30 May 2024

Professor Barney Glover
Commissioner
Jobs and Skills Australia

Dear Professor Glover

Thank you for the opportunity to provide feedback on the draft core skills occupation list (CSOL). The Australian Industry Group (Ai Group®) is a peak national employer organisation representing traditional, innovative and emerging industry sectors. Ai Group and partner organisations represent the interests of more than 60,000 businesses employing more than 1 million staff. Our membership includes businesses of all sizes, operating across a wide cross-section of the Australian economy and linked to the broader economy through national and international supply chains.

Ai Group recognises the important role of domestic education, training and employment systems in providing workforce solutions to meet the needs of Australian industry now and in the future, alongside the complementary role of skilled migration.

We note the new methodology developed by Jobs and Skills Australia (JSA) for the draft CSOL and appreciate the multi-layered approach including data, surveys and stakeholder engagement. While we appreciate JSA approaching this issue in a more rigorous and data-based way than in the past, stakeholder engagement will continue to be critically important for many of our members.

The patchy nature of skill shortages and the limitations of labour market information mean that while data may suggest that a particular skill may not appear to be in great demand overall, there will be areas where certain skills are simply not available locally. This may not be captured in survey data. There are also many niche or emerging skills which may not appear to be in shortage. Because of their rarity, they would not appear in data. Ultimately, employers are the best judges of which skills are in demand.

We note that JSA has categorised the draft CSOL into three lists: 'confident on'; 'confident off' and 'targeted for consultation'. Our comments below are focused largely on the 'targeted for consultation' part of the list. Should JSA form the view that some occupations warrant moving from the 'confident on' list, it is Ai Group's view that further consultation would be necessary. For example, Ai Group has received feedback from members about the importance of electricians and fitters being included on the CSOL list, but this isn't fully explored below as these occupations are included in the 'confident on' list.

Every two years, the Centre for Education and Training (CET) at Ai Group undertakes a skills survey. We are currently finalising analysis of the results, however in the 2024 survey, 52% of employers surveyed report skills shortages across all occupations. When asked the question*, 'Have you had difficulties in finding or training staff that meet the skills required in your business?*', the most difficulties reported were in trades and technician occupations (79%), followed by professionals (61%), managers (55%) and machinery operators and drivers (58%).

In this survey, 52% of the respondents reported being part of the manufacturing sector. This included a diverse range of manufacturers, including those making food, beverages, chemicals, equipment, building materials, metals, textiles and furniture. 19% came from the services sector, and a further 10% from construction. Respondents selecting 'other' were diverse and included defence/aerospace, aviation, recyclers and not-for-profit community organisations. The remaining 3% reported being from the mining/mining services sector.

Difficulties in finding or training trades and technician workers has become significantly more pronounced in recent years. In 2020, difficulties were identified by around 4 in 10 responding businesses, compared to 7 in 10 in 2022. As noted above, this has continued to increase, and around 8 in 10 employer respondents now indicate these difficulties. While this data is not disaggregated to the same degree as the draft CSOL analysis, it suggests that skills shortages are becoming more critical in trades and technician occupations. In this context, Ai Group would recommend that trades and technician occupations on the 'targeted for consultation' list are included in the final CSOL, particularly given the time needed to train for many of these occupations. This also includes Technicians and Trades Workers nec (399999). For example, Ai Group has received advice that in the compressed air sector there is a shortage of Dryer Technicans.

Other examples of trade and technician occupations include Floor Finisher (332111), an important part of the construction industry that has been in shortage for many years and a physically demanding industry that struggles to retain older workers. Several telecommunications trade and technician occupations that are targeted for consultation have also been recommended for inclusion by members of Ai Group: Telecommunications Field Engineer (313212), Telecommunication Network Planner (313213), and Telecommunications Technical Officer or Technologist (313214).

Employers are also reporting the professional occupation group as increasingly difficult to find or train staff to meet skill requirements. In 2020, difficulties were identified by more than 2 in 10 (22%) of responding businesses, compared to more than 6 in 10 (61%) in 2024. We note that 23 engineering occupations are targeted for consultation. Ai Group consistently hears from members that they cannot easily find suitably skilled candidates in engineering occupations. We acknowledge that this may reflect a suitability gap in some instances.

Ai Group actively supports work integrated learning opportunities that can help ensure students receive meaningful work experience as they study and that employers have access to a pool of suitably skilled workers. However as acknowledged in our attached paper on work integrated learning, such initiatives are based on a partnership approach and take time and resources to implement. The need for more work integrated learning is also recognised in the Final Report of the Universities Accord Panel. It will take time and enhanced policy settings for work integrated learning to help resolve suitability gaps. Ai Group therefore advocates for the engineering occupations targeted for consultation to be included on the final CSOL list, including (but not limited to) Software Engineer (261313), Electronics Engineer (233411), Electrical Engineering Technician (312312) and Computer Network and Systems Engineer (263111).

Examples of industry demand for engineering occupations come from Ai Group's work on degree apprenticeships and scholarships. We have been working on degree-level apprenticeship programs in systems engineering, software engineering, electrical engineering and mechanical engineering. Work in each of these fields originated because of demand from our members, who struggle to find suitably qualified engineers. Similarly, Ai Group has been coordinating scholarship programs on behalf of the Victorian and South Australian Governments for companies in the defence sector to provide work placements to university students. The vast majority of these have worked in engineering disciplines.

A range of other professional occupations that are difficult to recruit and warrant inclusion on CSOL have also been raised with Ai Group, including Health and Safety Advisor, 251312. Ai Group has also been advised that ICT Business Analyst (261111) roles are difficult to recruit. Company level intelligence provided to Ai Group is that 3 out of 5 vacancies for ICT Business Analyst take more than 3 months to fill, and this time to fill has increased by 56% compared to 5 years ago. Other ICT related occupations including Software Tester (261314); Web Developer (261212); Systems Analyst (261112); Data Scientist (224115); and Data Analyst (224114) have been raised by Ai Group members

as occupations that would be valued inclusions on the CSOL. CET's Skills Survey 2024 findings also provides evidence on the demand for digital skills.

In CET's Skills Survey 2024, Cyber security skills are number one in a long list of digital and technology skills businesses are seeking in 2024, with 64% saying they need cyber security skills and capabilities in their business. This has risen from 33% of businesses surveyed in 2022. Ai Group recommends that these findings are considered by JSA in deliberations around CSOL. We note that cyber related occupations included for consultation (Cyber Security Analyst 262116; Cyber Security Architect 262117; Cyber Security Engineer 261315; Cyber Security Advice and Assessment Specialist 262115; Cyber Security Operations Coordinator 262118; Cyber Governance Risk and Compliance Specialist 262114; and Penetration Tester 261317), are not currently on existing migration lists. Given the risks associated with cyber security, it is recommended that a skills pipeline for these roles be a priority, with inclusion on CSOL.

Managers are another occupation group that are increasingly reported as difficult to find or train. In 2020, difficulties were identified by 3 in 10 (30%) of responding businesses, increasing to 4 in 10 in 2022 (41%) and almost 6 in 10 (58%) in 2024. Specific feedback about managerial occupations that are difficult to recruit raised by Ai Group members include Corporate General Manager (111211) and Supply and Distribution Manager (133611), and we recommend their inclusion on CSOL. Given the demand pressures in construction and manufacturing industries, combined with representation in the Ai Group survey, we would also anticipate that targeted for consultation managerial occupations such as Production Manager (Manufacturing - 133512), would warrant inclusion on CSOL.

