
Submission in response to the Productivity Commission's 5-year Productivity Inquiry: Australia's data and digital dividend interim report

Thank you for the opportunity to provide feedback regarding the Productivity Commission's inquiry into Australia's data and digital dividend.

By way of background, the University of Technology Sydney (UTS) is the top-ranked young university in Australia. Our vision under our UTS 2027 strategy is to be a leading public university of technology recognised for our global impact. As a university of technology, it is our role to ensure our graduates shape the future professions and businesses that will be needed in Australia and overseas. Since our inception, an integral building block of our success has been our outward, global focus and ability to partner with industry. Our campus has no walls; it is deliberately designed to be porous and support connections, knowledge exchange and collaboration. This embodies our approach to engagement and permeates our teaching and research. Our student body is diverse, and we encourage our students and staff to look at the world from different perspectives.

As outlined in this submission, UTS has specialised capabilities and deep expertise in the provision of digital, data and cyber security skills, and our partnerships with industry and government are well advanced and evolving. Our commitment to the ethical use of technology and data is embodied in our Human Technology Institute which is focussed on building a future that applies human values to new technology.

UTS agrees with the key point made in the Interim Report that 'Digital technology and data have the potential to significantly improve Australia's productivity' (page 1). UTS submits that universities more broadly play a critical role in increasing productivity through research and education. We draw to your attention the following pertinent government reports that have investigated this connection:

- The *Innovation and Productivity Scorecard* produced by the NSW Innovation and Productivity Council which highlighted university-industry collaboration as an ongoing challenge, however noted that doubling the 2020 rate of collaboration could see a productivity increase worth up to \$150 million per year for NSW (2022).ⁱ
- The 2021 Intergenerational Report and TTRP21 which recognised that technological change and education are factors that affect labour productivity growth.ⁱⁱ

Returning to the focus of the Interim Report, this submission is directed towards responding to Recommendations 3.3 and 3.5.

Recommendation directions and information requests 3.3
Developing digital, data and cyber security skills

At UTS we are very clearly, and very proudly, a technology university. Everything we do is viewed through that lens as demonstrated by our deep engagement in Tech Central (<https://www.tc.sydney>) and the establishment of Digital Central in collaboration with the University of Sydney (<https://www.uts.edu.au/news/tech-design/nsw-gives-8-million-boost-tech-central>). Our researchers support the application of new technologies, are deeply engaged with industry and government, and provide solutions to important national and global challenges.

1. *What role (if any) does government have in increasing the number of students and workers undertaking formal and unaccredited education and training in digital and data skills, given that various options are already being offered and taken up?*

UTS submits that government has an important role in incentivising collaboration, co-design and innovation across industry and education providers, and providing students a smoother transition across different fee settings and regulatory models.

As shown by the analysis presented in the Interim Report, *increasing* the number of students and workers is not necessarily the only solution. Instead, emphasis should be placed on enabling workers to reskill and upskill to meet demand in recognition of a lifetime of learning. On this point, we draw your attention to the 2021 NSW VET Review recommendations and the commitment by the NSW

Government to implement Institutes of Applied Technology (IAT) – a distinctive form of tertiary education, blending VET and higher education with a focus on preparing job-ready graduates to meet emerging workforce needs.ⁱⁱⁱ

There are currently two TAFE-led IAT pilots in development, including one in digital being established at Meadowbank in NSW. Announced in December 2021, the IAT for Digital Technology is a collaboration between Microsoft, UTS and Macquarie University and will focus on the three key disciplines of big data, cybersecurity and artificial intelligence. Students will have the advantage of integrated education pathways and job opportunities driven by industry demand.

The NSW Government has been instrumental in driving the policy settings around the IATs. However, to achieve the full vision as outlined in the 2021 VET Review, the NSW IAT program needs Commonwealth support for a more sustainable and consistent funding and regulatory model across VET and Higher Education.

