

Universities: Australia's innovation advantage

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CHECK AGAINST DELIVERY

In his first statement to the press as newly elected Leader of the Parliamentary Liberal Party, Malcolm Turnbull declared that, and I quote, "The Australia of the future has to be a nation that is agile, that is innovative, that is creative."

The now Prime Minister invited us all to approach the future – one characterised by technologically-driven disruption – with confidence and a recognition of the exciting possibilities open to a nation smart enough to take advantage of them. Indeed, only three months earlier, speaking as then Communications Minister at the launch of CEDA's report on 'Australia's Future Workforce', he urged us all to, "Treat volatility as a friend."

In the week following the leadership change a uniquely political brand of volatility and disruption ensued with the Cabinet reshuffle. Key for me from this process, however, was not necessarily who-got-what but rather how 'innovation' emerged as arguably the central organising principle of the Turnbull Cabinet. We saw the former 'Science and Industry' portfolio infused with 'Innovation'; and key 'Assisting' roles created within the Prime Ministerial cluster on 'Digital Government', 'Productivity', and 'Innovation'.

The Prime Minister's embrace of the future in many respects converges with that of the current Labor opposition. First aired in Opposition Leader Bill Shorten's reply to the May budget, Australia's future according to Mr Shorten is and I quote "one defined by science, technology, education and innovation."

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The Sydney Morning Herald's Peter Hartcher argues that Mr Turnbull "stole" the Opposition Leader's narrative. I prefer to view it as a rare but incredibly important consensus on what lies ahead for this country with ideologically nuanced differences on how to get there.

Mr Shorten proposes some bold measures. In addition to his post-Budget commitment to have coding taught in every Australian school, he pledged to:

'devote 3 per cent of GDP to research';

create a '\$500 million Smart Investment Fund';

and

'wipe' student debt for 20,000 'STEM Award Degrees' per year over five years;

Little more than a week after Mr Turnbull took office, the Opposition unveiled additional plans to establish a 'Startup Year' at Australian universities.

So, both major political parties have decidedly planted their feet firmly in the future. We can all hold out hope that the next federal election campaign will be an optimistic contest of ideas rather than a negative battle of wills and ideologies.

Increasing levels of business and consumer confidence in recent weeks suggest that the community is prepared to sign-up to the positively framed vision emerging from Canberra. But what does this brave new agenda mean for Australia's leading enablers of innovation, its universities?

In officially launching the Universities Australia Policy Statement today, I confirm that we are thoroughly committed to realising the core objectives the Government and Opposition have laid out focussing on the imperative for Australia to embrace innovation. This speech spells out that commitment. But first, there are a few fundamentals that need to be squared away.

It is well-nigh impossible to envisage our nation succeeding in the future without a tertiary education system of the highest quality; a system that is open to any woman or man who merits admission, regardless of their economic background, gender, indigeneity, ethnicity or age.

While any 'tertiary education system' worth its salt values vocational education as much as university education, I will – mindful of the Statement and our call for a truly integrated national tertiary education system – address myself in particular to the place of Australia's universities.

Australia is in the early stages of a period of seismic socioeconomic change: change at a pace and magnitude not seen since the industrial revolution. The centre of global economic activity is shifting towards Asia. The Australian economy is moving away from its dominant reliance on mining and resources towards an era where knowledge, skills and services are becoming our most precious commodity. The enormous scale, mobility and competitiveness of the international labour market is transforming the jobs and job security of Australians and reshaping workplace productivity, processes and culture.

Of these 'mega trends', technology is bringing about the most profound change.

This new reality pre-occupies us all: Government, Opposition, industry and the community. We may be certain that these fundamental changes are underway but at the same time we are straining to understand the dynamics at play, their implications and how best to respond.

Atlassian tech-startup co-founder, Scott Farquhar offered a glimpse of the scale of the coming disruptive wave in a recent interview on ABC's 'Lateline'. "There's about a quarter-of-a-million [Australians]", he observed, "who drive as part of their job every day. When you look at driverless-cars", he added, "how many people are going to be displaced? ...maybe not in the next five years but over time it will come to the stage where self-driving-cars are safer than normal cars."

This scenario has ramifications well beyond the pending loss of some driving jobs. Think about the implications, for example, on transport, urban design, emergency response, educational opportunity, healthcare, and social interactions. Consider further that these are merely the potential domino effects of just one technological innovation. Now multiply this disruption by the many innovations occurring globally and across Australia as we speak. This is the reality we face.

