

## **Engineering Leadership Forum**

### **Submission on Reform of Vocational Education**

5 April 2019

*The Engineering Leadership Forum comprises the CEOs of New Zealand’s professional engineering and industry associations, including Engineering New Zealand, the Association of Consulting Engineers New Zealand, Water New Zealand, Civil Contractors New Zealand, the Institute of Public Works Engineering Australasia New Zealand Division, the Electricity Engineers’ Association, Concrete NZ and the Institute of IT Professionals NZ. These organisations represent the interests of well over 50,000 NZ professional engineers, engineering technicians and IT specialists.*

#### **Introduction**

1. One of the main responsibilities of the member organisations of the Engineering Leadership Forum (ELF) is to overview, monitor, and advocate for targeted engineering/technical vocational education training. This review of the Government’s role in and support of vocational education is of great relevance to the ELF and its members.
2. A number of the members of the ELF are also making their own submissions on the reform proposals. Whilst this submission presents a general view of the membership of the ELF individual submissions from the ELF members may not align with certain aspects of this submission. In particular, ELF members have had mixed experiences with the ITO sector.
3. In 2018 ELF undertook a review of vocational education as relevant to its members. Some of the main conclusions were:
  - a) Some members of the engineering industry believe they are distant participants in the design and monitoring of qualifications delivered by Polytechnics, Institutes of Technology and Universities.
  - b) Micro credentials and the degree apprenticeship schemes offer a way for industry to take ownership of the vocational education process and allow the qualifications to be quickly updated and flexible to adapt to industry needs and changing technology. These schemes also allow specialised accreditation by reputable professional engineering organisations (so as to by-pass NZQA/TEC).
  - c) There is an increased demand for an increase in both engineering/technical and general skills qualifications but especially at levels 6, 7, and 8. In some sectors immigration strategies are being used, but this is accepted as non- sustainable long – term. Increasingly industry is also looking for generalist skills associated with asset management, management of contract risk and liability, insurance management, procurement, project management, general management including basic finance and accounting, and employee relations.
4. The current vocational education system is seen as unresponsive, inflexible and doesn’t generally deliver the needs or quality outcomes sought by an engineering industry - who seek to train across many levels and different specialist areas and sometimes with mixed objectives. The vocational education system needs to be more flexible to accommodate these types of development processes. For example, the idea that learners progress linearly

through the Framework by achieving qualifications in a step by step process is outdated and needs to be replaced with more user-friendly qualification structures.

5. Further, financial incentives and the need to achieve economies of scale have driven a number of perverse incentives in the vocational education system based on high volume, low cost programmes and existing capability rather than growing capability to reflect strategic skill needs and social priorities. This has led to variable engagement and even disinterest in smaller and potentially more critical skill programmes which are particularly important in some specialist engineering fields. ELF sees all this as simply an outcome of the way the current system is structured and financed. Changes in these areas are fundamental to resetting and improving vocational education in New Zealand.

**ELF supports the reform of some aspects of Vocational Education**

6. It follows that ELF supports some aspects of this review of the vocational education system. ELF agrees with the stated objective on page 19 of the consultation document to extend the leadership role of industry and employers across all vocational education, and to provide industry with a purchase role through giving advice to TEC. ELF see this as an opportunity for the vocational education system to be much better connected to the needs of employers and to provide training that is up to date and relevant. The restructuring of the ITO sector, as foreshadowed with the establishment of Industry Skills Bodies (ISBs), could remove the difficulties that ITOs have had trying to meet industry requirements while working under prescriptive and directed oversight from a TEC/NZQA disconnected from workplace requirements.
7. The rationale for the consolidation of the ITPs into the NZ Institute of Skills and Technology (NZIST) is set out in the proposals and the ELF is generally in agreement with this proposal. From the perspective of the ELF the greatest benefits will be the opportunity to deliver targeted skills needs using coherent programmes across multiple education facilities and the much easier transfer of learners between ITP sites. To some extent this has been occurring at L6 and 7 but there will be new opportunities to extend this to L3, 4 and 5 qualifications.
8. In this short submission we have not dwelt on the problems with the current system as in our view they have been well summarised in the discussion paper. Instead we have tried to focus on giving constructive comment about the role and operation of the proposed ISBs. However the compressed timeline for submissions has made it challenging to comment in detail on the proposals, or to fully coordinate the thinking across the ELF members.
9. Our main points are:
  - a) Reform of some elements of the overall system is essential.
  - b) Significantly increased industry and employer involvement will improve the current education outcomes for the engineering and technology sectors.
  - c) Industry, employer and professional groups must own and run the ISBs.
  - d) The ISBs must be created early in the process to provide clarity and to bring all parties together to start focusing on the reform process.
  - e) Government must provide both seed funding and ongoing operational funding for the ISBs.
  - f) A transition programme is required to implement the new vocational education system.