UTS makes the following recommendations regarding the role of government:

1. A Commonwealth co-contribution: Targeted funding through a grant scheme style co-contribution for development and delivery of innovative course offerings / curriculum under the IAT, with a focus on micro-credentials, to meet industry needs.
 2. Dedicated Commonwealth Supported Places: To incentivise the participation of university providers and make HECS support available for IAT students.
 3. Clarity and flexibility on regulatory requirements: The IAT is seeking to make use of a stackable qualification mode, where students can progressively work from micro-credentials up to attainment of full qualifications. As a continuation of this, the IAT also seeks to enable progression from VET Diplomas and Advanced Diplomas to Bachelor awards. The IAT needs certainty regarding the recognition by ASQA and TEQSA of qualifications awarded under this model.
2. *How could the skilled migration program be made more relevant to current and future digital and data skill needs — for example, by improving the occupation list or changing how skilled visas are granted?*

One approach to addressing Australia's skills needs is by opening pathways to permanent residency for international students qualified to fill vacancies.

UTS's recommendation is that providing certain cohorts of international students with a pathway to permanent residency would not only help revitalise the international education sector but would also help address the skilled worker shortage Australia is currently experiencing with digital and data skills.

This could be achieved by:

- A coherent, joined up approach from how we assess applicants for student visas, through graduate work visas and then transiting from temporary to permanent residence.
- An approach that limits the pathway to professional disciplines in long term high demand – engineering, IT, Design and perhaps entrepreneurs, nursing, aged care etc, but excludes those jobs where unscrupulous education providers have, in the past, abused the system – e.g. hospitality.
- The system needs to be limited to universities who have reputations to protect – the same reasoning as used in the Knight Review's original recommendations.^{iv} Extending a scheme to cover trades, for example, has the potential to open the system to abuse and lead to its collapse in the absence of proper regulation and monitoring.

Other ideas for consideration include:

- Replacing the Genuine Temporary Entrant requirement with a Genuine Student requirement to make it clear that an international student's ambition to live and work in Australia is acceptable (at least for designated professions).
- Allowing different hours of work for students working in their area of specialisation (i.e., in IT or engineering, but not at restaurants or bars). This will go some way to protect students from exploitation.

- Allow only students who complete their qualification with the university they originally started with to qualify for the pathway. This prevents poaching and discourages the more unscrupulous operators.
- Allocate a quota of permanent visas four years ahead – e.g., students starting in 2023 are guaranteed that there will be 5000 (say) permanent residency places available in 2027.
- Make the pathway from the graduate work visa to permanent residency clear and simple – this may include government nomination, employer nomination and points based, but the number of points based needs to be substantial and guaranteed.
- Ensure that employers are part of the process, that they understand how the pathway works and will employ international students knowing they can hang onto them long term.
- Work with industry to make sure international students have access to work placement opportunities in relevant courses, in order to further strengthen the pathway. This is good for businesses, good for students and will help give any scheme a quality and compliance focus.

Finally, we draw attention to our new IDEa (Industry Degree Academy) cadetship aimed at school leavers which is designed to develop the next generation of tech professionals. Participants graduate with a Bachelor of Computing Science as well as two years of industry experience. The program is co-designed with industry partners⁹, meaning students graduate with the skills and experience that employers are looking for. More information about the program can be found here: <https://www.uts.edu.au/study/information-technology/courses/undergraduate-it-courses/bachelor-computing-science-industry-degree-academy-idea>.

Recommendation direction and information request 3.5

Supporting ethical use of technology and data

Given the pervasive use of technology and data in modern society, UTS strongly agrees with the conclusion reached in the Interim Report that ‘**a proactive approach** to managing ethical issues **is required** to maintain trust while also avoiding hampering technological progress and innovation’ (emphasis added).

UTS’s commitment to the ethical use of technology and data underpins our story and vision to instilling responsible, transformative leadership. This commitment is embodied in UTS’s Human Technology Institute (<https://www.uts.edu.au/human-technology-institute>) which is focussed on imbuing technology with human values by promoting a human-centred approach in a way that responds to the needs of our community, and ultimately, enhances fairness, accuracy and accountability. By way of example, on 27 September 2022 HTI published a world-leading report outlining a Model Law for facial recognition. This report responds to growing calls for reform from leading voices in civil society, the private sector, government and academic experts. Our law should protect against harmful uses of facial recognition, while also fostering innovation for public benefit.

