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Tēnā koe

## Draft Tertiary Education Strategy consultation

Thank you for the opportunity to provide feedback on the draft Tertiary Education Strategy. This submission reflects the views of Engineering New Zealand. Engineering New Zealand is the largest professional body for engineers in New Zealand, with over 23,000 members. We accredit New Zealand tertiary engineering qualifications to internationally recognised benchmarks.

Ensuring strong outcomes in tertiary education is a priority for Engineering New Zealand. Despite the recent economic slowdown, New Zealand faces a long-term shortage of skilled engineers. We need at least 2,300 additional engineers per year to keep up with economic growth. The tertiary education sector will be critical in resolving our skill shortage and ensuring future engineers are well equipped to have successful and productive careers.

### **The strategy provides helpful direction but is missing key components vital to improving productivity**

Engineering New Zealand is supportive of the general direction of the strategy.

We do note that this strategy is missing the detail that would demonstrate how it will be achieved and what funding will support the strategy. The international education components of this strategy appear to have more detail and deliverables than the other aspects.

### *Sustainability and resilience will be a core competency for the future workforce*

The strategy is missing the importance of sustainability and climate change resilience. For engineers, understanding how to design in a sustainable way is a core component of their mahi- becoming increasingly important as demand to better utilise resources and reduce waste continues to grow. There is a growing demand for green infrastructure solutions, in civil and structural engineering. Our future workforce needs to have a good understanding of these technologies and techniques to be able to respond to future challenges that New Zealand will face.

Having a robust understanding of climate change resilience is vital. New Zealand is already experiencing increased extreme weather events and has a high natural disaster risk profile; we see continued examples of infrastructure failing in these situations or not being designed in a way that can manage increasing environmental pressures. For example, our cellular network shutdown in cyclone impacted areas because it only had three hours of battery backup. It is important that our graduates understand this and can design solutions.

### *A future workforce that is enabled by technology requires understanding of the fundamentals*

Technology will be a key component of enabling graduates to thrive in the workforce. Technology changes at a pace and scale that requires a good understanding of the basics to allow the future workforce to adapt to disruption and be able to make the most of opportunities. This strategy places a lot of emphasis on technology as a key enabler, which we support, but note it is vital that learners have a strong understanding of the fundamental principles of the technology not just experience in the latest technologies.

*Cultural competency is already a required skill for the workforce*

It is important for engineers to be culturally competent and understand *ti Tiriti o Waitangi* and *mātauranga Māori*. This understanding can create a more well-rounded workforce, ensure graduates understand specific requirements of their job (i.e. *iwi* engagement obligations) and increase innovation. Engineering New Zealand would like to see specific emphasis on cultural competency including within this strategy to reflect the requirements of the engineering profession.

*The focus on STEM is welcomed but businesses cannot survive without other areas of knowledge*

We appreciate this Government's commitment to STEM and improving outcomes particularly in science and math achievement. However, we are concerned that this focus may have an adverse impact on other knowledge areas. Successful STEM businesses require a mix of skilled workers with both hard and soft skills. As an example, in manufacturing an engineer can design an amazing product, but the profitability of that product relies on strong design, economics, communication and marketing to make it an attractive purchase for consumers.

#### **Universities would benefit from central advice on workforce trends and industry needs**

Engineering New Zealand has been strongly supportive of the role of the Workforce Development Councils, soon to be Industry Skills Boards (ISBs)- the work they do around strategic workforce needs, national consistency and industry advocacy is beneficial to the whole tertiary system and to the industries they serve. It is important that there is an alignment between the workforce, industry and the skills provided to learners across the tertiary system. Engineering New Zealand recommends that something like the ISBs be developed for the sector.

#### **The success of this strategy will be dependent on funding**

The strategy provides an excellent opportunity to improve the outcomes of the tertiary sector; however, success is dependent on having the funding available to deliver the strategy and undertake the required activities listed. Funding is already a challenge across the entire system and providers do not have capacity to increase their activities to deliver this strategy.

Long-term sustainability of tertiary institutions is crucial for delivering the skill-based education that fuels an innovation-led economy and economic growth. Universities are struggling to fund engineering programmes- as seen by the Massey University's closure of its engineering programme within its College of Sciences, due to extreme financial pressures.

Engineering New Zealand believes many of the activities listed in this strategy are excellent and would make a difference, but we are not confident that they will be resourced.

#### **Detailed comments on the priorities for the strategy**

##### Achievement

A focus on improving retention rates (and the distance travelled) is welcomed. Engineering New Zealand supports the stronger alignment between tertiary education achievement and employment outcomes at all levels of study. However, this enhanced focus must come with support and funding to match the increased resourcing required. This function should be provided by the ISBs and a similar entity in the university space.

We suggest that the first step to tertiary achievement is not enrolment, rather the transition from schooling to tertiary study. The strategy would benefit from improved focus on the transition from schooling and how to support learners-this is important for underserved communities. Encouraging students to enter tertiary education will be a key step in addressing skill shortages and ensuring a thriving tertiary sector.

##### Economic Impact and Innovation

Engineering New Zealand is supportive of efforts in this area. The ideas and contributing activities in this space are excellent but there is no clear plan, identification of levers or clear funding to enable them. The industry

desperately needs more engineers and a more sustained pipeline of work-ready graduates. However, two of our largest engineering schools are close to capacity- producing more engineers will require incentives to increase, develop, and enhance opportunities, which will require some kind of financial lever.

#### Access and Participation

Engineering New Zealand has serious concerns about declining levels of regional engineering provision, especially in vocational education. Several regional polytechnics have recently closed their New Zealand Diploma in Engineering programmes and even financially viable providers struggle to deliver the programmes independently. Providers should be working collaboratively as part of a wider network. We have concerns that changes in the vocational education space may revert us back to a competitive funding model where decisions are driven by profit rather than need or strategic importance, exacerbating existing challenges.

The focus on work-based learning provision is welcomed. Work to explore how to make diploma and degree level qualifications more accessible to learners will require significant investment. The same will be true for increasing high-quality blended and online learning.

#### Integration and Collaboration

We agree that collaboration between tertiary education providers and industry would be beneficial to enhancing the alignment between graduate skills and workforce roles. This could also lead to better outcomes for innovation, productivity, and resilience. Better collaboration could also lead to improved research and innovation within the private sector as graduates may have industry research experience.

Partnership between tertiary education providers and hapū and iwi to support Māori development aspirations and honour te Tiriti o Waitangi should be extended across the system not only within Kaupapa Māori provision.

Engineering New Zealand is supportive of capacity building in the Pacific. We have already identified opportunities to build engineering capability through our own work in the Pacific. However, we feel there needs to be clear incentives for this work as it will not be a core activity for providers.

#### International Education

We welcome the ideas and focus on increasing international education; we agree that there is significant opportunity to enhance the numbers of international students and market New Zealand's education system- particularly in qualifications covered by international agreements.

Engineering New Zealand would be happy to support efforts to enhance targeted marketing of engineering qualifications. We would like to see engineering as a focus area and can provide information on the benefits of Accord accreditation and pathways to employment and professional registration.

#### **Conclusion**

Thank you again for the opportunity to provide input into the development of the Tertiary Education Strategy. Engineering New Zealand is committed to working alongside Government to uphold and enhance the quality of engineering education. An enhanced tertiary education system has the potential to improve productivity and innovation in New Zealand as well as support a well-rounded and thriving workforce. We look forward to continuing to engage on the tertiary education system. If we can be of any assistance or provide further information, please do not hesitate to contact us.

Nāku iti nei, nā



**Dr Richard Templer**  
Chief Executive