Difficulty in finding or training machinery operators and drivers has increased significantly since 2020. Difficulties were reported by more than 1 in 10 (13%) of respondents in 2020, rising to almost 4 in 10 (39%) in 2022, and again to more than 5 in 10 (55%) in 2024. We note that machinery operator and driver occupations are generally either skill level 3 or skill level 4, with the latter not included in the draft CSOL analysis. Ai Group has received advice that Extrusion Operators animal products (Pet, Equine) have been difficult to fill in regional NSW. Further, the concrete, sawing and drilling sector has an aging workforce, and they are unable to recruit experienced Concrete Cutting or Drilling Machine Operators (CW/ECW 1 classification). The sector has advised that if this doesn't change soon, the industry will suffer a big downturn even though they are essential to construction. They are also seeing businesses close nationally. Given the strategic importance of the construction industry, Ai Group recommends this occupation is considered for inclusion in migration arrangements, and in the rollout of budget measures to increase the skilled workforce in housing and construction.

Ai Group notes that there are some occupations categorised 'confident off' the CSOL list which are currently on several migration lists, which seems unusual. For example, Specialist Manager nec 139999, Telecommunications Engineer (263311), ICT Support Engineer (263212) and Radiocommunications Technician (313211). These occupations have all been raised with Ai Group as warranting inclusion on CSOL. For example, Specialist Manager nec 139999 is an important way for companies to be able to recruit managers in new and emerging areas to stand up new functions where these skill sets are not necessarily available in Australia and should be included on the CSOL.

Another consideration in finalising advice on the CSOL is future employment and skills demand, for example how the role of migration in supporting economic development through major projects is planned for. For major projects to succeed and meet budget and timeline requirements, effectively matching workforce supply is essential. This requires consideration of how domestic skills policies are aligned to major project delivery, as well as skilled migration as part of the mix. For example, Ai Group has received advice that proponents of major projects in North Queensland, including renewables and critical minerals, are concerned about workforce capacity and the potential risk this

poses to project delivery, particularly if migration is reduced. These issues are heightened in regional areas, which also needs to be considered.

As the CSOL further develops, it will be important that JSA find a mechanism to consider emerging and future needs that will not necessarily be reflected in ANZSCO classifications or other labour market data. For example, Ai Group notes that the recently announced Solar SunShot program will entail significant skills needs.

Solar SunShot is intended to foster a domestic Australian solar photovoltaic (PV) supply chain potentially covering production of polysilicon, silicon ingots and wafers, solar cells, and solar modules. The Silicon to Solar study that informed the Solar SunShot program design makes clear that Australia currently has limited or no local skills for many aspects of these activities, and would need to bring in skilled workers – likely from China, the centre of the existing PV industry – to get new facilities built, to operate them, and to train Australian workers.

We understand that Solar SunShot may begin awarding production incentives to proposed facilities later this year, and while development may take several years, JSA should ensure it coordinates closely with ARENA so that necessary skills can be identified and considered for CSOL, and skills initiatives, in good time.

Other notable findings from CET's 2024 Skills Survey include that a lack of human skills and capabilities is preventing many businesses from embracing and utilising Artificial Intelligence (AI) technology. In 2024, 41% of the businesses we heard from reported 'no engagement' with AI. When asked about the barriers, the top three answers were insufficient understanding of the opportunities, skills gaps and leaders lacking the skills and capabilities. 63% of companies reported a lack of understanding of the opportunities AI presented for their business as the reason for not engaging further with the technology. More than half of companies (53%) identified skills gaps as a barrier. It will be important that roles in this emerging area of technology be recognised in occupational classifications and potentially the CSOL.

Ai Group has made a concerted effort to promote the consultation and encourage members to participate directly in this consultation, including through our Industry newsletter and Centre for Education and Training newsletter. As the 2024 skills survey data contained within this submission is currently unpublished, this submission is provided on the basis that it only becomes public after Ai Group completes the release of the survey data on 10 June 2024.

If you have any questions about this submission, please contact Dr Caroline Smith, General Manager – Education & Training, Policy & Projects, via caroline.smith@aigroup.com.au.

Yours sincerely

Innes Willox
Chief Executive

Encl - *Connecting to maximise knowledge and skills: Companies and universities working together*

CENTRE FOR EDUCATION & TRAINING

Connecting to maximise knowledge and skills

Companies and universities working together

POSITION PAPER

MAY 2024

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About this paper

This paper represents a plea for a renewed paradigm framing relationships between industry and universities - for the sake of the emerging Australian workforce. It argues that skills development needs a widespread approach in which learning is immersed in work environments. This is key to linking learning with constantly changing industry strategies and practices, technical and generic skill needs.

Through its members Ai Group sees many quality and innovative pockets of work-integrated learning where formal education and training is augmented in the workplace over time. However Australian university links are under-developed by international standards. Collectively we must significantly upscale learning and work interactions between companies, universities and students during a student's learning journey.

The paper explains why closer connections between industry and universities are so crucial to the workforce. It describes the breadth of work-integrated learning forms – from micro-placements through to degree apprenticeships. It explores how companies can work more closely with universities. It demonstrates how some companies are experiencing, and benefitting from, close connections with universities.

Finally the paper discusses what still needs to be done to embed and evolve the practice of work integrated learning. We contend that action involves all parties: government resourcing and funding support; joint responsibilities between government, industry and universities; and further actions by universities.

Amongst the barriers to achieving a greater volume of quality integrated work and learning, a key one is that time and resources are needed for companies to engage with universities and students, and this is a particular challenge for small and medium companies.

Ai Group sees the paper as an agitator for change around industry-university connections in Australia. Our Centre for Education and Training is working to influence key areas for action recommended in the paper. We welcome approaches to the Centre from like-minded companies, agencies, governments and individuals across the skills ecosystem.

Innes Willox
Chief Executive

Definitions

Work-integrated learning (WIL), is a term used in higher education. It encompasses any arrangement where students undertake learning in a work context as part of their course requirements.

WIL directly links student learning to work and career through effectively designed experiential activities relevant to the students' discipline of study. It is an educational approach involving three parties – the student, higher education provider, and a partner organisation– that uses authentic experiences to allow students to actively integrate theory with meaningful practice as an intentional component of the curriculum.

The defining elements of WIL are:

1. **Experiential activities**: engage students in hands-on tasks, and reflection on their experiences, that are related to real-world practice.
2. **Relevant to the students' discipline of study**: the experience supports and correlates to the student's knowledge and skill development requirements as part of their study and/or career aspirations and professional development.
3. **An educational approach**: intentionally supports student learning through a range of practice models.
4. **Involving three parties - the student, the higher education provider, and partner organisation**: all three partners are engaged in the experience, where the partner organisation can be an employer, client, community organisation, government agency, or an educational institution (where the higher education provider is an employer or client).
5. **Authentic experiences**: tasks/projects undertaken by the student are related to activities expected at a place of practice (e.g., a workplace, a community, or remotely online with a partner organisation).
6. **Actively integrate theory with practice**: the student is an active participant (i.e., not an observer) within the context of the place of practice where the tasks are intended to be purposefully applied. They are applying, critiquing, and forming opinions about principles, theories, and knowledge learnt through formal teaching to authentic practice.
7. **Meaningful practice**: the tasks are work-focused and relevant to the student's discipline of study and have relevant purpose for the partner organisation, whereby the student engages with the tasks in a similar way to that expected of a working professional.
8. **Intentional component of the curriculum**: a formal component of the curriculum, best implemented with assessment including feedback from the partner organisation.

