 2030: A strategic plan for Australian innovation calls out 5 imperatives to be tackled if Australia is **to close the considerable gap in innovation performance** between it and key competitor nations. While Australia ranks highly in knowledge creation and inventiveness, it ranks below average among OECD and competitor nations in the translation and commercialisation of our own ideas and discoveries.

The ISA Board believes Australia can expect to become a top tier innovative nation by 2030 if these 5 imperatives are actively addressed

as core policy priorities and acted upon forthwith.


**(Slide 2: 'Five imperatives for the Australian innovation, science and research system')**

Implementing the five imperatives will build on the work already underway to strengthen Australia's innovation system.

The National Innovation and Science Agenda (NISA) injected $1.1 billion into Australia's innovation system through addressing gaps in commercialisation, collaboration and entrepreneurialism. Positive effects from this investment are already being felt across the system.

The supply of venture capital has increased by approximately 400 per cent, as a direct response to the significant taxation incentives for High Net Worth investors, improved tax structures in the Early Stage Venture Capital Limited Partnerships program, and the creation of the $500 million Biomedical Translation Fund.

Australian entrepreneurs are being supported to break into new markets via Landing Pads established in San Francisco, Tel Aviv, Shanghai, Berlin and Singapore. The Federal Government is also playing its part in supporting fast-growing Australian businesses, launching the Digital Marketplace, which has issued $40 million of contracts for digital services, with 80 per cent going to SMEs.

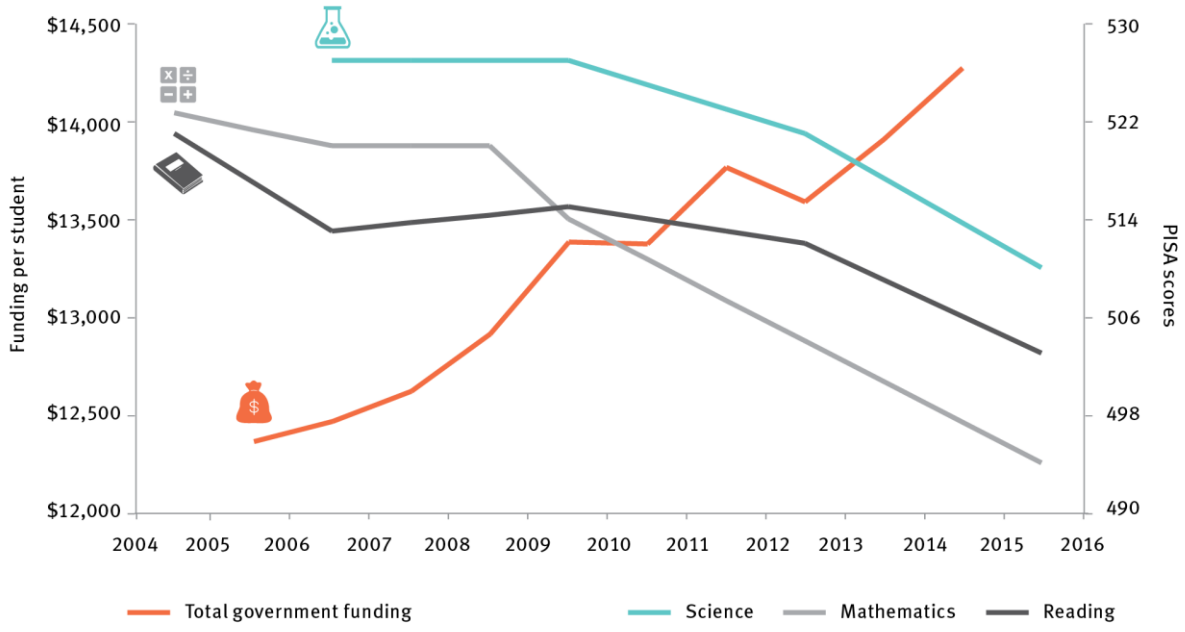
There are also new measures impacting the allocation of research grants to universities; these measures require greater industry

engagement by universities with industry and are being piloted during 2017 and 2018. There is no doubt we are already witnessing important behavioural responses on most campuses, from the VC on down.

We need to build on these and other initiatives with the Plan's five imperatives to further accelerate innovation by 2030.

**Imperative 1: Education**

The nation will only achieve the potential economic and social prosperity envisaged in the Plan if we are able to **equip our kids with skills relevant to the jobs of 2030**.