Farquhar and his business partner, Mike Cannon-Brookes are both examples of how Australians needn't be passive subjects of disruption, rather we can lead its development and application. Critically, their partnership was forged at an Australian university. Perhaps more importantly for universities, the innovation-verve Farquhar espouses is distinctly interdisciplinary in nature. He and Cannon-Brookes may have met studying Science and Information Technology at UNSW, but their subsequent professional trajectory succeeded, to a large extent, because they transgressed traditional academic paradigms.

The Atlassian founders may have 'dropped out' of university but their start-up's beginnings reflect aspects of university culture at its best – inquiry, challenge and even subversion. Possibly Farquhar and Cannon-Brookes needed to 'drop-out' to 'tune in' their model. Universities shouldn't see that as a failure. Quite the opposite. It's an evolution.

So, what do these disruptive pioneers recommend? They say we should "train more teachers in the workforce", promoting STEM based curriculum reform that ignores the borders of the school gate and engage more girls in science from an early age. They also implore us to look to countries like Vietnam which are innovating in science education. Importantly, they want to see the creation of more tech hubs to attract global talent and, not surprisingly, they stress the need for Governments to incentivise start-ups.

The view of large-scale corporates is markedly similar. Speaking to The Australian, GE's incoming vice-chairwoman, Beth Comstock called for "investment in centres of technology, R&D centres backed by government", and "taking intellectual property out of universities and encouraging the commercialisation of it." For Comstock, the key message for "industry, government and academia" is: "You have to be digitised", and "you have to be fast."

We agree. In fact, our Policy Statement calls for a radical re-think and commitment from Government to create the conditions for innovation and prosperity to flourish, including:

Investment in a major technology and innovation program, similar to the UK's Catapult initiative, to stimulate economic growth and diversification in university-industry engagement;

The establishment of an 'Innovation Board', comprising senior Government, industry, university and other research community representatives, to provide strategic leadership in securing an integrated national research and innovation effort; and,

The creation of a 'Student Innovation Fund' to encourage undergraduate entrepreneurship. In this, Labor's ideas around Startup finance and 'Smart Investment' funding are potentially complementary.

With Government, universities, industry and the start-up community seemingly in furious agreement on what's needed, we may be confident not only that we will get through this period of change, but rather that we, as a society will adapt and evolve in a way which benefits us all.

But we want our confidence to be more than just a leap of faith. And we need our excitement about the possibilities that lie before us to have solid foundations.

Just how do we chart our course in such circumstances?

In times like these, our universities are at the vanguard. For it is the responsibility of Australia's universities to ensure that we ask the right questions; map new paths; share the knowledge we have; nurture inquiring minds; and, in-turn build critical thinking. These characteristics are at the heart of our serving the public interest. This is what we do. This is what we have always done.

Notwithstanding the recognised private benefit that might accrue to individual students, universities have a public purpose. There are any number of ways in which this idea has been captured but it was expressed well at a recent gathering of leaders of some fifty of the world's preeminent research universities in Hamburg.

Turning to many of the same issues we confront in Australia, those assembled agreed that to provide maximum benefit to society as a whole it is essential universities maintain three core provisos:

First, the theoretical and ethical foundations of university education [must] strike the right balance between the acquisition of knowledge and skills essential for cultivating personal development, meeting both the needs of business and industry, and providing benefits for the civil society.

Second, all persons [must] have the opportunity to participate in higher education regardless of social backgrounds or financial means, thus facilitating social mobility.

Third, universities must address the grand challenges facing society and the planet.

The public benefit that flows from universities is embedded in a rich tradition that has served us well. It must continue to do so.

This last point is a particularly salient one as we enter an age characterised by 'disruption', for high on the list of 'public benefit' is economic benefit. While it has always been so as important as the economy is, there is a risk in a form of reductionism that interprets the world through a narrow economic lens to the exclusion of all other perspectives.

The tendency to reduce the value of higher education to its economic benefits alone and to measure its value in purely economic terms should not cloud our vision. Were we to do so, we would not only fail to appreciate the value of inquiry and how knowledge itself is created but we might also fail to appreciate the complex environment in which any economy operates.

Let me illustrate with one brief example.

In his recent memoir Stephen Fitzgerald, Australia's first Ambassador to China, argues that Australia's relationship with the People's Republic of China has largely been reduced to two dimensions: economic and security related. He is not alone in lamenting this narrowing sense of our place in Asia and in warning of the consequences.