1. How should government support the ethical adoption of new uses of technology and data, particularly for applications outside of artificial intelligence?

When the Australian Government refers to ‘ethical’ adoption of new technology and data, generally it is referring to an approach that emphasises two separate but related imperatives:

- applying the *law* to new technology and data, with a view to ensuring that the law applies as effectively in online and virtual contexts as it does in other contexts; and
- ensuring that the *social implications* (especially the risks of harm to humans) are effectively identified and addressed in the use of new technology and data.

Many jurisdictions have focused primarily on the second of these imperatives, while paying insufficient regard to the first. This has fostered an illusion that there exists a ‘digital wild west’. This is an illusion because our law generally is technologically neutral. For example, it is unlawful to discriminate against a person on the basis of their race or gender, regardless of whether that discrimination results from the application of a specific piece of technology or no technology at all. Therefore, it is vital – for the safety and wellbeing of Australians, and to comport with Australia’s

status as a liberal democracy that is committed to the rule of law – that the first of these imperatives be given full consideration.

UTS agrees with the submission made by the Consumer Policy Research Centre (quoted on page 78 of the Interim Report) that government needs to lead by example with the development of a data and digital policy to promote the ethical use of technology and data throughout society. The Federal Government’s recent response to the Optus data breach on Thursday 22 September 2022 highlighted the policy tools only available to government (in the form of financial penalties and security measures) for the management and mitigation of risks on behalf of Australians.

This significant breach has highlighted the importance of responsible and ethical custodianship of data by organisations. Personally identifiable data should not only be considered an asset and an input to production, but a liability which can pose significant risks to both organisations and individuals. Without an appropriate legal framework to ensure appropriate responsibility and accountability rest with data custodians, significant negative externalities will continue to accrue to consumers, governments and other businesses who face with the costs of remediation, fraud, cybersecurity, and exposure to scams in the medium-term.

In relation to AI applications, it is worth noting that AI is already revolutionising how government and the private sector make decisions. Machine learning and advanced algorithms—combined with data and unprecedented computing power—are replicating, augmenting and even replacing human judgment in areas as diverse as banking, recruitment, law enforcement and social welfare. Given that AI use by government and the private sector is growing exponentially (McKinsey & Company estimates that half of all businesses globally are using AI in at least one function), there is an enormous transformational opportunity, fuelled by automation and AI, to boost Australia’s economy by \$2.2 trillion (according to AlphaBeta).

Finally, it is important that government consider its role in supporting the ethical development and deployment of new technologies by proactively engaging and supporting the mission-driven not-for-profit sector, whose primary role is to meet fundamental social needs and foster social cohesion. Ensuring that technological advancement supports the goals of this sector will deliver significant social and economic gains. For example, through the deployment of inclusive technologies and support services to ensure all members of society are supported to meaningfully engage in increasingly digitised marketplaces.

2. *What would be the benefits and costs of any government activity on technology and data ethics?*

Should government agree to lead by example, a clear benefit will be the setting of community standards and expectations. In other words, a strong approach to ethical use of technology and data is a good in itself because it upholds the human rights of Australians, thereby fulfilling government’s most basic function.

The survey of existing frameworks and principles contained in the Interim Report (page 78) is a positive step in the right direction for building a consensus and alignment with transnational policy developments. Australia, as a middle-sized economy in the global context, cannot compete on scale in the arms race on AI with much larger economies such as the United States or China. However, Australia has a strategic opportunity to become known as an economy that innovates consistently with our liberal democratic values. As the Australian Human Rights Commission observed in 2021, on the basis of its deep public consultation, this is precisely what the Australian public – and citizens of many other countries – are demanding. Hence, this should be at the centre of Australia’s national strategy on new technology and data.

A further benefit of responsible leadership, is the moderation of inequalities. Too often technology simply replicates and entrenches existing inequalities, but good design, development, use and oversight of new technology can make our community fairer and more inclusive.