9. **Reflection and career development learning:** Students process learning and transfer knowledge across contexts through facilitated reflective activities with educators or industry partners. Career development activities and conservations are embedded within the WIL activities to promote professional identity development and career management skills.

Work-based learning (WBL), is a term most often used in vocational education and training. It refers to learning that occurs in real work environments through participation in authentic work activities and interactions.[1]

Both WIL and WBL can occur in a variety of ways, from minimal engagement and ad hoc arrangements, to full integration into an apprenticeship or degree, which is both assessed and accredited.

'Earning and learning' is a term that refers to arrangements involving wages or salary during the course, usually through a training contract with the employer. The term 'employment-based learning' is also used to describe these arrangements.

Higher apprenticeships, degree apprenticeships and cadetships refer to integrated programs of structured education and training and paid work that leads to a VET or higher education qualification at the Australian Qualifications Framework Level 5 or above.
Degree apprenticeship is relatively new in Australia but the concept itself is not. The degree apprenticeship model starts with the employment of a new entrant with no prior training, and provides work in the profession over the years of the training contract, while the apprentice studies at university for their degree.

[1] Atkinson,G., Work-based learning and work-integrated learning: fostering engagement with employers, NCVER, 2016.

Why are closer connections between industry and universities so crucial to your workforce?

Companies and universities share an interdependency when aiming for the right skills equation. Technology and work environment changes are accelerating, meaning changes to knowledge and skills are too, so the two sectors have to be intertwined. This is key to linking learning with current industry strategies and practices, and specialist, technical and generic skill needs.

Jobs experiencing growth in the economy require higher level thought and judgement. New skills that incorporate artificial intelligence technology are needed. The concept of teamwork and social skills, real and virtual, will increasingly broaden within and across workplaces and across countries. Changes are happening to the way work is organised, and tasks within roles are shifting. As *The Factory of the Future* report pointed out, a company can generate enormous amounts of data, but must rely on people to make decisions. [2] As we move on it will be the characteristics of agility, resilience and flexibility in professional graduates that will be key to their success in organisations. This will allow organisations to be adaptable, innovative and thrive in complex, unpredictable digital environments.

Increasingly industry is an essential partner to the quality of the learning environment that students experience. Indeed, increasingly industry must be the learning environment that students experience. Skills development needs a different approach for the future: where learning is not separate from doing; where we immerse learning in work environments. This calls for new responses and new support for upscaled connections across Australia's broad skills ecosystem.

Industry and higher education providers connect for a broad range of reasons. This paper focusses on connecting around work-integrated and work-based learning – placements, projects, degree apprenticeships and other activities to maximise teaching and learning. While partnering principles discussed in this paper are equally applicable to connections made for research, deep and separate considerations come into play when establishing and maintaining research relationships.

Connecting on work-integrated and work-based learning

There is broad industry acknowledgement that exposure to authentic work environments is highly effective at increasing students' work readiness. A common complaint from employers is that graduates lack employability skills when they arrive at the workplace. These are skills such as communication, working in teams, and understanding business imperatives among others. Intern arrangements, work placements and industry projects for undergraduates can help to develop those skills.

From the other perspective, students can offer novel ideas for businesses, can exude enthusiasm and motivation, and can have a positive effect on staff morale. In turn this can

[2] Factory of the Future, Microsoft, 2019.

improve workplace culture, staff retention, and productivity. [3] The connections made with universities can lead to a co-branding on initiatives and lead to shared research activities.

Companies and universities currently interact for a number of reasons. Work-integrated learning can range from:

placements and internships	projects, including online projects	simulations
micro-placements	inter-disciplinary student teams	field experiences
consultancies	partnering on start-ups	competitions
hackathon events	multi-company projects	professional practice

Other involvements for companies can include co-design of curriculum, co-delivery and co-assessment. Also emerging in Australia are significant work-based learning models in the form of degree apprenticeships and higher apprenticeships for the achievement of application-based professional qualifications.

The Australian Universities Accord Final Report, released in January, recognises the importance of WIL in building the skills of the future workforce and recruitment to entry level positions. It noted strong and consistent support from industry and providers for its expansion and the recognition by employers that they benefit from WIL through early connections.

In Australia, according to a 2021 report, university links with industry are under-developed by international standards.[4] Howard in 2017 stated that 'the future of university-business interactions is heavily contingent on building stronger trust-based relationships through a step change increase in the capacity and capability for engagement as a foundation for interactions and relationships.'[5] Building robust partnerships between industry and universities is crucial. By understanding the evolving skill demands in various sectors, universities can tailor their programs to ensure graduates possess the necessary skills for immediate employability and future success.[6]

Work-integrated and work-based learning necessarily bring together different sectors of the economy. Students, universities and industry all have to be partners in some form. A partnership culture is always going to provide students with opportunities to recognise and experience complex future work environments and remain critically engaged with emerging social and

3 Ferns, S., Dawson, V. & Howitt, C. (2019). A collaborative Framework for enhancing graduate employability. In International Journal of Work-Integrated Learning (Special Issue), 20 (2)

4 Dawkins,P. and Bean, M., Review of University-Industry Collaboration in Teaching and Learning, for Department for Education, Skills and Training, 2021.

5 Howard, J., A Vision For University-Business Engagement in Australia in University Industry Innovation Network, 2017.

6 Dr Nici Sweaney, Upskilling for the Future: are your graduates ready?, addressing Udemy Global Learning and Skills Trends Report, Future Campus, March 2024.

environmental challenges. A New Zealand business representative went further in 2019, stating that 'businesses are the classrooms of tomorrow'.[7]

At the macro level research has found students who have had work-integrated learning and work-based learning involvement have better employment outcomes. Positive feedback from government funded defence industry WIL programs with which Ai Group is directly involved back these findings. Under one program we source students from SA universities (working with university coordinators), to be placed in defence related companies. After five years we found:

- most companies were first time users of WIL and they use the program to introduce, develop and embed WIL practices in their workplaces
- small, medium and large companies are all interested and involved – (they receive funding support as do students)
- a number of them come back for more in subsequent rounds once they have taken on a student
- 99% of students reported excellent experiences and 96% favourably rated the support of their host organisation. 95% reported a positive view of their host's onboarding process
- Two-thirds of students secured employment with their host (either during or after completing their degree)
- 86% said placement allowed them to demonstrate or practice the knowledge and skills attained through their course
- The skills students said they were most able to develop during their placements were *problem solving and critical and creative thinking*, followed by technical skills applied in defence settings and then teamwork.[8]

In a parallel funded defence project coordinated by Ai Group in Victoria, results have been equally as pleasing.

- 100% of students reported excellent experiences and 85% favourably rated the support of their host organisation. 76% reported a positive view of their host's onboarding process
- A quarter of students secured employment with their host (either during or after completing their degree)
- However, 59% said placement allowed them to demonstrate or practice the knowledge and skills attained through their course.

Both programs continue to run.

Traditional apprenticeships in vocational education and training similarly provide great benefits to employers. And new apprenticeship models promise to open up even more opportunities for maximised knowledge and skills development to the benefit of both employers and students/apprentice employees.

Employers can help shape their apprentice's learning to the skills they need in their workplace and help them develop the employability skills they value. In other countries degree apprenticeship models have attracted a diverse demographic of candidates, indicating the

[7] Hope, K., Businesses are the classrooms of tomorrow and proposed education reforms must reflect that, Newsletter: New Zealand Politics Daily – May 10 2019.

[8] Unpublished Australian Industry Group survey, 2021

model in Australia has the potential to open professions up to a larger number of people from broader cohorts.

A degree apprentice who successfully graduates can point to the same qualification as others, but can also point to years of experience applying that knowledge and working alongside and learning from experts in the field.

Degree apprentices are absorbed into the organisation from very early in their career, often as soon as they leave school. By the time they graduate, they have years of work experience under their belt, know the organisation well, and know where they fit and where they might progress within the organisation. These people can be more productive than a graduate who starts work after they finish at university.

Such collaborative work-based and work-integrated learning activity as outlined above now needs to be widespread for Australia's emerging workforce to be optimised. Increased collaboration would guide the learning in higher education, explore new skilling models, and help to build learning into the everyday business of companies.

How can industry work more closely with universities?

Collaboration and partnering between industry and higher education is not new in Australia. Many examples have long existed and developed highly skilled employees in key industry sectors. However, upscaled collaborations are now needed across Australia's skills eco-system.

Ai Group has seen a greater awareness and willingness by businesses to take on students as the years have passed. But engagement and uptake is as complex as the nature and complexity of industry.

At Ai Group we have experienced much positive feedback from companies about the benefits of work-integrated learning. As outlined in Section 1, many companies introduced to work-integrated learning for the first time through our brokering program involvements have subsequently embedded work-integrated learning practices, seek students regularly and maintain mutually beneficial relationships with universities.

Conversely other companies have expressed frustrations with their own efforts to engage with universities. We hear from some companies that they do not know how to approach a university or who to approach; that a lack of information about what is on offer and what their involvement will be creates a hesitancy; and that uncertainty about the ability of the university to be flexible to accommodate industry needs is a barrier.

Large, medium and small sized businesses all have different capacities and motivations to be involved. Large companies can have whole departments geared around their annual work-integrated learning programs. At the other end of the scale, small businesses' reactions are often 'we just don't have the time'. Small and medium enterprises (SMEs) in particular are identified as organisations for which resources and time are limited.

With 97% of Australian businesses categorised as small to medium (SMEs), engagement with universities for work-integrated and work-based learning continues to present unique challenges. Key amongst these are insufficient resourcing, managing different expectations, confusion around roles, inadequate leadership, and absence of incentives for participation.[9]

Understanding the barriers to connecting with universities

Company-university partnerships, whether aimed at involvement with placements or degree apprenticeships or other initiatives, are initiated in a number of ways. Universities often make formal approaches to industry representatives for involvement on program advisory groups. Other partnerships may be less formal and established through individual approaches by university academics/staff to companies. Some companies also approach universities.

Good partnerships do not happen easily or quickly. Strong and successful partnerships are established over time and based on mutual trust, benefit and communication. Perceived barriers to industry need to be worked through – they can be lack of information about what is

[9] Ferns, S, Dawson, V, & Howitt, C (2022) Professional accreditation: A partnership proposition. In S. J. Ferns, A. D. Rowe, and K. E. Zegwaard (Eds.), Advances in research theory and practice in work-integrated learning: Enhancing employability for a sustainable future. (pp. 60-72). Routledge.

on offer from universities; hesitancy to approach universities about becoming involved without some understanding of what this may entail; ability of the university to be flexible to accommodate industry needs and the business cycle; and confusing university bureaucracies.

Barriers can originate from either side of the partnership through basic mismatches in terms of relevance, time horizons, priorities and expectations between partners.

It is useful to know the barriers that can be faced when industry and higher education providers engage in order that they can be explored and addressed. The 2017 Global University Engagement Monitor found differing motivations and differing time horizons to be the main barriers to employer partners participating in work-integrated learning.

Common barriers from both perspectives are identified below:

Barriers for industry in approaching, establishing and maintaining partnerships

- Lack of information about what is on offer from universities
- Unsure of who to contact at a university
- Hesitancy to approach universities about becoming involved without some understanding of what this may entail
- Lack of time or interest to invest time
- Industry partner receives funding for short term projects only
- Legal concerns, such as intellectual property
- Different 'languages' spoken by each of the partners
- Different aims and varying roles, and different expectations of outcomes across all parties
- A perception of lack of flexibility and responsiveness on the part of the university to accommodate industry needs and the business cycle
- The complex nature of university systems, with bureaucracy confusing for employers unfamiliar with the process
- Insufficient communication by the university partner
- The timeframe for industry placements do not necessarily align with the

	academic year and reporting requirements • Universities have differentiated interpretations of workplace law • SMEs are burdened with paperwork provided to them by the university
Barriers for the university in approaching, establishing and maintaining partnerships	• Difficulty engaging SMEs • Academics with limited experience of establishing and maintaining relationships with industry may struggle to articulate the aspects of involvement. • University finds organisation's highly applied, short term technical issues difficult to incorporate in curriculum • Communication channels challenging to keep open to provide regular feedback to industry • Workload and resourcing within university constrains the partnership • Level of ability to be flexible and responsive to different industry requests • Reaching agreement with the industry partner on the right balance between skill needs of firms and learning needs of students as reflected in curriculum

Taking the first steps to connect with universities

For employers, whether your contact with universities is to establish student placements, projects or degree apprenticeships; to influence industry-relevant curriculum, teaching and learning; or to establish connections for research, the foundations for successful partnerships are the same.

All partnerships have a lifecycle regardless of purpose. The major focus of a partnership is on-going interaction. This interaction will recognise that priorities will evolve and diversify over time as opportunities arise.

Lifecycle stages, inherent in a partnership, offer a useful framework for the partnership journey. The stages assist to develop coherent strategies for partnerships being formed for work-integrated learning and work-based learning activities.

Partnership lifecycle stage	Characteristics
Attraction/selection of university	• Knowing what is needed and what is possible through the partnership • Exploration and selection of partners with genuine interest and commitment • Partners with resources to support the partnership • Knowing the strategic fit • Checking for common causes, shared interests, mutual needs • Consideration of the nature of potential commitments • Establishing organisational management buy-in
Engagement/formation of relationship	• Deeper questioning of the purpose and reasons for being there • Building personal relationships • Building ownership for both partners • Defining governance, operations and behaviours • Addressing risks and benefit sharing • Determining objectives
Development/functioning of relationship	• Clarity of vision and focus • Managing cultural differences • Setting up clear roles and responsibilities • Considering joint activity, joint accountability • Communication planning

Maturity/management of relationship	• Achieving partnership goals • Discussing amending objectives where needed • Shared leadership • Sharing knowledge • Trust and mutual respect
Exit/re-invention	• Evaluating the relationship and its level of success • Documentation and celebration of successes • Transfer of aspects to other organisational functions of partners • Adjustment of teams and skill sets • Exploring opportunities for further involvements (loops back to initial stage) • Plan for potential disengagement.

