

TECHLINK PATHWAYS PROJECT

STATEMENT OF INTENT 2014

PURPOSE

This statement of intent sets out a framework for a system level response to support the Government's priority of building the economy, and delivering better public services through a targeted increase in the number of tertiary engineering graduates.

The Techlink Pathways Project is a cooperative arrangement between IPENZ and the Metropolitan Group of ITPs (Metro ITPs). It aims to achieve better alignment and coordination among stakeholder groups to address a range of inter-related barriers to achieve the engineering qualifications targets set. The critical relevant outcome will be long term sufficiency of skills available to the engineering sector and that these skills are derived from a balance of NQF Level 5-8 qualifications.

This will be achieved through increased enrolments in NZDE and BEngTech programmes. ITPs understand that no form of endorsement or direct marketing advantage in terms of individual programmes of study or institutions can be given by IPENZ.

BACKGROUND

Evidence from the Government's most recent Industry Training Review and elsewhere indicates that increasing achievement in qualifications at Levels 4-7 are critical if we are to improve the work prospects of graduates and become a higher technology economy. Current government priorities incorporate targets for higher levels of achievement of meaningful STEM-related national qualifications.

The 2010 National Engineering Education Plan (NEEP) report pointed to a greater need for future expansion of graduate numbers in engineering qualifications at NQF Levels 6 and 7 than at Level 8. TEC has recently expressed concern about existing pathways through secondary school in terms of engineering related careers advice and limitations on the preparedness of students for tertiary study. This has been reinforced by course enrolment and completion data in the coordinated delivery of the NZDE (Level 6) and BEngTech (Level 7) qualifications by the Metropolitan Group of ITPs, which puts the achievement of government set targets at risk.

2013 was a significant year in the secondary schooling sector. The realigned NCEA achievement standards have now been fully implemented and the implications of the Ministry of Education's Vocational Pathways project are becoming clearer. Many schools are now building on these initiatives by taking the opportunity to evaluate their programme delivery in the senior school with options for mutually beneficial secondary-tertiary collaboration increasingly coming under consideration.

In January 2013, the IPENZ Board approved funding for four months of staff time as the organisation's contribution towards a scoping exercise for the Techlink Pathways Project. The aim was to determine the viability of a combined Metro ITP / IPENZ programme to establish and exemplify pathways through high school and polytechnic education at NQF Levels 6 and 7 to a career in engineering.

The focus of this initial scoping exercise was on the secondary tertiary interface in engineering and technology, with the specific aim of exploring issues impacting on the flow of senior secondary students into NZDE and BEngTech courses and on to productive engineering – related employment. Initial staffing costs were met by IPENZ, with a funding contribution to travel costs and in-kind support of staff time made available by the Metro ITPs.

COMPLEXITIES FACED

Feedback from the secondary, tertiary and industry sectors canvassed, strongly confirmed the value of a collaborative cross sector approach to establish a nationally sustainable platform to build from. In June 2013, additional resourcing from IPENZ, the Metro ITPs and The New Zealand Board of Engineering Diplomas has extended the project through to this present point. Over this period a national support structure has been established which can be used to produce nationally consistent outcomes.

The scoping exercise identified three broad inter-related barriers to be overcome if the project outcome is to be achieved:

Awareness issues:

- Incomplete and inconsistent understanding by engineering employers of the role and value of the NZDE and BEngTech qualifications
- Lack of knowledge within the school and wider communities of the broad range of available engineering qualification and career pathways options
- Inability to engage effectively with potential students at different decision points in the selection of appropriate pathways.

Alignment issues:

- Mis-alignment between subject choice, school curricula and delivery and the 'engineering literacies' required to support smooth transitions into NZDE and BEngTech study
- Barriers to entering the engineering profession and to increasing the effectiveness of support programmes for minority groups (Maori, Pasifika, and women) in engineering.

Attitudes and beliefs:

- Societal perceptions around declining STEM literacies in school leavers, the relative status of technical and professional roles in employment and of the relative value and desirability of ITP and university qualifications.

The importance of a coordinated national approach to the task of addressing these fundamental issues has been readily acknowledged in on-going interaction with major stakeholder groups including: employers; school management; guidance and teaching staff; and management and academic staff in ITPs.