**(Slide 3 'School education funding and outcomes, 2004-05 to 2015-16')**

While Australia has pockets of excellence in our education system, overall results in science, maths and literacy have declined in the last decade, despite increases in funding.

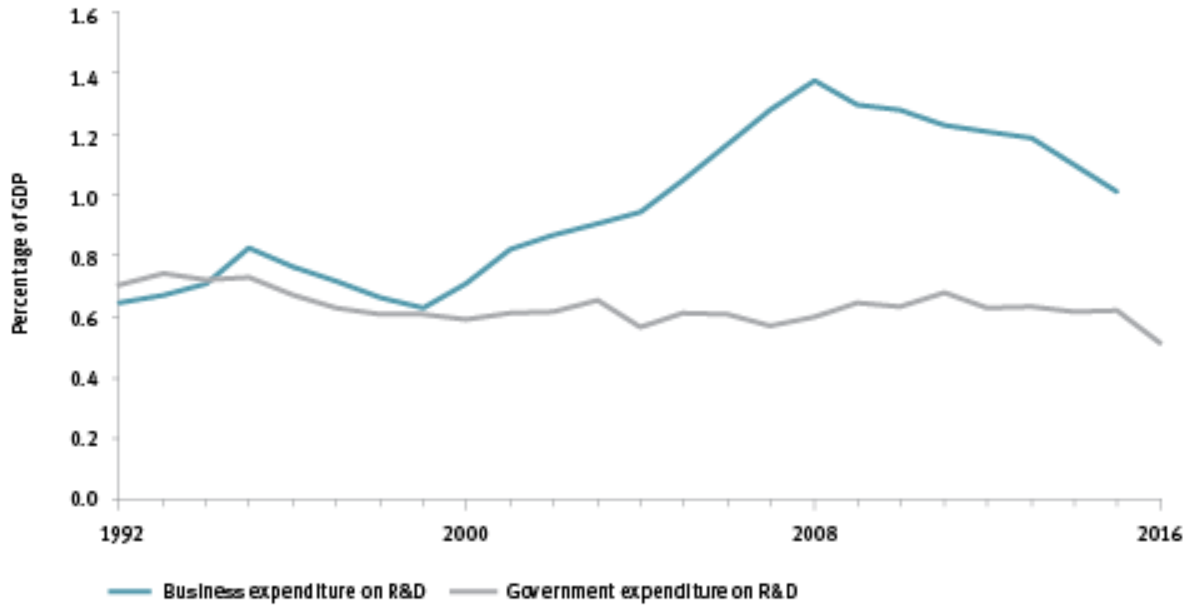
Therefore ISA's recommendations focus on changes necessary in secondary school curricula, quality of teaching, and student performance.

The changing nature of future work means reskilling and life-long training and learning is a must. The Plan recognises the urgent need to restore and enhance the reputation and capability of the **vocational education training (VET) sector**.

**Imperative 2: Industry R&D**

Australian business is well below the Business Expenditure on Research and Development (BERD) of our competitor nations. BERD is the world standard measure of R&D spending by business. BERD in

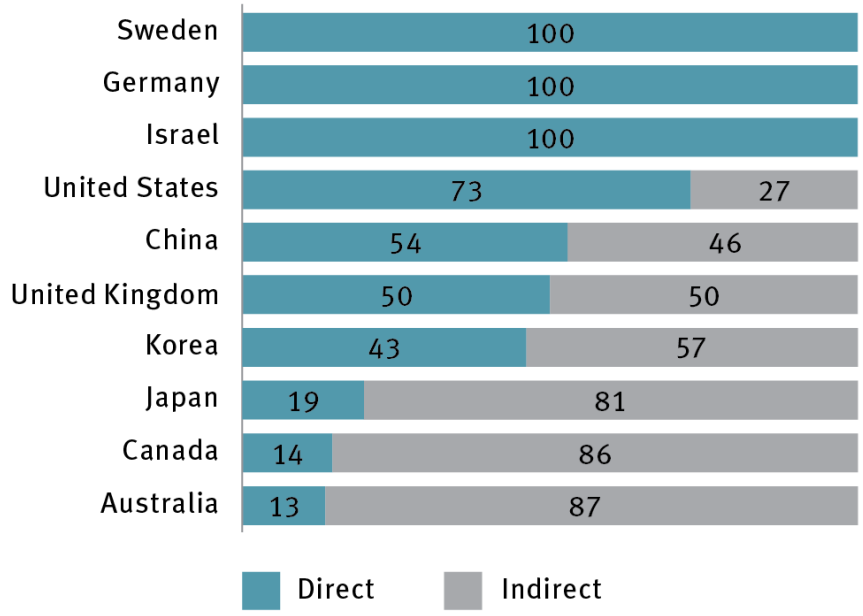
Australia reached a highpoint of 1.3 per cent of GDP in 2008, but fell to 1 per cent last year. This is at odds with the trend in other leading nations, where the amount and rate of business investment in research is increasing. The **reversal of this downward trend in R&D spending by business, is a top priority in the Plan.**