When connections have been made, companies that engage in quality work-integrated learning experiences tend to:

- build the involvement into the organisation's workforce strategy where students are seen as a valuable contribution, the beginning of the worker pipeline and included in workforce development planning
- build a culture that accepts students and their ideas and integrates them into teams
- develop and provide internal policies, training material, orientation, supervision and assessment
- designate a person to lead and develop an internal plan around time commitments, staff involvement, communication with the student and university
- prepare staff to engage with students, mentor and provide meaningful feedback
- encourage in students the development of professional identity, along with building confidence and self-determination, and
- input into WIL activities with higher education which may include co-creation, co-design, co-delivery, co-assessment.[10]

[10] Further details are included in the yet-to-be-released National Higher Education Work-integrated Learning Strategy, Australian Chamber of Commerce and Industry, Australian Industry Group, Business Council of Australia, Australian Collaborative Education Network, Universities Australia.

Ai Group work to facilitate industry participation

In 2016 Ai Group, as a direct action from the 2015 National Strategy for Work-integrated Learning in University Education[11], developed and circulated an employers' guide to taking on university students. It has since been updated[12], and includes contact details at all universities supplied and updated by the Australian Collaborative Education Network. This Network also maintains extensive material online for employers participating in work-integrated learning activities.[13]

Recognising the need for continued change and support, Ai Group has worked alongside its National Strategy partners[14] on the yet-to-be-released National Higher Education Work-integrated Learning Strategy.

Ai Group has also been driving the development of degree apprenticeship models by coordinating pilots, working with companies and universities on these programs, assisting in gaining interest from other companies, speaking with governments about system changes, and working with universities on course development.

Our 2023 paper on Degree Apprenticeships details the models, barriers to successful implementation and actions that can facilitate uptake.[15] The Paper demonstrates how Australia and its industry can be informed by the models and initiatives of other countries.

For example Germany's entrenched dual vocational education system has expanded to include higher education programs. 'Dual programs' combine a university course with practical training or work experience with an employer. Unlike part- time courses, in a dual program the employment and/or training element is an integral part of the course involving a contract with an employer. The curriculum is closely connected to the job, and the course is completed on the company's premises and at the higher education institution.

In Singapore university-industry programs are offered by five universities and involve companies and universities co-designing and co-delivering curricula that closely interconnect theory and practice, as well as co-assessing students' performance at the workplace.

In the USA, some individual companies offer apprenticeship programs at the degree level. Accenture is one example of companies that are focussing on professional apprenticeships. Starting with five apprentices in 2016, the company now employs more than 2,000 apprentices across the US and Canada, with roles including cybersecurity, data engineering, and cloud and platform engineering.

Some Australian universities offer degrees similar to the co-op programs in Northern America. For example, Charles Sturt University offers a Bachelor of Technology (Civil)/Master of Engineering (Civil), a double degree that builds engineering expertise over five and a half years including four years of paid work placement while studying online.

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[11] National Strategy for Work Integrated Learning in University Education, Australian Chamber of Commerce and Industry, Australian Industry Group, Business Council of Australia, Australian Collaborative Education Network, Universities Australia, 2016.

[12] An employer guide to work activities for students, Australian Industry Group, 2021 employer_guide_unistudents.pdf (aigroup.com.au)

[13] Resources | Australian Collaborative Education Network (acen.edu.au)

[14] Australian Chamber of Commerce and Industry, Australian Industry Group, Business Council of Australia, Australian Collaborative Education Network, Universities Australia

[15] Degree Apprenticeships: Creating the right environment in Australia | Ai Group. 2023

In the US, industry and professional associations are also working with their members to develop professional apprenticeships. For example the American Institute of Certified Practising Accountants has developed an apprenticeship for finance business partners to help members develop sought-after finance skills and competencies, using a proven earn while you learn model.

More broadly Canada has been a leader in work-integrated learning/'cooperative education'. A successful model has involved brokering by industry associations to match students and employers, with funding from the Canadian Government.

These models have similarities to Ai Group's experience in Australia, where our membership has enabled us to bring together companies with similar needs to develop industry-wide degree apprenticeship models.

Ai Group invites members to make contact with our Centre for Education and Training when considering work-integrated and work-based learning activities with students and universities in order that we can guide you to resources, contacts and existing programs and pilots.

How are some companies experiencing and benefitting from close connections with universities?

Seminal 2014 research into employers and work- integrated learning[16] found that employers typically first participated in partnerships (for work-integrated learning) after being approached by a university or student. At that stage few organisations took the initiative to approach a university. It has been stated that many business people do not know much about universities or how they work with them, notwithstanding many business people are university graduates.[17]

The research found, of those industry partners that did approach universities, they did so for a variety of reasons: to influence the content of courses to meet specific company needs; to engage on a specific company problem; to initiate placements or projects with students or to provide a service as part of corporate social responsibility.

Through its members, Ai Group sees many quality and innovative pockets of work-based learning and work-integrated learning in higher education where formal education and training is augmented in the workplace over time. Industry engagements will differ for different types of industry partners and for different sizes of industry partners. They can be short term or enduring.

Notwithstanding the volume and range of work-integrated and work-based learning activities need to vastly increase, there are many examples of connections between businesses and universities. Just a few of the various types of interaction that bring learning into the work environment are outlined below.

One company's success factors for collaboration

In 2021, a representative from one of Ai Group's members, an advanced engineering and manufacturing company, outlined the regular two-way approaches made between the company and local universities on a number of initiatives across different disciplines, including annual internships. The representative said in some instances 'dogged persistence' had been needed to reach the right person with whom to engage or at least to find someone within the organisation who could champion to the right individual. The company has identified the factors it sees as key to the success of industry-university partnerships, for WIL and other curriculum and research activities, which have been echoed by other Ai Group members. The representative maintained that universities need to:

- be more engaging and make it easier for industry to approach them
- take time to understand the different cultures

[16] PhillipsKPA (2014). Engaging Employers in Work Integrated Learning: Current State and Future Priorities. For Commonwealth Department of Industry.

[17] Howard, J (2017). A Vision For University-Business Engagement in Australia. In University Industry Innovation Network blog.

- be clear about the role of each partner
- understand the value of the partnership to the other partner
- make industry aware of longer timeframes that can exist in universities, and
- see the importance of the motivation, willingness and persistence of university individuals involved.

Company sees value to business in WIL program

Swordfish Computing[18] has worked with Ai Group since 2020 to realise the benefits of engaging with the South Australian Defence Industry Scholarship Program. This Program supports the defence industry and its suppliers to build the in-demand skills, knowledge and experience through work-integrated learning opportunities for university students and focuses specifically on SMEs, on behalf of the South Australian Government.

Taking on the role of broker, Ai Group coordinates the program, liaises with universities to source relevant university students for three-month placements in companies such as Swordfish, and supports the company with the associated administration, streamlining the process to encourage industry involvement. Under the South Australian Defence Industry Scholarship program, Swordfish receives a small amount of funding to help cover costs associated with hosting students.

For the initial four weeks students undertake workplace and project onboarding covering IT systems, training on professional conduct and working within defence, upskilling in team-based software engineering practices, and familiarisation with relevant technology stack and software. During the next eight weeks they join one of the development teams where they contribute to real-world projects gaining fantastic professional and technical experience in one of the R&D projects, developing with modern software technologies under the guidance of senior engineers.

