



AAH Policy

THE DIGITAL ECONOMY: OPENING UP THE CONVERSATION NOVEMBER 2017

The opportunities for Australia's industries and communities from the digital transformations agenda are profound, but are not without significant risk and challenges. In developing this agenda, a clear-sighted and critical assessment of the cultural, social and economic challenges is needed to mitigate risks and ensure that the benefits from these transformations flow equitably across the Australian community.

The Government has an important role to play in ensuring that a socially-inclusive vision for Australia drives this agenda, developing strong principles-based and ethical approach to governance, and ensuring that expertise from different disciplinary perspectives is harnessed for Australia's digital future.

The Australian Academy of the Humanities (AAH) welcomes the opportunity to provide this response to the Department of Industry, Innovation and Science's *The Digital Economy: Opening up the Conversation* consultation. Our submission focuses on three key areas: digital literacy, skills and capability development; digital inclusion, diversity and equity; and data infrastructure and governance.

1 A visionary approach to digital literacy, skills and capability development

1.1 Skills mixes for the digital economy

The consultation paper specifies the role of the science, technology, engineering and mathematics (STEM) disciplines (p.31). While STEM skills and knowledges will be vital, the digital skills-base needed extends far beyond STEM to fields covered by the HASS disciplines – the humanities, arts and social sciences – such as cultural studies, media and communications, sociology, law, economics, ethnography, and applied ethics.

The OECD's March 2017 *Economic Survey of Australia* notes the national focus on STEM, which is in line with the approach of other OECD countries. But the OECD notes that this approach 'downplays the importance of other subjects in providing skills in innovative and productive sectors, such as innovation-related arts disciplines' (p. 41). The OECD finds that Australia's innovation skills remain weak, and one of the OECD's key recommendations therefore is that Government widen 'the scope of subsidies for innovation-related subjects beyond STEM (e.g. innovation-related arts disciplines)'.¹

Humanities thinking will move us beyond technical proficiency towards deeper understanding of social and cultural dimensions of the digital economy, including risks; provide the critical capacity to question, interrogate, and interpret data; and deliver creative and critical skills across

a range of changing industry sectors. Training in the HASS disciplines produces people who ‘understand business, systems, culture and the way society uses and adopts new ideas’.²

The skills sets that combine the technical and creative, such as design skills, produce some of the most dramatic areas of innovation today. A report by the Australian Council of Learned Academies (ACOLA) *Skills and Capabilities for Australian Enterprise Innovation* (2016) examined the way Australia’s innovative enterprises mix technical and non-technical skills, and the implications this has for the supply-side of the system. It found that the ‘future of high value, high paid work depends on Australia learning the lessons of STEM and HASS skills mixing from some of its leading innovative enterprises’.³

Australia has not yet developed the policy mechanisms and programs to operationalise this skills mixing. The whole-of-government attention to the area of cybersecurity provides a recent example. Developing technical expertise is critical, but not sufficient, to achieve the aims of this policy agenda. Effectively addressing Australia’s cybersecurity challenges will require the full breadth of expertise:

computer scientists to design the software and networks; cryptographers to protect confidentiality of communications; economists to explain how the competing incentives of stakeholders might play out; anthropologists to explain cultural contexts and how they impact solutions; psychologists to explain how decisions are made and the impact on system design; the legal and policy scholars to set out regulatory constraints; criminologists and crime scientists to explain the motivations of perpetrators; and experts in strategy to frame the international context.⁴

The UK Government’s five-year Cybersecurity Strategy calls for investment in skills and capabilities to ‘ensure that the human and behavioural aspects of cyber are given sufficient attention’. This extends to encouraging research collaboration across the disciplines and ‘innovative and flexible funding models for research, and the commercialisation of research’.⁵

In terms of future workforce capacity, Australia needs a visionary skills agenda that mobilises the broad range of skills and capabilities to address the challenges and opportunities of the digital economy, which recognises the contribution of expertise in the HASS disciplines and includes a plan for HASS and STEM skills mixing.

1.2 Australia’s future research workforce

Big data and digital developments are impacting on all industries and sectors, including transforming the way researchers across the disciplines undertake research. Our Higher Degree Research (HDR) graduates need skills to understand and work with digital data, tools and structures. This is an issue that is far broader than the academic research sector: the majority of postgraduate students will not go on to academic appointments which is a gain for the broader workforce and wider economy. The training for HDR students in deep analytical skills needs to be complemented by new training oriented towards the data and digital-driven environment.

The AAH’s own strategic agenda over the next three years will focus on knowledges and skills sets needed for the future humanities workforce in light of changes in the broader digital economy through a new three-year project on the Future Humanities Workforce.⁶

The Australian higher education sector has a critical role in building next-generation digital and data literacy. An important area of attention is training in digital methods and data analytics at the Higher Degree Research (HDR) level.

