



18 January 2018

Committee Secretary
Select Committee on the Future of Work and Workers
PO Box 6100
Parliament House
Canberra ACT 2600

Dear Mr Palethorpe

Inquiry into the Future of Work and Workers

Swinburne University of Technology welcomes the opportunity to make a submission to the Inquiry into the Future of Work and Workers.

Swinburne commends the Senate for establishing the Select Committee to inquire and report on matters of critical importance to Australia's future productivity and quality of life.

Background

Australia faces unique and rapid changes over the coming decades that will transform both the nature and composition of the labour market. Many current drivers of economic growth will either diminish or disappear completely, as disruptive technologies appear set to confer improved standards of living in certain settings and threats to established workers in others.

Tertiary education must be reflexive and responsive to these seismic shifts, and the employability of Australians tomorrow will largely depend on the relevance and adaptability of the education and training they receive today.

As a dual sector university delivering both the vocational education and training and higher education, Swinburne believes pathway programs are a vital component of an integrated and holistic approach to tertiary education which will give students the precise mix of skills they need for the future.

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Speed of automation

Automation has affected human employment throughout history, however lasting and widespread unemployment has not yet occurred as a result of this disruption, as new industries have largely mitigated worker displacement. However, now more than ever it is the speed of automation which will determine the rate of impact on the workforce.

McKinsey notes that “while about half of all work activities globally have the technical potential to be automated by adapting currently demonstrated technologies, the proportion of work actually displaced by 2030 will likely be lower, because of technical, economic, and social factors that affect adoption.”¹ The Productivity Commission further notes that since 2002 multifactor productivity has significantly reduced its rate of growth, which is counter-intuitive given the advances in automation.² The Commission recommends a policy reform agenda that facilitates the automation and innovation necessary to increase the rate of growth of multifactor productivity.³ This will also compensate for an ageing workforce.⁴

A focus on labour productivity essentially means that each piece of work performed will consume fewer resources including time. For most workers that should mean less work for equivalent or more pay as income per capita continues to grow. Resulting economic growth will include outsourcing of domestic activities and paid leisure.⁵ Advances in technology and automation are opportunities and employment has persistently grown through periods of industrial and technological transformation.⁶

The OECD analyses the extensive literature on work creation and fears of mass unemployment but states, “historical evidence is positive regarding the overall economic and labour market effects of technological change”.⁷ However, as the Productivity Commission notes, one of the direct government policy interventions to support successful transition requires continuous improvement in skilling and upskilling the workforce.⁸ This includes policy settings to ensure an efficient, high-quality and flexible education and training system supplying the skills needed; effective demand for skills and reskilling;

¹ McKinsey Global Institute, *Jobs Lost, Jobs Gained: Workforce Transitions in a time of automation* (McKinsey Dec 2017), Preface.

² Productivity Commission, Inquiry Report No. 84, *Shifting The Dial: 5 Year Productivity Review*, 3 August 2017, <https://www.pc.gov.au/inquiries/completed/productivity-review/report/productivity-review.pdf>, 33.

³ *Ibid*, 36.

⁴ OECD, *The Next Production Revolution: Implications for Governments and Business* (OECD 2017), 28 (“The Next Product Revolution”)

⁵ Demonstrated in the Australian Bureau of Statistics time series on economic growth and work and family balance and Productivity Commission, 83.

⁶ Productivity Commission, 83.

⁷ *The Next Product Revolution*, 31, 33.

⁸ *Ibid*, Ch 3.

participation in the workforce; ability to upskill and change jobs; and appropriate regulatory balance for workplace relations, occupational health and safety and workers compensation.⁹

A significant danger for the Australian economy is to try to slow down innovation and automation for fear of job losses, rather than using regulation and incentives to manage a fast and effective transition for the economy. Failure to remain a front-runner risks Australia losing competitive advantage and with it a greater proportion of jobs. The Office of the Chief Scientist in 2014 reported that an estimated 65% of Australia's economic growth per capita can be attributed to improved use of capital, technology and labour innovation.

Automation and technological change in a global market makes it difficult to insulate Australian workplaces from global competition (eg Amazon and Alibaba).¹⁰ Combine this with the results of surveys such as the Study of Australian Leadership, which reports that nearly half of Australian workplaces are not meeting their performance targets for return on investment and profitability, and about 18% of private sector organisations report high levels of radical innovation.¹¹ The argument for skills improvement becomes compelling. The McKinsey Global Institute calculates that by 2020 there will be a global shortfall of 85 million high and middle-skilled workers with segments of unemployed, unskilled workers identified by geography and age (including underemployed youth).¹²

Policy settings that support job creation, innovation and skill development are essential.¹³ Recent Government reports and reviews such as those related to research and development incentives and innovation, including examples such as the Productivity Commission Research Paper, *Digital Disruption: What do governments need to do?*,¹⁴ set out a broad range of recommendations for policy, regulatory and funding settings that it is unnecessary to repeat. However, the OECD notes that "to prevent and address skill mismatch and skill shortages, policy makers and individuals need to have access to timely and high-quality labour market information".¹⁵

Skills required for 21st Century work and how to develop them

"New production technologies will play important roles in determining the availability and nature of work".¹⁶ Information asymmetries, the lack of geographical mobility, and uneven

⁹ Ibid, 84.

¹⁰ OECD, *Good Practice in Adapting to Changing Skill Needs* (OECD 2017) 12.

¹¹ P Gahan et al, Study of Australian Leadership, *Leadership at Work: Do Australian leaders have what it takes?* (2016).

¹², *Education to Employment: Designing a System that Works* (McKinsey Global Institute 2013) and McKinsey (2017), above n1.

¹³ UK policies reviewed in Deloitte, *Catalyst Fund Economic Impact Study: Summary Report for the Higher Education Funding Council for England, October 2017* <http://www.hefce.ac.uk/pubs/rereports/year/2017/cfeconimpact/>; and C Duke et al, Supporting the Contribution of Higher Education Institutions to Regional Development, Peer Review Report: North East of England (OECD 2006) (attached)

¹⁴ (Productivity Commission 2016).

¹⁵ OECD, *Skills for Job Indicators* (OECD 2017) 13

¹⁶ *The Next Production Revolution*, 15.

distribution of skills leads to skills mismatches, wage inequality, and potential regional and population segment disadvantage.¹⁷ Policy settings and incentives therefore become increasingly important to provide the requisite skills where they are required. The UK has successfully used geography specific policies to regenerate regions and upskill and reskill workers for modern industry.¹⁸

Geographic and cluster support

Skills and critical technological capabilities in sectors will determine the success of future earnings and job security.¹⁹ It is worth emphasising that universities consistently form the central knowledge precincts around which innovation and employment growth can flourish. This is evident, for example in positioning Melbourne as one of the world's leading centres of health innovation, research and employment. Similar approaches in the UK through EU funding have seen the regeneration of traditional manufacturing areas.²⁰

Skill requirements

Frey and Osborne identify three broad categories of skills that will become critical for continued employability: creative intelligence, social intelligence and manipulation to deal with unstructured or changing environments.²¹

There are variations in the descriptions of such skills. For example, The 2016 *AUIDF International Student Outcomes National Report*,²² in a survey of some 3,800 international student graduates of Australian universities, included questions on the benefits and gaps of their experience. Of the respondents, 81% agreed that their Australian degree was worth the financial investment.²³ While 84% of the respondents agreed that, their academic units developed their skills and readiness for the workplace,²⁴ the three skill clusters in which they felt least prepared: were the technical requirements of their work, the technology and software skills required and initiative and enterprise skills.²⁵

The OECD reports reinforce the need for digital skills, inter-disciplinary education and the Frey and Osborne categorisation. Specifically, the *Skills for Jobs Indicators Report* notes²⁶ the existing shortages globally of workers with skills in:

- Deductive reasoning
- Fluency of ideas
- Information ordering
- Data analysis

¹⁷ *Skills for Job Indicators*, 12.