Government activity and law reform to address the growing risks posed by a data-driven economy have often historically been considered only as an additional cost to business. This extremely narrow interpretation of the value of sustainable, robust legal frameworks which reflect our values, simply does not reflect the full spectrum of benefits and costs to business, government and broader community. A sustainable policy framework which incentivises the deployment of fair and inclusive use of data and technologies - in line with Australian values – delivers several often undervalued economic and social benefits, such as: increased investment certainty for industry; reductions in negative externalities and costs borne by consumers, citizens, government and industry from poor data custodianship; increased economic participation through inclusive product and service delivery; and increased consumer confidence due to responsible and safe practices by Australian businesses.

Finally, government should consider the costs of inaction. As jurisdictions globally develop common principles, standards and legal frameworks which provide clear, sustainable and effective guidance for the operation of markets – including guardrails which protect the wellbeing and rights of people – Australian businesses risk falling behind in global competitiveness and the skills needed to compete in this new environment.

3. *If some regulation is required in Australia on ethical issues, how can the government identify high risk settings where regulation would be most appropriately targeted?*

UTS supports a risk-based approach, as discussed in the Interim Report, to regulation in this area. A growing number of jurisdictions – most notably the European Union – have adopted this approach. There are three issues that are critical to the success of any such risk-based approach.

First, it is necessary to articulate the normative foundation that underpins risk. Put simply, what *sorts* of risks is the law seeking to identify and address. We consider that this normative foundation should be international human rights. Not only does this apply throughout Australia, this normative foundation would also ensure that Australian law is consistent with major trading partners in Europe and North America.

Secondly, there should be clear methodology for assessing and addressing risk. Many of the AI ethics frameworks that have been developed in Australia and overseas in recent years offer no more than a high-level articulation of general principles. It is necessary to provide a more rigorous approach to applying those principles, as has been developed in, for example, the New South Wales Government's AI Assurance Framework.

Thirdly, as this proposed risk-based approach takes shape, UTS recommends that the Government thoroughly consult the community on an ongoing basis.

In particular, UTS recommends engagement with the Human Institute of Technology through its three connected 'laboratories' given its work to address harm, especially to the most vulnerable members of our community, caused by poor design and use of AI:

- The **AI Skills Lab** will address Australia's critical skills gap in strategic capability to procure, implement and oversee the use of AI.
- The **AI Tools Lab** will develop practical tools that support organisations to evaluate, select, implement, and validate AI systems.
- The **AI Policy Lab** will partner with stakeholders to explore new policy and law that promote fairness, accuracy, fitness for purpose and accountability in AI systems.

UTS appreciates the opportunity to contribute and would welcome future engagement over this important issue. Please do not hesitate to contact Amy Persson, Head of Government Affairs and External Engagement (amy.persson@uts.edu.au) should you wish to discuss this submission further.

ⁱ NSW Innovation and Productivity Council (2022) *2022 Scorecard* accessed 21 September 2022: <https://www.investment.nsw.gov.au/living-working-and-business/nsw-innovation-and-productivity-council/our-publications/nsw-innovation-and-productivity-scorecards/>

ⁱⁱ McMenamin, J and Maguire, L (2021) *Projecting Long Run Productivity Growth Rates for the 2021 Intergenerational Report* accessed 21 September 2022: <https://www.treasury.nsw.gov.au/documents/ttrp21-02-projecting-long-run-productivity-growth-rates-2021-nsw-intergenerational-report>

ⁱⁱⁱ NSW Department of Education (2020) *Review on the NSW vocational education and training sector* accessed 21 September 2022: <https://education.nsw.gov.au/about-us/strategies-and-reports/our-reports-and-reviews/review-on-the-nsw-vocational-education-and-training-sector>

^{iv} Knight, M (2011) *Strategic Review of the Student Visa Program Report* accessed 21 September 2022: <https://www.homeaffairs.gov.au/reports-and-pubs/files/2011-knight-review.pdf>

^v Rolfe, M (9 September 2022) *How to get paid six figures to go to uni* Daily Telegraph accessed 21 September 2022: