

The following are recommendations thought of during the very successful ATSE EA conference in Sydney 30 August 2023.

The recommendations are written using the minimum of words and hopefully succinct and clear but I am very happy to be called to clarify any aspect of what is written herein.

Recommendations:

1. SMEs need to be included in greater roles in tertiary education and interaction with universities.  
It is recommended AiGroup and BCA can play a role in development of this initiative. To be considered are joint collaborations a bit like CRCPs but without the formalities.
2. Lecture rooms and delivery of learning would do well to adopt the initiatives of Associate Professor David Kellerman at UNSW in educating students (at any level.) A trip to UNSW is required to understand this initiative and future role in education.
3. Universities can and should play a much greater role in educating our politicians and dispelling myths in all sectors of the public, press and politicians. Myths and misleading “stories” that frequent all sectors of Australian society hinder Australia’s advancement; a plan and strategy needs to be developed. If introduced, this will remove barriers and entice collaboration of all involved and build knowledge.  
(A good example in this are myths in rolling out new electricity grids as if these were as simple as delivering motor vehicles throughout the country straight off a ship.)
4. Identification of future engineers requires work and a strategy.  
It is suggested to use high achieving engineers (and similar) many of whom would be retired, being used to mentor young 5<sup>th</sup> and 6<sup>th</sup> class students in “what engineers do and how”.
5. Many school vocational guidance staff are ill prepared to give guidance to entice 11 year olds to become engineers.  
There should be an easy solution to this.... Consider ATSE Fellows in retirement!
6. Understand why Japan (and other countries) has a far greater ratio of students starting engineering courses compared to other degrees.
7. Future engineers are likely to have 3 to 5 careers in their working life. We noted many engineers do not remain practicing their learnt skills and education and will go into many roles including banking.  
Returning back to roles in engineering and or teaching STEM would repurpose these engineers.
8. Engineers having several careers and their following booms and busts in industry sectors (e.g. mining) indicates there could be a benefit in a broad based engineering education in gaining a first degree (3 years) which teaches civil, electrical, mechanical, computer etc. engineering followed by a 2 year specialist master’s degree process to facilitate deployment engineers over their career into a number of genres of engineering that accepts there are swings in the timing of and in all genres of engineers ; the take out here is to produce engineers that can work in varying roles as one engineering popularity is lost in favour of another!  
Life long learning through many mini applied courses would assist. Additionally, use of IT, AI and interactive software could be used to help engineers who know and are strong in basic engineering principles update themselves to extend their working in new fields of practice.
9. Normalise ATARS all around Australia and stop the “gerrymandering”.

10. Who will step up to the mark to own each item adopted in the plan; it is all well and good to adopt a plan but resourcing it also needs a plan!.
11. Lift the number of engineering student and practitioners in our society
  - a. Identify and bring high quality engineers from other countries in a fast track system which will include / should include financial incentives.
  - b. Entice primary school students to be impressed in the engineering profession.
  - c. b. above goes hand in hand with primary school games that entice students into engineering.
  - d. Accreditation processing must be streamlined and time to accredit reduced by say 5 times.
  - e. Lift the profile of engineers in society; a big but important challenge; the initiative will cause more young people to choose a career in what they see as important, fun, and rewarding.
  - f. A part of e. above should include lifting the good profile of engineers and their role in society
12. The new Powerhouse Museum can play a vital part with Engineers Australia and others showcasing events which must include young school students seeing, touching and hearing about wonderful and future things that they, as an engineer could make, design, apply inquisitive minds and so on. It is recommended the PowerHouse staff be approached on this subject with Engineers Australia.

Please do not hesitate to contact me on [REDACTED]

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