¹⁸ See above n 13.

¹⁹ *The Next Product Revolution*, 58.

²⁰ For the UK, see above n 13.

²¹ Frey, C.B and M.A. Osborne (2013), "The future of employment: How susceptible are jobs to computerisation?", *Oxford Martin School Working Paper*, University of Oxford.

²² *AUIDF International Student Outcomes National Report*, (QS 2016).

²³ *Ibid*, 39.

²⁴ *Ibid*, 43.

²⁵ *Ibid*, 52.

²⁶ Above n 14, 67ff.

- Human supervision in complex technological environments (as opposed to management of workers involved in tasks that can be automated)
- Meaningful interaction and complementarity with artificial intelligence

Global and cross-cultural experience is an identified gap in the skillset identified in some surveys, but which is seen as increasingly important for employability in a global environment.²⁷ In a global 2016 Economist Intelligence Survey for Kaplan, 65% of Australian graduates responded that international experience while studying was beneficial in securing a job but only 31% of Australian students take up the opportunities provided by their institutions.²⁸

The growth of distributed global workforces and flexibility through digital platforms, means that the skills for self-management and self-employment will become more important.²⁹ This is critical as there has been a propensity to grow “gig workers”, who provide cheaper labour, are not considered high quality entrepreneurs and do not have the protection of employees.³⁰ Regulation and incentives to encourage appropriate protection for a distributed workforce is therefore important, while recognising the benefits that such arrangements bring in encouraging diversity, and bridging the gender participation gap. There is a clear regulatory role to ensure that the arrangements do not encourage income inequality, lack of worker safeguards and gender pay inequality, particularly where such work is taken on as full-time employment is not available.³¹

Effective delivery of skills training and enhancement

Higher education attainment is fundamental to high rates of productivity and numerous reports in Australia demonstrate both public and private benefit of higher education. However, while investment should occur in tertiary education to develop skills, it is vital that the investment and targeting provides the skills required.³² Particularly as work changes, it is important in developing and embedding employability skills to develop stronger collaboration between employers and higher education institutions in the employment journey.³³

Based on its research, the UK Higher Education Academy views it as essential for the future of work in the UK economy to embed employability into higher education. This intentional approach requires that “employability should be embedded into all learning and teaching policies, processes and practices – particularly in the curriculum – and considered

²⁷ D Bentley and J Squelch, *Internationalising the Australian Law Curriculum for Enhanced Global Legal Practice*, Report for the Australian Government Office for Learning and Teaching (2013 OLT); Economist Intelligence Unit, *Going Global: Are graduates prepared for a global workforce?* (Kaplan 2016).

²⁸ Economist Intelligence Unit, *ibid*, 14.

²⁹ *The Next Product Revolution*, 58.

³⁰ OECD, *Entrepreneurship at a Glance 2017* (OECD 2017) 8.

³¹ OECD, *Good Practice in Adapting to Changing Skill Needs*, 27.

³² *Ibid*, 29ff.

³³ *Ibid*, 32.

throughout the student lifecycle, from the very start of a student programme through to completion of their studies".³⁴