**(Slide 4: 'Australian business and government R&D expenditure')**

To achieve this goal, the Plan includes a number of recommendations aimed at encouraging more start-ups, and scale-ups like Textor, Anatomics, and SEEK. This includes improved design of existing

research and development incentives (tax based grants and co-investments) to drive greater additionality and to make sure they are accessible to SMEs.




**(Slide 5: 'Direct vs indirect government funding of business R&D')**

The figures on this slide suggests that Australia's reliance on indirect tax based incentives may be out of steps with other more innovative nations.

Exports are a strong proxy for innovative and competitive activities. **ISA believes we need to increase access to export programs aimed at high growth SMEs**. Businesses which can expand their share of

consumer markets measured in hundreds of millions worldwide, beyond just the 24 million in Australia, will be an important driver of innovation and job creation.

My own early investment choices were informed by my experience that exporting companies were more financially successful. This is backed up by longitudinal data – internationally competitive, exporting companies are more innovative, and create more jobs, than non-exporting companies. **Austal Ships** is a prime example. When we invested in 1994, the company's main market was China, not Australia. As a pioneer in design and construction of high speed catamarans, Austal was a disruptor of tunnel and bridge constructors. Today it is the largest non-US vessel supplier to the US Navy and should be an essential part of Australia's future shipbuilding plans.

**Imperative 3: Government as Catalyst**

Governments can play a critical multiplier role via innovative behaviour in procurement, service delivery, access to data, regulation and policy development and delivery.

ISA believes Australian governments can make much greater strategic use of their position as major clients of the private sector. A huge opportunity area is government procurement, both by the expansion of access for SME participation in government procurement and the use of innovative programs, such as the Business Research and Innovation Initiative under trial since the NISA launch.

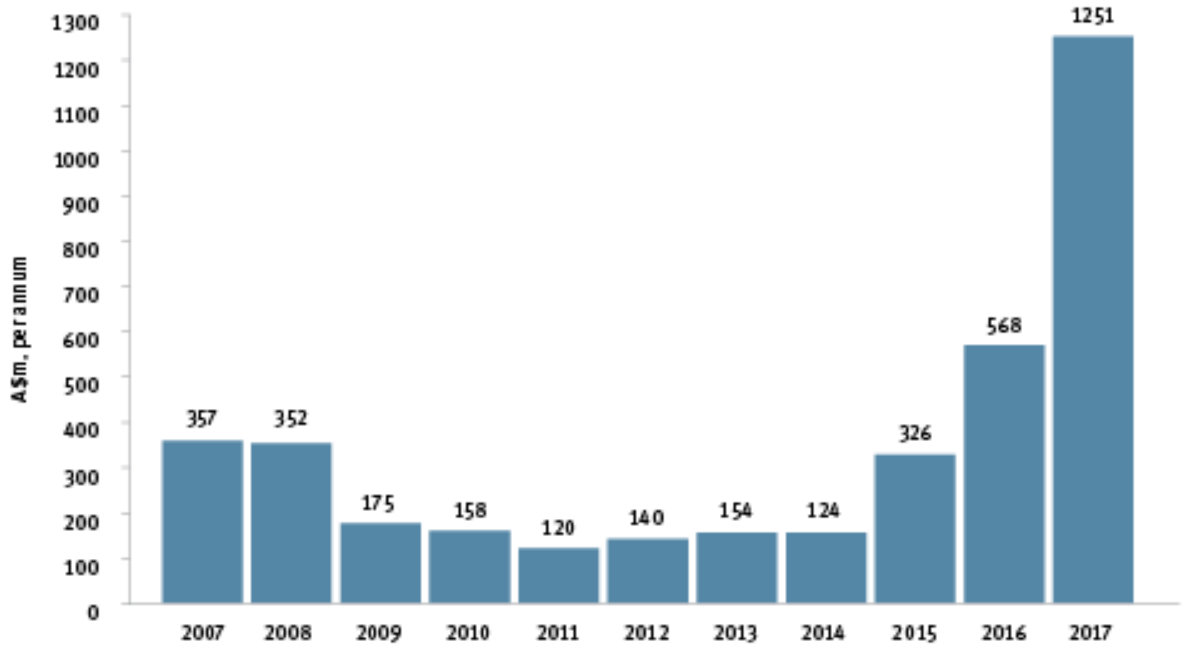
Governments can also enable more innovation by enabling better access to data assets and data sets that are well-curated and user-friendly. This will facilitate data analytics including machine learnings and AI.

**Imperative 4: Research and Development Collaboration**

Australia is world-class at knowledge creation. Now we need to reduce the intellectual and physical gulfs between industry and universities**, and drive collaboration that leads to commercialisation**.

ISA believes there are opportunities to significantly improve collaboration, for example by:

- Introducing a collaboration premium of 20% in the RDTI as a carrot to encourage greater engagement by medium and larger businesses with our university and publicly funded research organisation researchers.
- Promoting new ways other Governments, like the UK, have funded translation research to encourage greater collaboration. Supporting long-term investment by Government in Research Infrastructure – an essential enabler for a world-class research system.




**(Slide 6: 'Australian venture capital raised per year 2007-17')**

Australia has made good progress on this front in the last year. A shortage of venture capital is no longer the “handbrake” on start-ups and early stage company spin-offs that it once used to be. Since the NISA launch in December 2015, the volume of venture capital funding has rapidly expanded. The composition of investors is especially encouraging with several of our leading superfunds now major supporters of the leading private sector venture capital funds. Superfunds have also subscribed for $250Mn of the $500Mn Biomedical Translational Fund.

Blackbird Ventures is one of the leading Series A & B venture capital firms which has benefited from amendments to the Early Stage Venture Capital Partnership (ESVCP) rules promised in NISA. And one of its many exciting portfolio companies is the LIDAR start-up, Baraja in Sydney. LIDAR, (or light imaging, detection and ranging system,) is a technology that is key to the efficacy of autonomous vehicles. This is a very hot and competitive space. Baraja benefited from an “accelerating commercialisation” Government grant, post NISA, which has propelled the miniaturising of its 3D solid state laser “eyes”

prototype. The company is now working with CSIRO, and is credibly in the race to become a supplier in this potential multi-billion dollar market.

**Imperative 5: Culture and Ambition**

To succeed at innovation, we need to be a nation that has the courage and ambition to set bold goals that deliver economic and social benefits and strive to meet them.

ISA believes a program of National Missions – large-scale challenges issued by government – could help Australians understand and take pride in the excellence of our science and innovation and inspire and motivate a new generation of Australian innovators.

We have recommended a number of candidate missions in healthcare, energy and the environmental sectors, each of which exemplify these inspiring and impactful characteristics.

With demonstration and spill-over benefits nationally and worldwide, such large-scale projects involving public and private sectors (think

Snowy Hydro and SKA Telescope), will attract our brightest talents to solve big challenges with technological and societal solutions.

**Funding and Implementation**

We have designed the Plan to be actionable by governments. The recommendations can be delivered with only a moderate increase in funding. This is because the **Report focuses on a stronger leveraging of the Government's** existing investment with an ambitious but credible growth target for BERD by 2030. Such outcomes will be driven by the greater additionality from a rebalancing in Government incentives, as well as other report recommendations.

We also make recommendations for a rigorous on-going evaluation of national innovation performance; on a macro basis against a score-card of 20 international metrics, and on a program by program basis against objective outcomes (like jobs, exports, profits) measured at intervals out to 2030. This will enable accountability, changes, improvements and pilot program testing along the journey to 2030.

**A commitment to a whole-of-government implementation process will be essential for the successful roll-out of the Report's recommendations.**

In conclusion, my Board and I believe that the "Australia 2030" Plan provides a wonderful opportunity to re-invigorate momentum for innovation, which is essential to continue Australia's record breaking 26 plus years of GDP growth.

By doing so, we believe Australia can be a top-tier nation for innovation and science by 2030, creating new growth and jobs and making us a healthier and happier nation.