2 Digital inclusion, diversity and equity

Policy and research in relation to digital inclusion have developed rapidly in recent years. Many new initiatives have extended access and participation, with notable examples in the arts and cultural sectors. At the same time, we now know far more than we did about the social and cultural distribution of digital inclusion across Australia; and about Australians' understanding of rights and responsibilities in online environments.

Australia's latest *Digital Inclusion Index* report, which the consultation paper cites, provides the most comprehensive account to date of digital inclusion in Australia. Notwithstanding the accelerating rollout of the NBN, the Index report finds that the 'the gaps between digitally included and excluded Australians are substantial and widening' and identifies the skills and capability agenda as an 'important area for attention for policy makers, business, education, and community groups interested in improving digital inclusion'.⁷ The Index has also highlighted affordability as a critical factor in digital exclusion, with serious consequences for many low income Australian households.

The AAH would point to the important contributions of the arts and cultural sector to digital inclusion, beginning with the pioneering work of the State Library of Victoria in the early 1990s, establishing VicNet to provide easy, low cost access to the then nascent public internet.

The galleries, libraries, archives and museums (GLAM) sector play a central role in the civic life of communities. Some of the most innovative digital advancements in Australia continue in our arts and cultural sector, such as through and experimental media labs involving community participation – at the Australian Centre for the Moving Image⁸ or the State Library of NSW's DX Lab.⁹ A current initiative underway through GLAM Peak is focused on improving digital access to collections for the benefit of all Australians – with a particular emphasis on regional and remote Australia.¹⁰ 'Access to our shared heritage and knowledge makes a difference: digital collections support innovation, creativity, education, engagement, research at all scales, and combined with curiosity and with computational power, lead to significant social, cultural and economic outcomes'.¹¹

In Australia the work of the National Library of Australia's Trove platform has been transformational in beginning to open up Australia's rich cultural record to the nation. In the EU, investment in the Europeana¹² cultural heritage infrastructure platform has stimulated capacity building 'by creating a network of experts and cultural heritage institutions', and facilitated the 'availability of high-quality data ready for re-use which improves availability of cultural heritage on open platforms and social media and promotes its reuse in other sectors'.¹³

The cultural research sector also has a leading role to play in the digital inclusion agenda. A recent report on *Digital Rights* (2017) addresses issues of participation, marginalisation and exclusion, and seeks to develop a rights and responsibilities framework, and identify the best models for governance arrangements for digital platforms.¹⁴ The AAH encourages government to draw on this work, and that of other HASS researchers, when developing the Digital Economy Strategy.

This current research points to the complexity of digital inclusion in contemporary Australia, and the scale of the policy challenge. But the problem can be tackled, if we recognise that inclusion is clearly no longer be readily understood or resolved through the single prism of access to network infrastructure and hardware. Capabilities, skills, and affordability must also be addressed. Our online rights and responsibilities need further consideration. A national strategy framework will be necessary for Australia to improve outcomes in this area, involving government, business, community, and our cultural institutions.

Digital participation is both an innovation challenge and opportunity for Australia. A digital inclusion strategy is vital to maximising the benefits of the digital transformations agenda. The arts and cultural sector are playing a leading role in the area of digital inclusion, and government should both recognise and facilitate the work in this area.

3 Governance and infrastructure

3.1 Governance principles and regulatory frameworks

One of the areas which will require significant attention is governance frameworks around data management and use. This area has been the subject of sustained inquiry in the UK, in a joint report from the British Academy and the Royal Society *Data Management and Use: Governance in the 21st Century* (2017). The report developed a set of overarching principles with regard to data management and use.

The overarching principle ‘is that systems that govern data should promote human flourishing’.

Four additional principles are that the ‘systems of data governance’ should:

- protect individual and collective rights and interests
- ensure that trade-offs affected by data management and data use are made transparently, accountably and inclusively
- seek out good practices and learn from success and failure
- enhance existing democratic governance.’¹⁵

A key area of focus was on the ethical and social dimensions of the agenda – which is where the humanities, arts and social sciences have a central role to play across a range of industries and sectors including smart metering; data and new markets for services; ‘-omics’ data; personal location data; and data and humanitarian crises.¹⁶

Another area where the humanities has a role to play in informing the development of a regime of regulation in the national interest is with respect to social media platforms and search engines, which need to be brought under a greater degree of community oversight. While traditional media content has been regulated in the community's interests for many years, organisations which now operate very much like media (social media networks such as Facebook and Twitter, and search engines such as Google) currently fall outside the remit of our regulatory regimes.

The protection of privacy, concerns about the accuracy of news and information, the sharing of anti-social content of various kinds (ranging from online bullying to the recruitment of terrorists), must be among the issues considered when we ask what roles government, business

and individuals might play if they are to protect the community's best interests in a context of digital disruption. These are complex issues and will not be solved by focusing solely on the affordances of the technology itself; rather, we must take advantage of our growing expertise in the social, cultural and ethical ramifications of digital disruption and in particular with unregulated capacities for publishing, copying and sharing that come with this disruption.