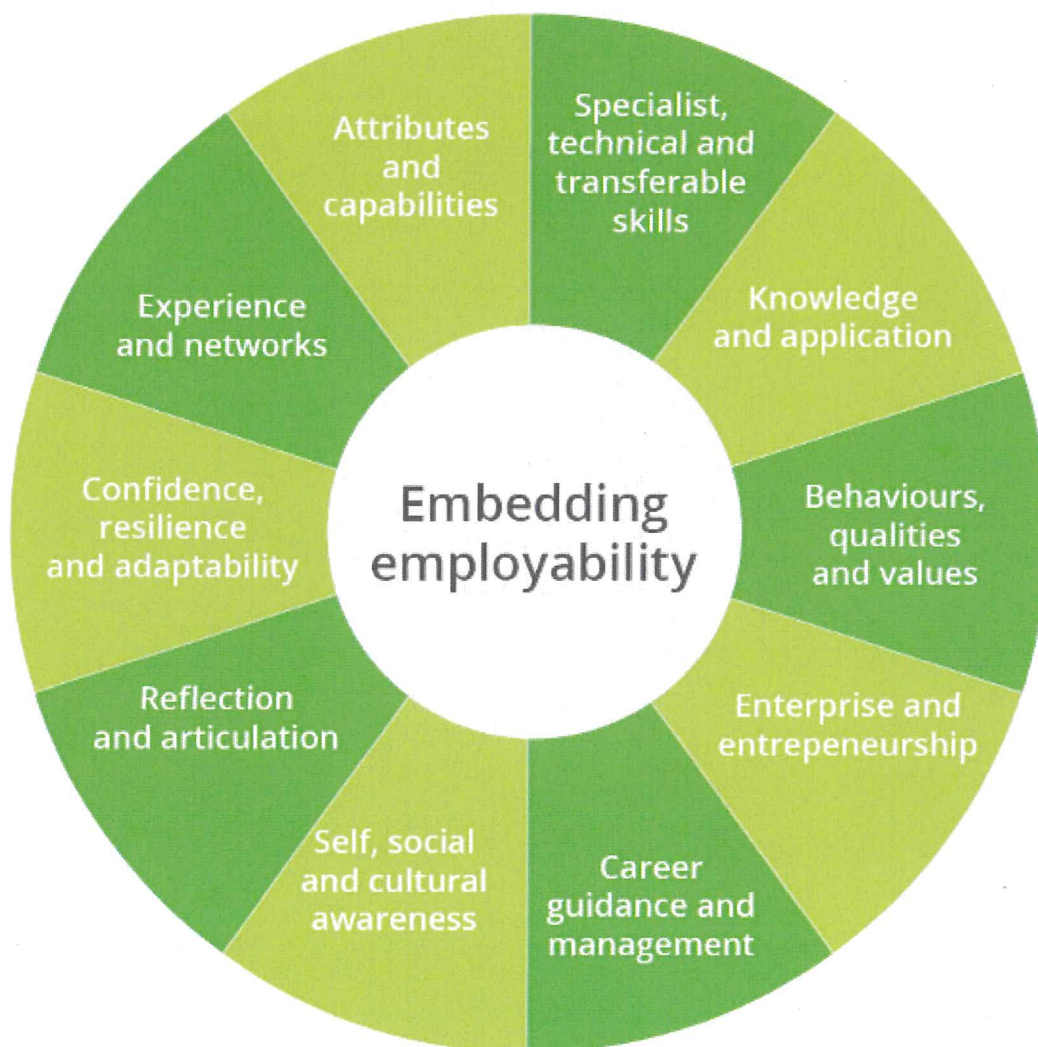


Figure 1: Higher Education Academy, Framework for Embedding employability in higher education

While universities such as Swinburne are in the process of doing this, it is at an early stage across the Australian university sector. A Universities Australia survey of Work Integrated Learning Experiences in early 2018 will demonstrate a high level of engagement by universities in providing authentic learning experiences for students. However, the aspiration to scale internships and placements for every student, given the unwillingness of employers to invest in meaningful experiences at scale requires a different approach. The

³⁴ Higher Education Academy, *Embedding employability in higher education*, <http://www.heacademy.ac.uk/transform>

impediments for employers, where almost 90% of the Australian economy comprises small and medium sized enterprises, lie in the time, cost and capability required in providing such opportunities.

In some sectors, there is a history of such experiences, for example, the health, allied health and education professions. In most sectors, internships are reducing as automation reduces the opportunities for students to learn in the workplace by doing jobs that are routine but develop an understanding of the basic operations of the business. Burning Glass and Seek data show an increase in demand for graduates with 2-3 years' work experience. The Business Council of Australia has consistently blamed universities for not filling this gap, without offering any solutions to what is a structural issue in the system.

