



ENGINEERS
AUSTRALIA

Attn: Professor Mary O'Kane AC, Chair, Universities Accord Panel

Engineers Australia's Response to the Universities Accord Interim Report

Engineers Australia appreciates the opportunity to continue to engage the Australian Universities Accord Panel (the Panel) in their consultation on the Accord Interim Report. Engineers Australia is the collective voice of over 115,000 individual members across Australia. Constituted by Royal Charter, our mission is to advance the science and practice of engineering for the benefit of the community.

We welcome the immediate actions outlined in the interim report and support the Panel's assertion that a high-quality and equitable education system is essential for Australia. In the current fiscal environment, however, the ideas outlined in the interim report cannot all be implemented, and certainly not immediately. Engineers Australia therefore recommends that the Panel prioritise the following for action by Government:

- Meeting Australia's future skills needs, particularly for the professions critical to the national interest.
- Models of further cooperation between universities and industry (including work integrated learning) which support increased equity. Engineers Australia recommends engineering is used to pilot priority initiatives recommended in the report.
- Supporting professional accreditation of degree programs where it promotes innovation, is designed to internationally benchmarked standards that enable mobility, and where the benefits to graduates, institutions and the profession have been shown to outweigh any costs or administrative burden.

Meeting Australia's future skills needs

The interim report mentions repeatedly that engineering is one of the professions which will be critical to the future and identifies the skills supply and demand challenge the profession is currently facing. An engineer's ability to think critically and solve complex problems will continue to be in demand as we build a more sustainable and technologically advanced future.

The engineering profession is a good case study for the issues outlined around the production of graduates not meeting current and future workforce needs. The former National Skills Commission (now Jobs and Skills Australia) predicted an increase of over 12 per cent in STEM occupations was to occur over the coming years. As a profession, engineering has struggled to keep up with the demand in engineering skills required domestically, and as such, the country is now highly reliant on migrant engineering skills (60 per cent of engineers in Australia are born overseas).

Section 2.2.1 of the interim report outlines the benefits of Government adopting targets to drive action and catalyse the university sector around national, collective needs and ambitions. Engineers Australia supports the Universities Accord adopting a short-term step-change target for increased engineering graduations (and other national priority professions) over the next decade.

Recommendation 1: The Australian Government should adopt graduation targets for priority professions. For engineering, this target should be at least 60,000 additional engineering graduates by 2033.

Significant Engineers Australia analysis supports this as the minimum target to both replace the retiring workforce over the next decade, and meet increasing forecast demand for engineering skills.

Positively, the target is achievable through a combined effort to:

- increase the pipeline of commencing engineering students, including through outreach and increasing participation by underrepresented groups
- retain engineering students, and reduce time-to-completion, through better support and work-

integrated-learning opportunities

- by preserving engineering graduates in the profession.

Attachment one provides further details on how governments and industry can support universities to meet the proposed target.

Importantly, for capital-intensive programs like engineering, the Australia Government must ensure enduring, stable and sufficient funding and governance architecture that meets the cost of teaching and does not disincentivise universities from offering engineering places. Funding models must ensure the financial security that enables the investments needed to deliver the appropriate teaching and learning environment.

Models for cooperation

There are significant advantages to enabling greater cooperation between universities and industry. As noted in the interim report, there is a need to get the balance of discipline-specific and job-relevant knowledge right. Collaboration will be key to this – the responsibility for creating the workforce of the future is shared across the complete ecosystem, including government, the tertiary education sector, industry (employers and professional associations), and the individual.

Recommendation 2a: The Australian Government should provide priority investment in models of cooperation that build on successful initiatives, with an emphasis on:

- designing and implementing the Jobs Broker concept to increase support and strengthen placement programs already established, leveraging successful models as a template for others
- work integrated learning (WIL) that incentivises employer-paid WIL placements and increases financial support for students undertaking placements
- improving equity through secure funding to allow for the development of outreach programs, aimed at improving equity by building awareness of in demand professions early in a child's education.

WORK INTEGRATED LEARNING

The interim report points out the benefits and strong links between WIL and positive student, university and industry outcomes. Engineers Australia's submission to the initial Universities Accord consultation highlighted how WIL will continue to be an essential component of developing authentic learnings and assessments.