In developing robust and trusted digital systems, strong governance principles and regulatory frameworks need to be developed, and Australia needs to draw on its expertise in the social, cultural and ethical ramifications of digital transformation.

3.2 National research infrastructure: Platforms for the Humanities, Arts and Social Sciences

The consultation paper asks how advances in digital technology are ‘changing the way you work, your industry, and your community’. They are transforming the way humanities researchers undertake their work across a range of disciplines with ‘demand for digital infrastructure and data collection, storage, transmission and analysis’ applying to these disciplines as much as in STEM fields. Data is an economic asset, as the consultation paper states, but data is also a cultural, social and research asset. Businesses, researchers, communities, and individuals need access to communications platforms and quality data.

The digital revolution is also leading to remarkable collaborations between science and humanities researchers with computational modelling transforming research in humanities disciplines such as history, philosophy, literature and linguistics. A striking example is in the field of digital archaeology but growth areas in engineering such as artificial intelligence can benefit from engagement with the humanities that would offer perspective that move beyond the rational and cognitive.

Our capacities in this area are developing rapidly. The Australian Research Council’s recent funding round for competitive research infrastructure has supported a range of major open data projects in the HASS sector. These include one of the largest grants awarded, \$1.36m for the development of next-generation tools for interdisciplinary research on critical public and social policy issues. That project focusses on the key areas of digital inclusion and digital health; sustainable built environments and transport in urban and regional communities; social care and health in the community, work and wellbeing.

Taking advantage of digital transformations and big data developments, the Academy has worked with the Academy of Social Sciences in Australia (ASSA) and GLAM sector colleagues to develop a proposal for Platforms for HASS which will drive step-change in the way researchers can discover, access, mine and analyse Australia’s social and cultural data.

Platforms for HASS proposes connecting distributed datasets and infrastructures across sectors to support future data-driven research at scale into Australian society and culture – our economy, our history and heritage, our place in our region, our national security, and our attitudes to the way we live now and into the future.

The initiative offers unprecedented scope to drive productivity and innovation across HASS fields of research, which comprises 41% of the university-based research sector in Australia. It will capture future research datasets and analyses, integrating existing project-based datasets, and ensuring routine re-use of data for research. It will leverage digital innovations developed by Australia’s cultural and collecting institutions; and provide access to social and cultural research data to support Australian businesses, industries and communities.

Through the development of coordinated infrastructure platforms, which build on collective national capabilities, a Platforms for HASS research infrastructure initiative has the power to unlock Australia's data assets about its people, places, languages, heritage, including economic data and longitudinal surveys of social attitudes, thereby driving a next-generation approach to data analytics and linkage.

The AAH would be pleased to elaborate on any of the comments made in this submission and contribute further to the development of a Digital Economy Strategy. In the first instance, please direct enquiries to our Executive Director, Dr Christina Parolin at christina.parolin@humanities.org.au

Yours sincerely,

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President

NOTES

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³Ibid.

⁴ Moore, T. and Pym. D. (2016) 'Editorial', *Journal of Cybersecurity*, 2(2): 119-20, p. 119, <https://academic.oup.com/cybersecurity/article/2/2/119/2909320/Editorial>

⁵ UK Government (2016) National Cybersecurity Strategy 2016-2021, p. 59, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/567242/national_cyber_security_strategy_2016.pdf

⁶ Australian Academy of the Humanities 'Future Humanities Workforce' project, <https://www.humanities.org.au/2017/11/10/new-funding-humanities-futures-2/>

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⁸ ACMI Labs, https://labs.acmi.net.au/?_ga=2.21942267.1122662446.1512689293-1632114989.1512689293

⁹ State Library of NSW DX Lab, <http://dxlab.sl.nsw.gov.au/>

¹⁰ GLAM Peak, Digital Access to Collections project, <http://www.digitalcollections.org.au/>

¹¹ GLAM Peak (2016), The Value and Impact of Digital Access to Collections, available from <https://www.alia.org.au/sites/default/files/GLAM%20Peak%20-%20The%20value%20%26%20impact%20of%20digital%20access%20to%20collections.pdf>

¹² Europeana, <https://www.europeana.eu/portal/en>

¹³ Council of the European Union, 'The role of Europeana for the digital access, visibility and use of European cultural heritage - Council conclusions (31 May 2016)', <http://data.consilium.europa.eu/doc/document/ST-9643-2016-INIT/en/pdf>

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¹⁵ British Academy and Royal Society (2017) *Data Management and Use: Governance in the 21st Century* (2017), <https://royalsociety.org/~media/policy/projects/data-governance/data-management-governance.pdf>

¹⁶ British Academy and Royal Society (2017) *Data Management and Use: Case Studies of Technology and Governance* (2017) , <https://royalsociety.org/~media/policy/projects/data-governance/data-governance-case-studies.pdf>