The Swinburne University of Technology Bachelor of Engineering Practice (Hons) is industry co-created and delivered. It is an example of how universities can embed employability into qualifications where it is not yet a requirement from industry for all graduates. While Swinburne did not use the HEA framework, Swinburne's qualification addresses each of the ten broad areas of focus and the HEA Framework provides a useful tool to audit completeness of any initiative. The degree is:

- 100% Practice based;
- uses just-in-time learning and embeds additional credentials to equip students with additional skills and capabilities that are industry validated, as part of their qualification; and
- uses portfolio based assessment reflecting industry requirements for a balanced portfolio of knowledge, skills and attributes across discipline boundaries.

Learning with a diverse cohort of peers, supported by academic and industry mentors in a professional learning environment, equips graduates for industry. The curriculum delivers the core knowledge requirements to meet engineering accreditation, but it also embeds skills required by industry to deliver social impact, uses and adapts to emerging technologies, and engages students in research, development, innovation and entrepreneurship.

The Swinburne curriculum is designed for scalability. The critical differentiator that makes it feasible for SMEs to participate is the authentic experiences that provide genuine value to the firms participating. This reflects the approach taken in health and education, where student placements contribute positively to the operations of hospitals, clinics and schools. For the approach to succeed it has to be a collaborative undertaking that delivers genuine return on investment. The latter must be demonstrable for firms to commit and make that investment.

Swinburne University of Technology is transforming its learning and teaching to respond to a digital environment that requires radically different outcomes for students and employers.

This involves:

- all students developing a professional purpose linked to skill sets required by employers, but with a future focus to allow lifelong adaptability and upskilling;
- student-centred course design that allows students to learn using digital technologies on physical campuses, in the workplace or virtually to suit their learning needs to personal circumstance (Swinburne has particular strengths in online and blended forms of delivery to allow learning in the workplace, and through its online learning platform broad access to regional, indigenous and mature aged workers entering the workforce for the first time or upskilling);
- authentic learning experiences that include learning in the workplace, digitally enabled workplace simulations and international and cross-cultural workplace experiences; and
- comprehensive upskilling of academic staff and employer partners and mentors to provide the future learning experiences.

Recommendations

Swinburne supports the recommendations of the OECD for policies designed to meet future skill needs for workers.³⁵ In particular, it identifies the following as particularly important as a higher education contribution in the current policy context:

- Expand opportunities to participate in adult learning
- Link education and training to labour market needs
- Recognise informal and non-formal learning
- Strengthen incentives for employers to invest in training to meet skill needs, with minimal administrative burden. Swinburne advocates its model for unbundling qualifications across the AQF levels and the ability to rebundle in a way that meets both employer needs and student circumstances.
- Ensure the model for vocational education is sustainable and caters to future skills needs with the flexibility and adaptability required by a rapidly changing employment market. For example, Swinburne's Advanced Apprenticeship model based on the German system (adopted with some variation in the UK) currently cannot fit within any funding model and yet it has been identified by both Government and Industry partners as an important contribution to the future for Australian apprenticeships.
- Foster strong employer collaboration with higher education to ensure alignment of skill needs and future-proofing of workforce preparation and lifelong learning.
- Facilitate labour mobility, including the inflow of migrants with skills in high demand. In Australia, international education is our third highest export and we are training

³⁵ OECD, *Good Practice in Adapting to Changing Skill Needs*, 8 and 76ff.

large numbers of potential migrants with the skills that allow easy integration into Australian society and Australian workplaces after graduation. In combination with the previous recommendations to ensure the employability of graduates, there is no better pool of potential workers to enhance Australia's pool of talent.

- Stimulate demand for higher-level skills. In this context, significant investment in knowledge hubs based around universities and facilitating existing internationally recognised and emerging industry sectors will ensure Australia's long-term competitive advantage.
- Ensure all relevant stakeholders are involved in the production of information on skill needs.
- Engage in regular monitoring and evaluation.

Thank you for taking the time to consider Swinburne's submission.

Yours sincerely

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