Innovation needs to create value

How do we tool universities to remain relevant to industry needs?

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For me, the term responsible AI represents the inflection point we've now reached with artificial intelligence. AI has transitioned from a laboratory curiosity into a deployable commodity for governments and companies to drive transformative change across industry and society. This means AI has reached a certain maturity level where we should start asking questions such as "How is this technology affecting our society?" and "How is it used in a responsible way?"

Australia really needs to be at the forefront of responsible AI, because if we can get ahead of the rest of the world, we can buy into the opportunities being created.

ARTIFICIAL INTELLIGENCE IS at an interesting inflection point. The technology is now rapidly transitioning from a perception as a laboratorial, theoretical curiosity, to something tangible that's really transforming global business and making a big impact in people's lives.

However, while we consider where we fit in an AI-enabled world, the Australian industry needs a bit of a wakeup call.

We enjoy an excellent standard of living, but for a country that pitches itself as an advanced economy, we have a dangerous lack of economic complexity, ranking 79th in the world — behind Chile and Kazakhstan[34]. The world's most economically complex countries are some of our closest allies and trading partners: Japan, Singapore, and the United States.

Our industries have incredible potential but have demonstrated a long-held aversion to risk and a lack of interest in serious research and development. The average Australian Securities Exchange (ASX) 200 company spends just 3 per cent of its revenue on research and development[35], half that of the Organisation for Economic Co-operation and Development (OECD) average and not nearly enough to spark sufficient innovation on our own soil.

Instead, Australia's prosperity hinges on a 'dig and ship' mentality, where our economy is propped up by exporting precious resources to the world, leaving us vulnerable to the volatility in commodity markets.

When it comes to the critical technology we need to complexify our economy and remain globally competitive, I'm genuinely concerned that Australia risks becoming too comfortable with becoming AI adopters, and not AI creators. Australian biggest companies cannot afford to sit tight and wait for AI technology to be developed abroad and buy it 'off the shelf' when they feel ready.

So how do we start to turn things around?

Australia has impressive universities that are engines of innovation. They undertake about 40 per cent of our R&D[36], and the industry would be foolish to not leverage this wealth of knowledge on campuses across the country.

One of the greatest international examples is Stanford University, which has been an exemplar of successful university technology transfer and commercialisation for decades. Its industrial affiliates programs bring multiple companies together with faculty and students to explore research ideas in a pre-competitive environment. For a small membership fee, companies get direct contact with skilled researchers, industry-focused research presentations, and access to a student talent pool for internships and graduate recruitment. Where's the interest from Australia's top companies for these kinds of opportunities?

Traditionally, universities have conducted low technology readiness level (TRL) research on initial ideas before they are spun out into stand-alone companies, where they then mature and climb the TRL ladder. But AI offers us — and requires us to develop — new kinds of university-industry partnerships for the future.

AI is a lightweight technology. It climbs the TRL ladder more rapidly because it doesn't require heavy physical infrastructure, algorithms can be prototyped and tested rapidly and cloud-based services offer lower barriers to market entry. AI relies on datasets, making it ideal to roll out across existing industries, where it can be integrated into existing systems to dramatically augment capability.

Accompanying AI's rapid development is a growing global demand for the main source of AI capability: talented people. Universities need strategies to ramp up and meet global demand. Hybrid appointments — where AI researchers split their time between academic research supervision and leading a company's applied AI lab — are one way that Australian universities can form deeper engagements with local and global industry.

Increasingly common in the US but relatively new to Australian universities, hybrid roles are particularly useful in niche fields such as AI, where specialist skills are in high demand and top researchers command salaries that public universities can't match.

Rather than headhunting research talent outright, tech companies understand the strategic value of building an ongoing connection with the latest research developments and drawing from a growing talent pool of PhDs and graduates.

Students benefit immensely from working on real-world problems with professors who are connected with the best graduate employers in their field.

The federal government also has a role to play in sparking innovation and helping our universities and industries work better together. While grants and piecemeal funding are beneficial, there needs to be fundamental change if we want to support the next era of innovation through start-ups, small- to medium enterprises, and broader industry.

We can also reimagine the government's role as an AI *customer* and require governments — both state and federal — to purchase a certain percentage of their AI product requirements domestically. It's a great way to build confidence in Australia's tech ecosystem.

The idea is hardly new. In the early 1980s, the California state government implemented novel tax credit arrangements that saw Apple put computers into 9,000 public schools. This allowed them to get a strong foothold in the education market and revolutionise personal computing through the 1990's.

For startups, scaleups, and tech companies seeking to do new things, having the government as a customer is vital in building a brand and name recognition. After all, it's these start-ups and small- to medium-sized tech companies that have been at the forefront of AI innovations through the past decade.

Australia has countless success stories in AI research, and we have many expats doing amazing things abroad, we just don't often hear about them. High school students need to see role models in AI who are championing innovation if they're to forge careers in STEM — kids might actually want to do their maths homework if they could see where it can lead them.

AI has arrived and very soon the idea of 'AI' and 'not AI' is going to be outdated. When the internet first came to homes in the mid-1990s, it was only accessible via a dial-up modem attached to a desktop computer. Now it's effortlessly connecting every aspect of our daily lives that we don't really think about it anymore.

In an age where AI is quickly becoming the facilitator of global innovation, Australia stands at a pivotal juncture. Our industries and academic institutions must recognise the synergy that could fuel our growth in this new landscape. We should aim to be at the forefront of AI technology creation and implementation. By fostering a culture of research, risk-taking, and close university-industry relationships, we can diversify our economy, bolster our global standing, and create a fertile ground for a new generation of Australian tech innovators.

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Essays

For acronyms, abbreviations and endnotes please see the composite document with all the essays.

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Your questions answered

Cover image: An artist's illustration of artificial intelligence (AI). This image represents the boundaries set in place to secure safe, accountable biotechnology. It was created by artist Khyati Trehan as part of the Visualising AI project launched by Google DeepMind. Source: unsplash

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Your questions answered

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