## **Discussion**

10. ELF members believe that more of the same number and type of L6 and 7 graduates in the existing engineering related courses would not be a good outcome from this reform process, and that significant changes in vocational education for this sector are needed. The direct involvement of industry and employers in the design of engineering and technology related qualifications, the content of the curriculum, and the way and location of the courses to be delivered, as proposed, would enable the paradigm shift in vocational education outcomes ELF seek.
11. However, to achieve this:
  - a) The ISBs will need to be 'owned' by industry and employer groups and be proactively managed by them.
  - b) Revised TEC/NZQA moderation processes will be needed that directly enable industry and employers involvement in the type and style of qualifications to be delivered, the content of the curriculum, the process, style and quality of delivery, and the role of on the job training.
  - c) Once the new system is operational, TEC/NZQA will need to provide ISBs with a clear operating framework including feedback processes on implementation and outcomes.
  - d) TEC/NZQA and the ISBs will need to remain engaged in a continual process to seek improved outcomes.

These are transformational changes, both for industry and individual employers involved in vocational education - and they are also transformational for TEC/NZQA. Transformational change will require active focused leadership from government and from the industry and employer groups involved, and a commitment to establish clear goals and measurable outcomes.

12. It is anticipated that the establishment of the new ISBs will generally require significant resources and a level of commitment from industry and employers who are generally unused to being involved in the education sector. Seed funding and support from Government will be desirable to support the ISBs access specialist advice and form responsible perspectives. This would assist in getting an early picture of the shape of the ISBs. It would also allow the various parties, including the current ITO staff, ITO Boards, the PTE sector and other key stakeholders, to sort out how the ISBs and the Centres of Vocational Excellence (CoVEs) will work, the new framework and operation of the system for TEC/NZQA, and the ways ISBs can transform qualification design, curriculum design and course delivery to prioritise quality skill outcomes.
13. ELF urge the Government to not get singularly focused on the creation of the NZIST. The long-term outcome of improved vocational education requires new clarity and transparency around objectives, form, function, and funding. If this can be done early, establishment of the ISBs and in parallel with the establishment of a NZIST board can assist in the design of the NZIST, and start the process of working with industry and employers on the reformed vocational education system.
14. ELF also accept that there will need to be a measured transition period for the new vocational education system to minimise disruption of existing programmes and learner outcomes. ELF envisage a 3-5 year transition period will be necessary.

## **Interpretation of the objectives and powers of the Industry Skills Bodies (ISBs)**

15. The discussion paper sets out four objectives for the ISBs – developing qualifications, setting skills standards in consultation with education providers, moderating assessments

(potentially through capstone projects), and contributing to curriculum development. The ISBs will provide TEC with advice on vocational education requirements and TEC will purchase appropriate vocational education services from providers. Providers would be responsible for delivering all vocational education, *'whether it took place at a provider's facilities, on a campus, or in a work place'*. Providers would therefore take responsibility for 140,000 trainees and apprentices in addition to the approximately 110,000 learners they already serve.