Swordfish has continued to place students sourced by Ai Group, recognising the great value of work-integrated learning to their business. In most cases the students are targeted for future employment with Swordfish after completing their studies. The company has commented that those who have joined the company after graduating have all done well in their careers. Some have grown their careers into early leadership roles, others have been recognised for their outstanding work by clients and with awards from within Swordfish.

Enduring student program secures pipeline talent for company

Agilent Technologies[19] sees its success stemming from its people, offering structured development programs that provide the fuel to enable continued learning and growth, supported by internal mobility with global reach.

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[18] Swordfish Computing is an innovative Digital Science and Technology, small to medium business (SME), in Adelaide, Australia. The company provides Research Engineering services for Defence Research and Development on Electric Warfare, C4ISR, Guided Weapons and Autonomous Systems. Swordfish provides deep expertise in Computer Systems Engineering, Aerospace Engineering, Software Engineering Data Science and Machine Learning, and Modelling and Simulation Techniques. They are a sought-after employer, and highly valued by their Defence clients for bringing success to challenging and innovative R&D programs.

[19] Agilent Technologies is a global Scientific Measurement company. Its Australian operations develop Spectroscopy measurement instrumentation and are involved with Optics and Scientific Consumables manufacturing.

In Australia, Agilent has an established student scholarship program as one of its main recruiting strategies for young talent. This important pipeline of talent for Agilent has grown through its partnership with the Australian Computer Society Foundation (ACS F).

Every year Agilent recruits a cohort of Engineering and Science students as interns across the areas of Software, Mechanical, Mechatronics, Computer Science, Technical Services, Application Scientist and Field Service Engineering. Other scholarships are likely to include expanded fields such as Creative Coding and Digital Marketing. The interns are generally in their third or fourth year of study when they commence the 12-month program and are able to apply what they have learned to date in their degree program.

Agilent assists with establishing and documenting the objectives of the student's internship period; undertakes all induction and ongoing support; mentoring and growing the student's skills and experience; and evaluating the student's performance during that period. Where students have another year of study post the scholarship, Agilent often employs the students part time with the view to full time employment after completion of the degree.

Under the program, Agilent has found it benefits from being able to evaluate the interns over an extended period and to determine which students would be most suited to a position in their graduate program. The aim is to convert as many students as possible each year from the program to graduates in the company. The advantages are numerous including both graduates and Agilent being fully familiar, graduates understanding what it is like to work at Agilent, what their role will entail and the culture at Agilent. The company has an employee who can 'hit the ground running", understanding their role and aligned with the company. These graduates are committed and loyal, productivity is excellent and graduate retention is high.

The ACS F coordinates and supports the process for the tax-free student scholarship. Agilent contributes an amount per year for each intern from which ACS F pays the majority to the intern on a regular basis via their university. The students receive 10 days sick leave and 20 days annual leave as part of their scholarship. Agilent also covers associated insurances.

Agilent sees this program as a key initiative to source and grow young student cohorts that can become immersed in the organisation's values and systems before they graduate. Agilent has linked the program with its strategic diversity goals. The program is being used as a pipeline for female talent aspiring to 50 per cent of female scholarships/internships.

Companies committing to innovative programs that connect with universities and students

BAE Systems Australia has been working with partners to create new initiatives that provide students at all levels with greater opportunities to understand their business, to gain opportunities for quality work experience and to grow the national talent pool.

Amongst their initiatives BAE has been working with Ai Group and the University of South Australia to introduce a degree-level apprenticeship in Software Engineering to Australia. It will adapt learnings from the ten years of BAE involvement in degree apprenticeships in the UK.

Graduates will emerge with a Bachelor of Software Engineering (Honours) plus five years of highly relevant work experience.

A number of other participating companies have also worked with the University of South Australia to design the content and delivery model for the program. The South Australian

Government has legislated to ensure the apprenticeship is regulated and that formal contracts are in place.

Further degree apprenticeship opportunities for companies

Ai Group has also led, or is leading, other pilots, all initiated in response to business needs raised by members. As coordinator of these pilots, Ai Group is working with agencies on the challenges to companies, universities and governments that are arising from the innovative programs The pilots include:

- *Degree Apprenticeship – Bachelor of Mechanical Engineering (majoring in systems engineering)*
  It is expected that graduates of this new program to Australia will be eligible for recognition by Engineers Australia as professional engineers. Apprentices will be employed for the duration under an employment and training contract. They will be given productive work relevant to and under the supervision of a systems engineer and they will attend university on a part-time basis to complete their formal qualification. Apprentices will initially enrol in a VET-level Advanced Diploma of Engineering, and then articulate to the balance of the degree for the remaining duration.

  Twelve companies have been instrumental in developing the education component in collaboration with RMIT University, and in reaching agreement on employment arrangements. These arrangements include wages, the contributions employers will make to the cost of formal training, and professional development for the apprentice supervisors.

- *Degree Apprenticeship – Bachelor of Electrical Engineering*
  This program is a dual qualification that combines an electrical apprenticeship with an electrical engineering degree and leads to a full electrical licence. Many companies have long been interested in employing people with such a profile.
  As electrical/electronic technology becomes more complex, the need for people with both qualifications is expected to grow.
  Funding has been provided by the Queensland and Victorian Governments to develop two separate programs.

- *Higher Apprenticeship – Associate Degree in Applied Technologies*
  Ai Group initiated this Commonwealth-funded Industry 4.0 higher apprenticeship pilot which was designed to train prospective technicians in new digital technologies arising from the Internet of Things, such as cloud computing, using big data, networking, machine to machine communications and automation. The apprenticeship combined a VET-level Diploma with an Associate Degree. It was initially piloted in Victoria with Siemens, and has since been offered in South Australia, Queensland and New South Wales.

Flipped Campus

The Future Skills Organisation has recently outlined a 'Flipped Campus Model' that Victoria University operates. [20] The university states that it puts industry at the core of its campuses, establishing 'ethical alliances that offer unique synergies for students, staff, community and industry partners'. Every campus has an industry partner co-located, bringing the most up-to-date skills and knowledge to course development, and providing placements and employment opportunities.

The university also has an AI in Teaching and Learning Working Group, with industry members, that informs guidelines and resources for teachers and students to help navigate the fast pace of change and changes in skills demands required by industry.

Graduate research student helps create innovative new products

Support for up-scaled work-integrated learning connections between employers and graduate research students is equally as important to industry as work-integrated and work-based learning for undergraduate students. Student connections are vital to assist with research and development collaboration.

One example of a successful collaboration connected a PhD student with Australian Vinegar. They are fermentation scientists, exploring wasted hydrocarbons and trying to turn them into either food, food ingredients or agricultural industrial chemicals using vegetables and fruit and juices destined for the ground. At the time, through the Entrepreneurs' Programme, the company was able to secure a grant that employed a research scientist, allowing other employees to remain on the ground. The research student helped create innovative boutique vinegars using waste food and clever science. The owner of the company was very satisfied with the graduate who undertook the research.

This success was one of many being realised for industry through short-term internships across all sectors, disciplines and universities. They link businesses with fresh ideas to innovate and provide pathways for universities to expand research collaborations.

A partnership requiring regular prompting

An Ai Group member company involved with additive manufacturing that engaged with a university during 2021 reported success was only reached because they had to work hard at the partnership. The company found that too often they had to initiate meetings, that the university was slow in acting, and that project management was lacking.

Work-integrated learning is all about partnering – it is one practice that has to bring together different parties: students, universities, industry, and sometimes governments all have to be partners in some form and play their part.

[20] Featured in *Spotlight*, Future Skills Organisation, March 2024. Future Skills Organisation is the Jobs and Skills Council for finance, technology and business skills. It is funded by the Australian Government.

What still needs to be done?

Stepped up connections between industry and universities are being realised through greater involvement in, and more forms of, work-integrated learning and work-based learning. Work-integrated learning is a welcome key feature of the Australian Universities Accord Final Report. However it is an evolving practice and much still needs to be done. A most recent audit in 2017 showed that only 37.4% of university students had a work-integrated learning experience.[21] Ai Group **recommends** the following actions by actors in the skills eco-system – government, industry, universities - in order to accelerate progress.

Recommendations for government action, resourcing and funding support:

Digital transformation will mean skill shortages are likely to remain as it marks a period of continual exponential growth, reducing the shelf life of skills.

1. Prioritise implementation of Recommendation 7 of the Universities Accord Panel final report on work-integrated learning
2. Provide funding support to employers, particularly SMEs, for work-integrated and work-based learning engagements
3. Support the systematic implementation of new work-based models of learning through degree apprenticeships
4. Explore brokerage opportunities to upscale work-integrated learning, building on the experience of industry-led approaches
5. Implement overdue system changes to facilitate industry-university connections.

Recommendations with joint responsibilities: government, industry and universities:

6. Facilitate cooperative cultures
7. Create awareness of guidelines for companies engaging in work-integrated learning.

Recommendations for action by universities:

8. Strengthen university communication gateways for companies
9. Create awareness within universities of the principles for connecting to scale up partnerships with industry.

[21] Work Integrated Learning in Universities: Final Report, Universities Australia, 2019.

Recommendations for government action, resourcing and funding support

Implement the Accord recommendations on work-integrated learning

One area of progress is evident through the recently released Australian Universities Accord Final Report. The Report comments that 'industry and provider submissions to the Accord Review provided strong and consistent support for the expansion of WIL as a near-universal part of Australian higher education qualifications', and that 'industry and employers note that they benefit from WIL through early connections to build the skills of their future workforce and recruitment to entry level positions'.

The Report highlights the yet-to-be-released new National Higher Education Work-integrated Learning Strategy, which builds on the success of the previous strategy released in 2015. Both Strategies were developed in partnership by Universities Australia, Australian Industry Group, Business Council of Australia, Australian Chamber of Commerce and Industry and Australian Collaborative Education Network. The Accord Report states the new Strategy acknowledges the need to expand work-integrated learning to keep pace with the needs of the future economy and to align it with Australia's changing skill needs. It aims to includes good practices, roles and responsibilities of all universities, industry and governments.

The Accord Report includes a recommendation to develop work-relevant skills by working with peak bodies for employers, industry, business and tertiary education providers to deliver more work-integrated learning opportunities in curricula across all disciplines, and provide training to industry supervisors.

Amongst the Report's recommendations was the suggestion of financial support for unpaid work placements. At the time of release of Ai Group's paper, new funding for students undertaking course-compulsory work placements has just been announced. These include eligible higher education and VET students in teaching, nursing, midwifery and social work courses on clinical and professional placements.

The Accord Report also considers that there is a need for a forum between industry and universities to support skills delivery, the co-design of both course curriculum and work-integrated learning programs, and improved industry utilisation of higher education research and knowledge. The Report considers this could be developed through the new Tertiary Education Commission it proposes.

Provide funding support to SMEs for work-integrated and work-based learning engagements

With 97% of Australian businesses being small to medium businesses (SME), engagement with universities for work-integrated learning continues to present challenges.

One message to Ai Group from smaller businesses has been clear over the years, and that is their involvement in work-integrated learning (and to provide a quality experience) takes time and resources. That is not to say university support is not there. Ai Group has seen coordinated support, guided by the Australian Collaborative Education Network, around student selection, preparation, placement and assessment be bolstered in recent years.

But there should always be an acknowledgement by the skills eco-system that time is needed by company staff to spend with students, to supervise and mentor, to spend time on reviewing

and assessing, as well as completing regulatory checks and paperwork. An Ai Group survey of members in 2022 identified 70% of employers wanting to engage with work-integrated learning. However 46% of those employers indicated they could only do so with government support.[22]

Policy initiatives supporting employers will be needed. Also needed are strategies that specifically address the barriers hindering work-integrated learning engagement between industry and indigenous students, international students and students with a disability, and these equity considerations are a key focus of the Australian University Accord.

For these reasons, Ai Group has been very consistent in its advocacy to governments that support and incentives are needed for smaller companies to engage. This has been acknowledged and picked up by some specific state government programs under which a payment is made to companies involved. It should be applied more broadly.

Support new work-based models of learning - degree apprenticeships

While higher and degree apprenticeships are recognised as models suitable for learning into the future, there are barriers to their implementation in Australia. Some are systemic and arise from legislation and industrial award provisions. Others arise because the models are often new to universities and require them to make substantial adjustments to implement well.

Ai Group sees the following measures as necessary actions for these new work-based learning models to gain traction:

- provide a financial incentive program for employers that recognises their costs and supports the employment and supervision of degree apprentices, similar to Commonwealth Government financial incentives to employers of apprentices in vocational education and training.
- change ATO rules or create certain exemptions to facilitate support for students. Through Ai Group's involvement in four degree Apprenticeship pilots, we have found interest from employers in paying for some or all of the student contribution component for their university training to make the program more appealing to a potential apprentice. However ATO rules mean that fringe benefits tax would most likely be payable in addition to that contribution.

  If a university place is subsidised as a Commonwealth Supported Place (CSP), students are able to apply for a HECS-HELP loan to pay their contribution, but not able to claim the amount as a tax deduction. If the student cannot claim their contribution as a tax deduction, their employer is liable for FBT if they pay the cost on their behalf.
- provide incentives for universities to participate. Revised delivery models more attuned to the needs of an employer are needed for degree apprenticeships. Changes to timetables, semester arrangements and employment agreements may all be needed. For those universities willing to increase their opportunities for more industry engagement or to find an edge by offering innovative programs through this model, government financial incentives may help them to look more closely at how they could be involved.
- fund demonstration projects in recognition that there is a cost to implementing a new degree apprenticeship. Through its coordination of projects, Ai Group has found they

[22] Skills Survey: Listening to Australian businesses on skills and workforce needs, Australian Industry Group, 2022.

need to be industry led, by gathering like-minded companies to agree on a suitable program. Arrangements such as appropriate wage rates, employment and training contracts, and recruitment exercises need to be put in place. Suitable universities need to be sourced and programs need to be developed. Marketing materials and activities are needed. Providing funding to an organisation to project manage a new program and to a university to develop the new qualification and delivery model would assist in facilitating a new program's implementation.

- progress legislative change by encouraging state skills ministers to review their legislation to enable future degree apprenticeship programs. Each state and territory government has the responsibility to declare occupations and qualifications as apprenticeships or traineeships, and to enforce the operation of the training contract. In most states legislation relates to VET qualifications only. South Australia is the only state to have amended its legislation to allow for higher education apprenticeships and traineeships.
- task the industrial parties to examine relevant awards with a view to expanding their provisions to include degree apprenticeships. Currently wage rates and other conditions of employment are not clear to employers or apprentices as industrial awards are silent on arrangements for degree apprenticeships, although some contain provision for cadetships or trainee professionals.
- make it simpler for the vocational and higher education sectors to evaluate the knowledge and skills contained in the other's qualifications and subjects, since some higher and degree apprenticeships contain a mix of qualifications from each. Recognising those qualifications should not result in a financial cost to the recognising body.