While others may dispute this view Fitzgerald provides a cautionary reminder that both our economic relationship with China and our strategic interests depend as much on linguists, Sinologists, historians, human and physical geographers, cultural theorists, political scientists, geologists, and scientists of numerous varieties as they do on economists, accountants, tax specialists, and lawyers. An understanding of philosophy is as critical as an understanding of macro-economics. The ability to distinguish between what is said and what is meant in trade or other negotiations is as important as the ability to calculate cost-benefit or assess the risks of currency or commodity price fluctuations. The cultural understanding that underpins mutual trust and respect is as foundational as the text of any treaty or international agreement.

Even at the most basic level our economic interests in Asia and the broader world are largely dependent on the knowledge, teaching and research that reside in Australian universities across the full spectrum of academic disciplines.

American writer, Walter Isaacson captures this imperative particularly well with his account of how the success of some of the world's greatest thinkers - a group in which he includes Steve Jobs alongside Einstein - relied on what he calls the "intersection" of the humanities and the sciences. "Human creativity", he argues, "involves values, aesthetic judgments, social emotions, personal consciousness, and yes, a moral sense. These are what the arts and humanities teach us, and why those realms are as valuable to our education as science, technology, engineering, and mathematics."

The version of a 'knowledge economy' Universities Australia puts forward in our Statement, is one that has the humanities at its heart, where research and innovation is valued as much for its contribution to social and societal wellbeing as it is to economic growth and productivity.

Highlighting the pivotal place of the humanities should in no way be read as an assertion that the economic impact of the higher education sector is not relevant. On the contrary, it is of vital importance. If we are to compete successfully in this emerging globalised world we must invest in our universities.

However, recognising that it is not sufficient to simply assert that the economic benefit of universities warrants increased and sustained levels of public funding, Universities Australia commissioned Deloitte Access Economics to provide an evidence base for that investment. Their report, to be released in the next few weeks, quantifies the various ways universities contribute to national prosperity.

Allow me to share some headline figures from the Deloitte report and the Universities Australia Policy Statement:

Australia's university sector directly employs over 120,000 staff and supports the delivery of education to almost 1.3 million students.

The sector contributed around \$25 billion to the Australian economy in 2013, accounting for over 1.5 per cent of Australia's GDP.

International education is Australia's third largest export and largest services export, generating revenue of \$18 billion in 2014–15. Higher education generates around two-thirds of this revenue.

International education is now Victoria's biggest export industry.

The value that university education added to the productive capacity of the nation last year was estimated at \$140 billion. Australia's GDP is 8.5 per cent higher because of the impact a university education has had on the productivity of the 28 per cent of the workforce with a university qualification.

Deloitte's report also found significant evidence of broader societal benefits or 'positive spillovers' associated with the contribution of university graduates to the workforce.

Deloitte include international education in their predicted five most significant drivers of the 'next wave' of Australia's economic growth and prosperity. The other four are: Agribusiness, Natural Gas, Wealth Management and Tourism; all areas – I might add – where our universities have world-standard or better levels of research and teaching expertise.

Clearly, Australian universities make a substantial and direct contribution to the nation's economic output, productivity and living standards. University teaching and learning increases the knowledge and skills of workers, which in turn improves employment, labour force participation and productivity in the workforce.

At the core of the demonstrable impact universities have on economic growth is research. For it is research that informs and drives virtually all aspects of the formidable contribution universities make to innovation and the national interest.

My colleague Professor Ian Young picked up on the question of research investment when delivering this year's Menzies Oration on Higher Education.

Drawing on comparative international data he argued that for Australia to retain its current level of prosperity, in the face of the decline of traditional industries investment in world-leading basic research is critical to build the high technology industries that are foundational to this future.

Professor Young quite rightly notes that great basic research is insufficient itself. Collaboration is essential but this is not a simple matter. Contrasting the Australian and German environments, for example, he observes that we lack the high degree of collaboration that exists across the German system not simply between universities and industry. This is an area in which we and business must commit to doing much more.

This is why Universities Australia's Statement calls on the Government and Opposition to, among other priorities:

- bolster initiatives to increase researcher mobility between universities and industry;
- introduce a premium tax concession rate for businesses collaborating with universities on research and development;
- and,
- increase funds to support stronger international research collaboration.

To remain competitive and indeed grow our competitive advantage, we must invest properly in research, innovation, skills and critically in research infrastructure. We face a stark choice. We either make this investment or we irreparably fall behind those that do.

Regrettably, in critical areas, the incredibly damaging symptoms of under-investment and neglect are already apparent.

Australia sits at number 17 in the world for innovation according to the 2015 Global Innovation Index, and comes in at 29th out of 30 in the OECD's ranking of business-university collaboration.

Our competitors aren't sitting on their hands either.