16. ISBs need to be unequivocally industry based, led by industry leaders, and responsive to the education and training needs identified by industry. In this way the ISBs will have a clear mandate to perform their functions. They should not have a role in arranging or supporting learning delivery but would have a role in validating the quality of outcomes. The more industry and employers are involved, and invited to contribute to the vocational education system, the more they will commit strategically and financially.
17. The new system should encourage Industry led ISBs to contribute in new ways to the delivery of training in situations where knowledge needs to be complemented with on the job experience.
18. The discussion paper suggests that resource development will be centred with the new CoVEs, which ELF anticipate will be resourced with industry subject matter experts. However CoVEs appear to sit inside the New Zealand Institute of Skills and Technology (NZIST). Clear linkages between CoVEs and ISBs are critical, and must be well defined as the new scope and roles of ISBs and CoVEs are clarified. The degree of employer involvement will ultimately depend on who leads the respective ISB and CoVE roles for each industry and whether they are respected by industry. The CoVEs will be the mechanism for the transfer of knowledge from the ITOs into the new system and therefore will need to be designed with care and with ISB input.
19. Notwithstanding this centralisation, resource development will need to be undertaken by private specialists (PTEs) where the capability may not exist in the new ITP network, as is the case currently for engineering and technology related disciplines. Further, training organisations - whether government or privately-owned - will need freedom to innovate in course development and delivery methods, and this may include customisation for specialist fields and/or for specific regions.
20. The opportunity for industry and employers to play a significant role in how vocational education occurs, what is undertaken, and to monitor the outcomes is a significant change. In the fields of engineering and technology some industry associations and employers have already started playing this role with the rapidly increasing use of PTEs and in-house training especially at Levels 3 and 4, and in creating qualifications and programmes that are not on the Framework and never would be under current arrangements.
21. Some ELF members have also commented on the importance and ability of the ISBs in researching sector skill needs and providing advice on future industry needs, and in turn the need for new vocational education programmes and qualifications.

#### **Governance of the ISBs**

22. The fragmented and static nature of the current qualifications and vocational education system has not made it easy for industry and employers in the engineering and technology

sector to engage. Pockets of excellent outcomes can be found amongst some of the ELF members, especially in infrastructure, construction and the electricity sector. New collaborations around asset management programmes and training have commenced recently. The collapse of training and standard setting in the water industry and the complete fragmentation of this sector following the closure of the Ministry of Works in 1988 is considered the worst example.

23. This fragmentation has led to discussion within the ELF on the make-up of the ISBs that would best serve the engineering and technology sectors. Should there for example be sector-focused ISBs called 'Manufacturing', 'ICT' and 'Engineering' for example. Or, in the case of 'Engineering', should there be more specific industry focussed ISBs for example a 'Construction', 'Water', and 'Electricity Supply'.
24. One proposal that ELF are discussing is that an 'Engineering' ISB is created and led by the ELF. This potentially would have a number of specific chapters, each with a specific engineering or technology sector focus. Many of this 'Engineering' ISB's qualifications would be generic across different engineering and technology disciplines, but each of the different sectors for example Waters or Electricity, would have their own extensive industry specific requirements. In this framework, each ISB chapter would have its own funding, management and governance systems, and each ISB chapter would be accountable to and work through the ISB in dealing with TEC and the NZIST.
25. ELF do not have clarity or a final position on this topic yet. The extent of government support for ISBs would need to be clarified before the idea could be developed further. Further discussions amongst the ELF and with government is necessary to progress our thinking.

**There are some areas of concern**

26. Even at this very early stage in the design of the new vocational education system there are some aspects of the proposals which cause concern.
27. The Universities have been assertive in marketing university qualifications and this has led to an increased view amongst student's considering education choices that a university qualification is better than an ITP qualification. The reform package must address this critical issue. Vocational education is a national investment and financial pressures that skew this outcome need to be dealt with.
28. The use of in-house training and PTE programmes by the engineering and technology industries is increasing. These currently sit outside the vocational education reform package which has the potential to thwart efforts to get better industry skill needs coordination, coordination and delivery at a sector level. The vocational education system, therefore, cannot be narrowly defined as solely based around the NZIST. Policy development for the co-ordination and delivery of PTE programmes, university courses and school education are necessary. The distinct roles of the NZIST and the universities must be clarified and become clear in future education policy. This includes clarity as to the role of the NZIST in providing L7 and L8 qualifications.
29. Vocational education outcomes in the engineering and technology industry related areas will be enhanced by a more systematic and thorough approach to science, technology, engineering and mathematics (STEM) based education in primary and secondary schools especially. NZ still lags well behind Asian countries in providing STEM education at this level.

