AusIMM

Report: Professional Pathways Policy Forum

Adelaide, Wednesday 29 July 2026



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About AusIMM

The Australasian Institute of Mining and Metallurgy (AusIMM) is the peak body and trusted voice for professionals working in the resources sector. We advance careers, inspire leadership, uphold standards and connect communities.

AusIMM was founded in 1893 and operates under a Royal Charter. We have a global community of members, branches and societies, along with influential partnerships with industry, government, universities, research institutions and community leaders.

In 2024, we were named Association of the Year for demonstrating our impact on the global resources sector, delivered through world-class professional development and connection for our thriving community of members and resources professionals.

Representing a community of more than 16,000 professionals working across 110 countries, our members are active at all levels of the sector, in fields ranging from engineering and geoscience through to processing, manufacturing, environmental management and social performance. Our members provide leadership across industry, government, research and academia.

We fulfil our purpose to advance resources for the community's benefit through our role defining and upholding technical standards, developing professional skillsets and convening experts and thought leaders to shape policy and provide balanced, credible insights on the scientific, technological, social and economic contributions our sector makes worldwide.

The Adelaide Professional Pathways Policy Forum is part of a broader Forum initiative that is core to our research, policy and advocacy role. The initiative brings together subject matter experts to provide specific and actionable recommendations on the strategic priorities that are defining the future of our sector and its role in contemporary society.



Executive Summary

The Professional Pathways Policy Forum AusIMM hosted with PwC in Adelaide on 29 July 2026 brought together representatives from the South Australian higher education and resources sectors, government and AusIMM Board and membership to contribute to the national discussion we are leading on educational and professional pathways into our sector.

As the trusted voice for the sector's professional community, this is a key area of focus for AusIMM's advocacy, engagement and collaboration with stakeholders across the sector. Understanding the opportunities to expand and diversify pathways into resources is vital not only to deliver future capability for industry, but to fulfil our role developing and utilising talent to lift Australia's broader science and industrial ecosystem.

Delegates offered a series of recommendations and reflections on the vocational and higher education, professional development, cross-skilling and individual supports required to:

- Deliver a sustainable student and graduate pipeline for core mining disciplines such as mining engineering, geoscience and metallurgy; and
- Access the broader pool of Science, Technology, Engineering and Mathematics (STEM) talent on which our sector's future leadership, competitiveness and public contribution rests.

The Forum built on an ongoing process AusIMM is leading under the auspices of our Professional Pathways Whitepaper, including analysis commissioned through the Bankwest Curtin Economic Centre (BCEC) regarding STEM pathways in the sector. This analysis found:

- Demand for degree-qualified resources professionals will grow by 21.4 per cent by 2035, compared to 8.6 per cent for the broader resources sector workforce.
- Growth includes core disciplines like mining engineering, geology and metallurgy, as well as technology, analytics, robotics, environmental and social science disciplines – these specialist STEM fields also reflect core skillsets required for people working across industry.
- Female STEM graduates and professionals represent the largest pool of latent talent for the sector, with those women already in the sector likely to be overqualified for their roles, and female STEM graduates not working in the sector least likely to be utilising their skills fully in another industry.



- Overseas graduates and skilled migrants are also key talent pools the sector needs to develop and support more effectively, with these cohorts simultaneously most likely to have relevant STEM qualifications and least likely to be in a role that fully utilises their skills.
- A modest increase in the proportion of 'general' engineering, chemistry, earth and environmental science graduates entering our sector will deliver a substantial impact in terms of meeting future demand.
- Cross-sector mobility is key to accessing, developing and harnessing professional talent, with much of the future expertise required in resources being generated in energy, infrastructure, technology, defence and other advanced manufacturing fields.
- Enhancing cross-sector mobility depends on a range of undergraduate, graduate and higher research pathways, as well as effective credentialing, upskilling and professional development to ensure professionals' adapt and mature as the sector evolves.
- By enhancing skills utilisation, developing expertise and boosting productivity, a robust resources profession will boost Australia's broader science and industrial capability.

Reflecting the opportunity and imperative defined in these two publications, delegates at the Adelaide Forum offered the following key insights:

- A national 'core' undergraduate curriculum that builds knowledge across engineering, chemistry, geology, earth and environmental sciences could allow students to study across campuses, while maintaining flexibility for individual universities to deliver degrees in a manner that reflect their expertise, faculty and business models.
- Structured and paid work experience, cadetships, and credit-bearing industry learning needs to be made available to tertiary students at the earliest stage of study, before industry destination preferences are fixed – this is particularly urgent given the trend to shift mining-specific content into honours and postgraduate programs.
- A range of demographic and social foundations make regional students and workers well-suited to professional roles in resources. Familiarity with remote environments, the likelihood of living in or near communities that host primary industry (like mining), plus the strong pathways into trade and technical roles mean regional Australians are primed for careers in the most technically complex fields of our professional community. Study support and work-integrated learning is required to help region workers move into professional roles, along with continuous professional development to build and maintain capability.



- Increasing the pool of STEM graduates represents the clearest overall opportunity to strengthen supply. Several factors drive high STEM course attrition – the answer lies in:
  - University readiness, through primary and secondary school engagement with STEM subjects, with many delegates noting the unintended consequences of a pervasive and singular focus on exit scores.
  - Study support, which extends beyond academic support to include peer networks, industry engagement, mentoring and financial and accommodation support for university students.
  - Early industry engagement via structured work experience. These programs should provide exposure to various stages of the mining lifecycle, across a breadth of functions and with multiple operators. Contributors nominated the Minerals Industry Experience Program (MiEX) as model to be scaled nationally.
- Programs to engage primary and secondary students on the science and technological aspects of the resources sector are sound, but need to be delivered by trusted, credible organisations and integrated into broader curricula to build trust and ensure relevance.

The subsequent sections of this report canvass discussion on the day and outline the logic and context behind delegates' conclusions.

These insights will form the basis for further engagement at a Professional Pathways Forum to be hosted with the Australian Mining and Automotive Skills Alliance (AUSMASA) in September.

AusIMM hosted the Adelaide Forum with the support of PwC as a venue partner and take this opportunity to formally recognise and thank the team for their support and collaboration.



Forum Discussion

Delegates were asked to consider pathways for both traditional mining disciplines and the broader STEM field, responding to two consultation questions:

Delegates considered two key questions

- What options are available to deliver sustainable undergraduate and graduate education for core resources disciplines such as mining engineering, geology and metallurgy?
- What measures can be taken to attract, cross-skill and develop graduates from a range of STEM disciplines for careers in the sector (i.e. from beyond 'traditional' mining programs)?

Discussion indicated a combination of shared and distinct themes across these two questions. We canvass these themes below.

Education pathways must adapt to changing university models

Delegates discussed significant changes to the delivery of mining-related higher education.

Universities are increasingly restructuring courses and deferring industry-relevant specialisation into majors, honours and postgraduate study. In mining engineering and geology, this has resulted in the closure of some undergraduate programs. For advanced chemical, metallurgical and processing roles, the only study pathways is through higher-research degree programs; cross-skilling from other industries is also a more complex proposition for these disciplines, compared to engineering and geology.

For students, this can increase the time and cost associated with accessing industry-specific knowledge and may delay exposure to careers in the resources sector until after industry preferences and career intentions are set. By this stage, many students may have completed work experience in other industries or developed professional identities outside mining.

Delegates reflected that this reflects a broader shift in university course and business models, which prioritise enrolment scale and defer specialisation to honours and postgraduate study. However, contributors also emphasised that the challenge begins much earlier in the education pipeline.



Three factors impact the educational pipeline

- limited awareness of the breadth of professional opportunities available across the resources sector, particularly in fields linked to energy, defence, space, technology and manufacturing value chains - university-based programs including student chapters and early career networks, mentoring and work experience programs are delivering positive impact.
- lack of connection between the sector and students' sense of purpose, particularly for younger students driven by opportunities to contribute to sustainable industry, innovation and community development (rather than a specific discipline or industry).
- school subject selection patterns that prioritise ATAR outcomes rather than the mathematics, chemistry, physics and earth science foundations required for many STEM degrees.

Delegates emphasised that these challenges affect both traditional mining disciplines and the broader STEM fields from which the sector hopes to attract future talent.

Industry experience is the most effective pathway into resources careers

Delegates consistently identified structured industry experience as the single most effective mechanism to improve awareness of resources careers, strengthen professional capability and attract more graduates and early career professionals into industry.

Contributors noted that many of the practical elements of mining engineering, geology and related disciplines are ultimately developed through workplace experience. Early exposure to industry therefore serves two purposes: it develops capability while simultaneously demonstrating the diversity and relevance of careers available across the sector.

The 'prime time' for paid work experience, vacation programs, cadetships, degree apprenticeships and credit-bearing industry learning opportunities appears to be during the second and third years of study. This is especially important given the trend towards late-stage specialisation in undergraduate programs. Students need to have access to industry before career preferences are fixed, but at a stage where they can engage substantively with the content and activities in which they are engaged.



The optimal model for industry experience

There was broad support for expanding programs that provide exposure across.

- exploration, production and processing;
- mining and mining-adjacent industries;
- large, medium and small employers; and
- both operational and professional functions.

The Minerals Industry Experience (MiEX) program was highlighted as an initiative that can be expanded nationally and used to showcase opportunities across the mining value chain.

For South Australia in particular, delegates noted that centralised and collaborative programs help build pathways for employment with smaller-scale companies including junior explorers. This offers greater diversity to students and supports a pipeline of talent to a part of the sector that struggles to 'compete' for talent or provide work experience programs of the same scale as major companies.

The reality is that industry as a whole, including individual companies, need to approach talent development as a long-term strategic priority, and look beyond immediate and staffing needs. Programs that provide comprehensive industry experience for our future workforce are essential.

A broader STEM pipeline is critical for the sector's future workforce

Delegates agreed that traditional mining disciplines will remain central for the sector's future workforce, but added that future demand cannot be met from these pathways alone. A significant increase in requests for AusIMM to recognise broader STEM programs is encouraging and speaks to this need, with universities seeking to strengthen pathways into industry, and a broader range of STEM students recognising the opportunity to pursue careers in their fields of interest via resources. This may suggest that recently launched university and early career networks, along with comprehensive industry experience programs like MiEx, are lifting awareness and engagement with opportunities in the sector.



Participants identified civil and mechanical engineers, chemical engineers, environmental scientists, earth scientists, surveyors, data scientists and technology professionals as important sources of future talent. The discussion emphasised that many professional pathways into mining are developed through a combination of foundational STEM study and industry-specific experience.

Civil and mechanical engineers were highlighted as a significant source of prospective mining engineering talent, with delegates observing that many professionals effectively 'become' mining engineers through workplace experience and subsequent professional development (rather than through mining-specialist study alone).

Similarly, chemical engineering graduates were seen as well positioned to progress into metallurgy and mineral processing roles, although delegates acknowledged that these transitions often require substantial specialist study and employer-supported professional development due to the technical complexity of the discipline. As industry looks to build refining and processing capability, niche skillsets will require higher degree research graduates to be developed for and enter industry.

For geological professions, earth science and surveying pathways are particularly important. Contributors noted that these fields provide strong foundations while recognising that specialist mining-related knowledge remains essential for many geological and geotechnical functions.

Trade-qualified professionals were also recognised as an important source for a future 'paraprofessional' workforce. Examples discussed included:

- electricians and instrument technicians progressing into engineering-related functions;
- boilermakers and fitters moving into maintenance planning and leadership roles; and
- process technicians and operators transitioning into metallurgical and chemical engineering pathways through supported higher education programs.

Delegates stressed that supporting technical and vocational workers into more advanced roles can deliver a substantial uplift in future professional workforce supply, and builds capability needed for mining-adjacent industrial sectors. AusIMM's BCEC research also highlights the importance of associate and vocational degree models as a key 'tool' to support this career progression.



Students require support beyond academic coursework

A strong theme throughout the Forum was that student success depends on more than academic capability or performance. Delegates argued that increasing the overall supply of STEM graduates represents a major opportunity to build a talent pool for the mining industrial complex but requires specific support at three levels: university readiness, study support and early career sponsorship.

Career stage	Support requirements
University readiness	Students entering STEM programs require strong foundations in mathematics, chemistry, physics and earth sciences. Delegates expressed concern that secondary school curricula do not always incentivise preparation for STEM study and that some students reach university without the technical foundations needed to succeed.
Study support	Course attrition is often driven by external factors rather than academic capability. Many capable students are not "dropping out" because of academic performance, but rather because the practical circumstances required to complete their studies are unavailable. Accommodation pressures, cost-of-living challenges, social isolation and limited access to support services were all identified as barriers to completion. Regional students were considered particularly vulnerable.
Career sponsorship	Professional success relies on access to mentoring, peer networks, professional development and industry engagement opportunities. Student chapters, mentoring initiatives, professional networks and industry-facing activities were seen as valuable mechanisms for helping students remain engaged with both their studies and the sector.



A national core curriculum is a key opportunity

One of the strongest areas of consensus was the potential impact of a nationally recognised set of core mining competencies, delivered through a single curriculum recognised and delivered by universities across the country.

Delegates argued that as universities continue to adapt course structures, students may lose access to the breadth of knowledge required to operate effectively in the contemporary resources sector. Importantly, this was not framed as a need for additional specialist content. Rather, contributors emphasised the value of broad technical fluency across disciplines.

A mining engineer benefits from understanding geology and metallurgy. A geologist benefits from understanding mining methods. Similarly, all future professionals require exposure to environmental management, social performance, technology and the economic and commercial aspects of the contemporary resources sector.

A single, remotely accessible curriculum of recognised courses offering credit for undergraduate STEM students would help prospective professionals learn and prepare for a career in the industry, without disrupting the curriculum models or commercial imperatives driving mining-specialist course closures.

The purpose of a national ‘core’ mining curriculum

- allow students to study specialised mining subjects across institutions, including remotely.
- provide recognised course credit within primary degrees.
- support smaller programs that may not otherwise be viable.
- mprove consistency of graduate capability.
- maintain flexibility for universities to deliver courses reflecting their institutional strengths.

Many participants argued that technology, data analytics and digital capability should form part of a future national curriculum given their increasing importance across all professional disciplines.



Professional mobility and recognition are more important than ever

Delegates agreed that future workforce supply will depend not only on education pathways, but also on the ability of professionals to move between disciplines, employers, industries and jurisdictions.

Cross-sector mobility was viewed as increasingly important given the overlap between mining, energy, advanced manufacturing, infrastructure, defence and technology industries. Participants therefore supported:

- streamlined professional recognition and accreditation systems;
- nationally consistent regulatory frameworks;
- greater portability of credentials and professional recognition;
- contemporary recognition of changing course structures and qualifications; and
- stronger evidence regarding workforce mobility across regions, disciplines and industries.

Delegates also highlighted the need for better data collection to understand professional mobility between the resources sector domestically and globally, and across adjacent industries, particularly given the highly international nature of the Australian resources workforce.



Where to from here

The findings are a key input to AusIMM's ongoing Professional Pathways and Future Talent initiatives. Building on the discussion and recommendations arising from the Adelaide Forum, AusIMM will:

- Continue policy development under the Professional Pathways initiative, with a focus on workforce mobility, professional recognition and future talent development. This will include further consultation with industry, government, education and professional stakeholders, including through a further forum focused on skills needs for the critical minerals sector to be held alongside the AusIMM Critical Minerals Conference in September 2026.
- Lead advocacy throughout the Australian Government's review of professional recognition frameworks to support nationally consistent, portable and contemporary recognition arrangements across the resources sector.
- Work with industry, government, universities and professional bodies on opportunities to modernise and strengthen course and professional recognition frameworks, ensuring they reflect changing workforce requirements, education models and career pathways.
- Raise awareness of the potential benefits of a national core curriculum for prospective mining professionals, to be available across higher education institutions nationally, and engage university, industry and government stakeholders to progress related business, course and curriculum models.
- Gather data and analyse professional mobility across disciplines, sectors and geographical regions, including development of a stronger evidence base on movement between mining and mining-adjacent industries domestically and globally;
- Expand student engagement, mentoring, networking and new professional initiatives that build awareness of resources careers and improve pathways into employment.
- Lead efforts to scale work-integrated learning, industry placements, cadetships and degree apprenticeships through collaboration with industry and education partners, including through initiatives such as the Minerals Industry Experience (MiEX) program appreciating that significant industry support and participation in cadet, intern and other work-integrated learning is required.
- Continue delivering professional development, technical learning and industry engagement opportunities that support professionals throughout their careers and contribute to the long-term capability of the sector.



Importantly, industry has a key role to play in investing to support comprehensive and long term workforce development, looking beyond immediate and individual hiring activities.

Further reading

1. Chown, T and Dockery, M. (2026). The role of the resources sector in harnessing and developing Australian STEM capability. AusIMM Report. Bankwest Curtin Economic Centre. Perth. Full report available here and factsheet here.
2. AusIMM. (2025). Professional Pathways Whitepaper. Available here.