Explore brokerage opportunities to upscale work-integrated learning

The Australian Universities Accord Final Report recommends that a national brokerage service (Jobs Broker) be established to support tertiary education students to find paid, part-time work in their chosen field of study. Some caution is needed when further exploring brokerage initiatives as there has been recent growth in third party work-integrated learning providers which has resulted in some mixed outcomes. Any developments will need to ensure quality is maintained with this approach.

Section 1 of this paper outlines the successful brokerage role Ai Group is undertaking in South Australia and demonstrates the potential benefits of this strategy, especially for engaging SMEs. Similarly Canada has had success with its Student Work Placement program by utilising industry associations to coordinate engagements. Under that scheme employer delivery partners are recognised associations and organisations representing employers in various industries. They collaborate with businesses and post-secondary institutions.[23]

Implement overdue system changes to facilitate industry-university connections

Industry-university connections would be better assisted in realising a highly skilled workforce if a number of enduring sectoral issues were addressed. Tertiary education in Australia is characterised by a highly unbalanced binary model. While recognising the distinctive features of

[23] Student Work Placement Program, Government of Canada.

higher education and VET there is a need for a more coherent and connected tertiary education policy and equitable funding framework to be established.

Further to this, the development and implementation of a new qualifications framework for Australia will support the knowledge and skills required by the workforce. Implementation of the 2019 Review of the Australian Qualifications Framework recommendations is long overdue. The proposals from the Review recognise the complex but important relationship between skills and knowledge, advocating they be equally valued, and that the relationship between them be understood in term of the realities and complexities of learning and the world of work – that all jobs require a unique and authentic blend of knowledge and skills and their application.

It is promising that policies and strategies addressing these system changes have been recommended through the Australian Universities Accord Final Report, are cited in the Jobs and Skills Australia 2023 report and are included as strategies and actions in the 2024 National Skills Agreement.

Recommendations with joint responsibilities: government, industry and universities

Facilitate cooperative cultures

There is a need to incentivise and promote innovative cooperative models covering multiple aspects of teaching and learning that facilitate new ways of embedding cooperative cultures in universities, and between industry and universities.

Universities should be encouraged and incentivised to involve industry in multiple aspects of the learning framework: co-design, co-development of content, co-delivery, co-credentialling and co-assessment, in addition to work-integrated and work-based learning activities. Students, teachers and industry representatives all bring different perspectives which in combination result in relevant and richer learning experiences.

Cooperative cultures for skills development can also be strengthened through more organically designed, co-located university/industry hubs, physical or virtual, across the business landscape. These can be multi-partner - large and small companies, universities, TAFEs, schools, government - involving any or all of training, placements, projects, competitions, research/incubation and co-location. These collaborative industry-education sector metropolitan and regional hubs, like Centres of Vocational Excellence in Europe, develop strategies to meet local skill needs and assist large and small companies to create innovative solutions.

Many universities have such initiatives. One example is the NSW Institute of Applied Technology, which aims to fully integrate VET and higher education in a cohesive tertiary curriculum, providing students with access to industry representatives, and employers invited to deliver their own proprietary training and leverage cutting-edge innovations.

The Universities Accord Final Report refers to the need for ‘skills coalitions’ and provides a number of examples of innovative approaches. Universities, as microcosms of cities, can explore physical campuses as 'living labs'[24]. They will need to be more closely connected through incubators, commercial spaces, government agencies and student job-ready industry

[24] The Tipping Point for Digitisation of Education Campuses, VECTOR Consulting, November 2020.

connections. This will facilitate next-generation tech sector partnerships, work-based learning networks and/or pipeline partnerships that would operate according to need.

Create awareness of guidelines for companies engaging in work-integrated learning

Guidelines to provide a quality experience for companies and students are included in the yet-to-be-released new National Higher Education Work-integrated Learning Strategy. The document outlines the need to plan, develop strong relationships and an accepting culture, provide staff support and to encourage students in the development of professional identity, building confidence and self-determination. It recognises the importance of providing feedback to students and providers and evaluating the engagements as an organisation.

The document includes links to Ai Group's *An employers' Guide to taking on University Students* and to the Australian Collaborative Education Network's resources for employers.

Recommendations for universities action

Strengthen university communication gateways for companies

In cases where an industry partner approaches a university, a streamlined communications pathway that ensures it is easy to reach the relevant university contact will assist the chances of a partnership being formed. Without an established contact, industry representatives can find approaching a university daunting. It is important they can reach a relevant contact without multiple conversations or lengthy time periods waiting for responses.

Create awareness within universities of the principles for connecting to scale up partnerships with industry

The future of university-business interactions is heavily contingent on building stronger trust-based relationships through a step change increase in the capacity and capability for engagement.[25] More universities, and more staff within universities, need to reach out. Guidance for universities in developing strong and successful partnerships with industry will emphasise they are established over time and based on mutual trust, benefit and communication.

Building sustainable industry-university engagement is a major undertaking. Universities need to understand how industry, and different companies, operate. Key elements in a successful partnership include planning not only what will be done but how it will be done effectively. Industry partners need to be aware of how the university operates, and the support individual academics have through university strategy and its executive management team.

It is important that a key person/coordinator is appointed as the main university contact for each industry engagement and this individual will have links to senior management. While a partnership may be formed by an individual academic who undertakes the activity with the industry partner, it is important for that partner to view the relationship as existing in equal part with the university as an organisation, with relationships fostered by the academic with others in the university. This ensures the partnership is enduring and is not lost if one individual leaves the university.

[25] A Vision For University-Business Engagement in Australia, Howard in University Industry Innovation Network (UIIN), 2021

Successful industry-university partnerships tend to be well planned with effective strategies applied to each stage of the partnership lifecycle: attraction/selection, engagement/formation, development/functioning, maturity/management, exit/re-invention (outlined in Section 2).

About Australian Industry Group

The Australian Industry Group (Ai Group®) is a peak employer organisation representing traditional, innovative and emerging industry sectors. We are a truly national organisation which has been supporting businesses across Australia for more than 140 years.

Ai Group is genuinely representative of Australian industry. Together with partner organisations we represent the interests of more than 60,000 businesses employing more than 1 million staff. Our members are small and large businesses in sectors including manufacturing, construction, engineering, transport & logistics, labour hire, mining services, the defence industry, civil airlines and ICT.

Our vision is for a thriving industry and a prosperous community. We offer our membership strong advocacy and an effective voice at all levels of government underpinned by our respected position of policy leadership and political non-partisanship.

With more than 250 staff and networks of relationships that extend beyond borders (domestic and international) we have the resources and the expertise to meet the changing needs of our membership. We provide the practical information, advice and assistance you need to run your business. Our deep experience of industrial relations and workplace law positions Ai Group as Australia's leading industrial advocate.

We listen and we support our members in facing their challenges by remaining at the cutting edge of policy debate and legislative change. We provide solution-driven advice to address business opportunities and risks.

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