To support students, the report notes there needs to be a more effective method of organising placements in WIL. Professional and industry associations already support in these areas. Engineers Australia offers an internships hub which includes a jobs board that is open to engineering students and graduates and shows opportunities for graduate programs, internships, vacation placements, work experience and early career roles up to four years' post-graduation. There are also examples of industry associations supporting businesses with work integrated learning placements.

Placement poverty is a real concern that can and does impact education outcomes. This can disproportionately affect students from lower socio-economic backgrounds who may need to pause or give up paid work opportunities to complete the required placement hours. To increase equity, reduce time-to-completion and lift engineering study completion rates, greater financial support needs to be provided to students. This needs to be a shared responsibility with funding and structures from both government and industry. Industry needs to provide more paid WIL placements, and more incentives are needed. This could be through tax concessions and/or industrial award structures, or through co-contributions with government. There needs to be conduits (e.g. Jobs broker) to enable equitable opportunities and a reduction in emphasis on individual business to individual university models. Government should also review the current fortnightly rates for Youth Allowance and Austudy which are not sufficient to support students to study full time.

EQUITY

Engineers Australia agrees greater diversity and equity in education is essential for us to succeed as a nation. First Nations qualified engineers have increased in all industries since 2016. However, this cohort remain a small proportion of the engineering population at under one per cent. Of the engineering qualified labour

force, females make up only 16 per cent. Under-represented and low SES groups need to be given more support to undertake higher education. However, it isn't enough to support these groups when they get there. More needs to be done to build awareness of different courses early in a person's education to ensure they have undertaken the required pre-requisite study, helping them to succeed.

Some universities provide outstanding support for high-school students through school visits and holiday activities. These initiatives assist students in recognising the significance of university education and STEM skills and the potential they offer. Secure, sector wide funding should be provided to support outreach programs, specifically designed to build awareness of higher education opportunities in critical in-demand professions such as engineering. In addition, mathematics education in Australia is in a crisis (particularly for lower-SES and regional/remote students), and as a precursor to engineering study initiatives to support the learning of mathematics are urgently required.

Recommendation 2b: Where large-scale funding is not immediately available to support national implementation, the Australian Government should use engineering as a test-bed to pilot priority initiatives recommended by the Universities Accord.

Critically, new models for cooperation to attract and equip the future workforce should build on what works. The case studies in attachment one show how the report's ideas can be successful, as implemented for engineering.

Accreditation

Recommendation 3: The proposed Tertiary Education Commission should include structures to ensure professions are represented, particularly professions that provide accreditation of degree programs.

Engineers Australia supports the proposed Tertiary Education Commission to foster innovation and provide independent and expert decision-making. As Australia's signatory to the International Engineering Alliance (IEA), Engineers Australia maintains national professional standards, benchmarked against international norms. This includes accreditation of undergraduate university engineering programs, providing international mobility for graduates.

The interim report makes several comments regarding accreditation of qualifications, and the perception the process hinders innovation in the sector and slows the responsiveness of institutions. In the engineering sector, the benefits of accreditation have been shown to outweigh the costs (which for engineering accreditation is co-funded). Universities are encouraged to create innovative programs and the risk is managed by requiring the curriculum to be designed to internationally benchmarked standards.

Accreditation of engineering degrees relies on considerable in-kind input from industry volunteers to assess the offerings by the higher education and VET sectors. This provides the opportunity for industry to influence the skills that are developed in the student and should continue as an important mechanism for linking industry and academia. The input provided by volunteers from academia and industry adds to the positive cost benefit ratio. It also has the intangible benefit of academics benchmarking other universities. Industry is also provided with an opportunity to develop a deeper understanding of engineering education while influencing the development of the skills taught in engineering degrees.

Engineers Australia recognises that there is variation across professional accreditation bodies. We see that it is essential that accrediting bodies have accountability – whilst not increasing burden for any party. This would include requiring learning from best practice and validation. The IEA Washington Accord is often cited as an exemplar for international multi-lateral agreement for the recognition of professional qualifications. Engineers Australia is reviewed internationally, every six years, to ensure accreditation continues to meet the agreed benchmark. This type of oversight and review is critical to ensure that a professional program delivers the graduates needed by industry and meets the standards expected.

Engineers Australia looks forward to continuing our engagement with the panel and department. To discuss the points raised in this submission, please contact Jenny Mitchell, General Manager, Policy and Advocacy, at jmitchell@engineersaustralia.org.au.