The UK, for instance, has allocated \$3 billion to promoting industry-university collaboration over the next five years. Singapore increased its investment in research and development by 20 per cent over the most recent five year period. South Korea has set a target to invest 5 per cent of GDP in research by 2020.

The importance of investment in the sector was underscored just recently by Phil Baty, the Editor of the Times Higher Education World University Rankings, when he said: "the overwhelming message is world class universities cost a lot of money but they bring back far more in economic growth and highly skilled workforces".

Greater investment is pivotal, but there is a broader platform that must be locked-down to ensure greatest return on investment.

There are, in Universities Australia's view, eight fundamental principles we as a nation should enshrine within our university system. They are:

1. Accessibility

All Australian citizens, regardless of their socioeconomic background, location, ethnicity, gender, disability or religion, with the ability to successfully complete a university qualification should have the opportunity to do so.

2. Affordability

While the higher education system should be financially sustainable and affordable to the taxpayer, cost must not deter any capable student from pursuing a university education.

3. Quality

The education universities provide and the research they perform must be of the highest quality, benchmarked internationally.

4. Capability

Australia's universities should be acknowledged as one of the primary contributors to Australia's research capability and a key source of ideas, breakthroughs, inventions and discoveries that underpin our national wellbeing.

5. Resourcing

The resources for both teaching and research should be sufficient, sustainable and predictable to enable universities to deliver on the expectations of students, employers, the community and governments.

6. Accountability

Both universities and government should be accountable to the Australian people for the amount and effective deployment of public funding for universities.

7. Autonomy

Universities should be autonomous, self-accrediting institutions with responsibility for their own affairs.

and lastly,

8. Stability

Universities must have a stable policy environment in order to plan and deliver outcomes in the nation's best interests. Allow me to say a little bit about this. It's been nearly 18 months

since the announcement of possibly the most far-reaching reform proposal in the history of Australian higher education. The ensuing debate and eventual legislative impasse has effectively left the nation's third-largest export industry and leading service export without a structural and strategic vision for the coming decades. Worse, we are effectively in funding limbo. In the context of the considerable challenges and opportunities I've touched on in this address, this kind of instability is simply intolerable.

In spite of this my UA colleagues and I remain optimistic. I'm convinced our Policy Statement reflects that and I firmly believe we have reached a stage where a progressive legislative framework is not only possible, but achievable.

Universities Australia seeks a commitment to the principles we have set out today; a contract between Government, universities and, importantly the broader community. This will provide the basis for the innovative socioeconomic transformation universities are poised to enable.

As ambitious as it may sound, Australia's universities not only have the capacity to drive catalytic change at the national level, they also change lives, often dramatically for the better.

At the end of August the story of one Australian university graduate, Deng Adut, appeared on YouTube and Facebook and went viral. How that actually happens I don't know but within a week there had been over 500,000 downloads. Now it stands at over 1.5 million. You may have seen it.

In 1985, when Deng was four, the Sudanese government began destroying villages eventually leading to the rise of the People's Liberation Army. Two years later, Deng was abducted, taken from his family's farm and conscripted into the Army. After several years of forced army service as a child soldier and witnessing numerous atrocities, Deng was still a boy when he was shot in the back while running through a village.

Two years later, a chance meeting saw Deng reunited with his brother who then smuggled him out of the country.

After befriending an Australian family and eventually with the help of the UN, the brothers arrived in Australia as refugees in 1998. After teaching himself English and working at a local service station, Deng enrolled at TAFE before deciding to study law. In 2005 he enrolled in a Bachelor of Laws degree becoming the first person in his family to graduate.

Today Deng practises law in Bankstown, offering his services to ensure that other refugees have the legal advice and support they need before entering the court system.

Of his experience, Deng observes; and I quote:

The greatest thing that could happen to a person like me is to be able to get an education. It's life. It's the opposite of the death which I was going to face in South Sudan.

Deng's story is his own but the life-changing influence of higher education is a common one.

We are in a period of profound change and with it, social, economic and environmental transformation. It touches us all. Whether we successfully navigate these waters will depend in no small part on our recognition as a nation of the economic, social and cultural contribution our universities can make. It will also depend on the willingness of our political leaders to agree that support for universities is vital to the national interest. Most importantly, Australia's success in uncharted waters will hinge on the willingness of Government, business, the community and universities to collaboratively embrace innovation in the manner that draws on the principles I have outlined today while embracing disruption, change and transformation with confidence and vigour.

That is the monumental transformation that is required. Universities Australia is convinced we, as a nation, are up for it. And, we – the nation's universities, its innovation advantage – are committed to doing our part.

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