There is general agreement that this initiative is a timely one and that there is a will to work collaboratively within a coalition of support to achieve the agreed broadly beneficial national goals. Longer term success will be dependent on a level of cross sector/agency ownership of the project with the central agencies able to see the value of their involvement as part of broader co-ordinated programme of work.

INITIAL STAKEHOLDER RESPONSE

The first stage in the cooperative process has been to convene a stakeholder workshop to confirm the intent of the project and to begin the work to structure a draft project plan/proposal.

Representation at the workshop included IPENZ, the Metro ITPs and secondary school sectors. A draft report of the workshop was circulated to participants for comment.

Both the draft workshop report and Statement of Intent have been amended on the basis of the feedback obtained. This material will be used by a smaller project group to finalise a proposal which confirms actions, identifies resources and from whom co-investment will be sought. This work will be supported by a parallel 'socialisation strategy', with IPENZ and Metro ITP CEs and other stakeholders engaging with MBIE, MoE and TEC and other related groups not able to be represented at the workshop.

This process is scheduled for completion by the end of April. A programme of work for 2014 will be agreed together with a longer term programme for investment with Government and other identified sources.

THREE YEAR PLAN

Removal of these barriers in a long-term and sustainable way will require a concerted and coherent system level response. The NEEP report pointed to an imbalance in the number and diversity of students currently graduating in New Zealand with Level 6, 7 and 8 engineering qualifications and the country's likely future employment needs. The opportunity now exists for IPENZ and the Metro ITPs to demonstrate the thought leadership in this space to develop and propose the national response to government.

To have a realistic chance of success this would likely be a 3-5 year programme of work, led jointly by IPENZ and the Metro ITPs, with the support and active involvement of other stakeholder groups – including industry and related ITOs, universities, regional ITPs and secondary teachers, careers advisors and school management.

Success will result in the solidification of a high trust learner-centred pathways model, characterised by:

- ready access to accurate, up to date information on engineering and technology related career options;
- awareness and understanding of the multiple pathways leading to internationally accredited engineering qualifications;
- alignment of school course selection and delivery with tertiary student entry profiles;
- selection of a qualification pathway which meets career aspirations and provides a realistic chance of successful course completion;
- effective tertiary institutional delivery in meeting student needs, accord accreditation requirements and course completion targets;
- transition to productive engineering-related employment;

and be measureable in terms of the critical outcomes specified.

Longer term outcomes:

- Closer mutually productive relationships at a regional level between employers, ITP and school staff at the management, careers guidance and course delivery levels
- Greater numbers of well-prepared students entering NZDE and BEngTech programmes
- Reduced need for bridging support for successful transition into Year 1 engineering courses
- Increased numbers of cadetship/internship recipients;
- Improved progression and completion rates in NQF Level 6 and 7 courses;

- Raising of the profile of the engineering technician and technologist sectors of the profession
- Greater balance and diversity in engineering-related employment leading to measurable national economic and social well-being benefits.

Work to date has established a strong base for collaborative coordinated actions which can achieve 'quick wins'.

Actions

Short-term (2014)

- Engagement with Vocational Pathways related initiatives, including providing contextualised case studies especially for maths and cross-curricular studies (student and teacher audience)
- Identification and engagement of champions across the sectors, including lead teachers, careers advisors, school management and BOTs, employers and tertiary personnel (all audiences)
- Engagement with Technology Maths and Science subject associations (teacher audience)
- Proactive engagement with universities around the 'supply of engineers' (tertiary audience)
- Collaboration with Futureintech in the production of targeted careers and classroom support material (general school and parent audience)

Medium-term (2014-2015)

- Literature review of research/activity already undertaken in this space
- Identification and promotion of existing 'beacon' practice (all audiences)
- 2014/15 summer school activity (student audience)
- Promotion of more broadly descriptive 'student entry profiles' for NZDE and BEngTech programmes (general school audience)
- Structured national monitoring and data gathering processes developed
- Coordinated regional linkages with Futureintech facilitators to increase the number of engineering technicians and technologists acting as Ambassadors (general school audience)
- Regional ITP support for programme redesign, foundation course delivery and team project work in schools (general school audience)

Long term (2014- 2016)

- Support the development of regional beacon practice involving schools, ITPs and employers beginning with facilitated regional engagement meetings (general school audience)

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