30. ELF is unclear as to how the proposed Regional Leadership Groups could contribute to a set of engineering qualifications which will not vary significantly in content or delivery between regions.

**Discussions with Government**

31. The ELF would welcome the opportunity to meet Government to discuss the reform proposals further.

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## **Appendix**

### **Brief notes on sector aspects**

The Water New Zealand submission on the reform proposals contains a detailed account of how the current VET system and especially the ITOs have failed the sector. Difficulties with the delivery of expected water industry education and training outcomes, including the current unavailability of diploma level courses, have required Water New Zealand to take a greater leadership role and put in place a number of initiatives to ensure the needs of water industry employers and employees are met. If the status quo was to remain, they foresee a time when water industry training could be undertaken completely outside the TEC / NZQA framework.

Concrete New Zealand's (CNZ) membership activities extend from concrete placement through to complex design of concrete structures. This means that training programmes can range from short training courses in concrete and masonry construction, concrete technician training and weathertight concrete construction through to apprenticeships and university degree courses. CNZ are particularly concerned at the low numbers of apprenticeships currently enrolled in some areas given the current demand for construction workers. The introduction of micro credentials should help in this space.

Commercial issues have become a much more important aspect of modern engineering consulting – not only client aspects such as insurance management and procurement processes but also aspects of the commercial management of large consulting businesses including HR, management of contract risk and liability and project management. The Association of Consulting Engineers has therefore embarked on the design and implementation of a suite of training programmes in these areas to support members.

Civil Contractors NZ (CCNZ) places a high priority on people development and has been active in embedding the Civil Trades qualifications into industry, implementing Constructsafe as the industry standard, recognising achievement, and co-ordinating national careers promotion and a recruitment template. A range of shorter courses are organised by CCNZ regional offices and presented by consultants on a wide range of topics some of which lead to quals that can be registered on the framework. As technology changes CCNZ find that Framework-based courses quickly become dated and are so hard to update – leading to a general preference for CCNZ designed programmes and non ITO-based training.

Engineering NZ (ENZ) are involved in engineering skills training and industry pipeline development from sophisticated L9 and L10 quals right down to now 9 year olds where they believe first thinking about careers starts. Engineering NZ reflect that the accreditation of a qualification and changing a qualification to reflect changing technology or student needs could be streamlined. The Diploma provides a model for industry and provider collaboration for unified programme development. Engineering NZ are also concerned about the perception challenges faced by ITPs, which are no longer seen as a further study option by many secondary students – despite employers being generally happy with what they are getting with NZDE graduates.

The NZ Division of Institute of Public Works Engineering Australasia (IPWEA NZ) has produced an International Infrastructure Management Manual (IIMM) which has become the infrastructure and asset management sector's go to document across Australia and NZ, and elsewhere. IPWEA NZ runs numerous courses on all aspects of asset management. IPWEA NZ has developed a "Fostering our Future" programme in association with TEC. It is introducing micro-credential and digital

training opportunities and degree apprenticeships in association with other organisations including Weltec and Otago Polytech. These courses reflect the needs of the sector.

Electricity Engineers Association (EEA) is the engineering, technical and safety advisor to the electrical supply industry and runs numerous professional development programmes focusing on delivering specialist engineering/technical skill sets required by industry. Accreditation of these programmes within the NZ Framework is not easy nor a priority as the EEA generally sources specialist engineering/technical private training providers from the UK and Australia who have international credibility. NZ Framework-based qualifications provide foundation only skills and need to be complimented with more industry learning opportunities to respond to safety, process and technology changes in the sector. The future electricity sector engineer will come from a mix of traditional power/mechanical engineering and science and other engineering backgrounds including IT, analytics, software, the environment, and asset management, and as a consequence the future value of the NZDE (and other qualifications) to the sector are being monitored to ensure their relevance.

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