

# Engineering Education Hubs

Over the past two years, Engineering e2e has been exploring the idea of engineering education hubs – here is what we have found so far.

## A need identified

In 2016, Engineering e2e published *Creating Engineers – Climbing the Educational Staircase* (Frater & Grigg) an investigation into staircasing and pathways as viable strategies and mechanisms for progression into, or within, engineering careers.

The report authors identified the need to address the issue of “lack of feedback and communication and control” within the engineering education supply chain, and proposed the set-up of regional education groupings in the form of “hubs” or “cooperatives”.

## What do we mean by ‘engineering education hubs’?

We envisage hubs as collaborative, regionally-based centres for engineering education which involve employers, high schools, universities, institutes of technology or polytechnics (ITPs) and industry training organisations (ITOs). They would develop popular and effective pathways into engineering and offer a single entry point for engineering qualifications. Hubs would support students to make good decisions about their courses of study and allow them to staircase between qualifications.

Hubs would run secondary-tertiary pathways projects, cadetships, scholarships and work experience. They would implement new initiatives, including co-created and taught curriculum and degree apprenticeships. Importantly, hubs would support initiatives that raise awareness of engineering.

## Preliminary research

In 2017, Engineering e2e engaged Massey University researchers Dr Greg Frater, Professor Nigel Grigg and Dr Ishani Soysa to examine regional hubs that would establish popular and effective pathways into engineering and offer a single entry point for engineering qualifications.

The team completed a literature review to identify the key definitions and models for, and enablers and barriers in the formation of, educational ‘hubs’. Data was then collected from experts to get a better understanding of the feasibility, potential, barriers to and drawbacks of such hubs in New Zealand.

Two main functions for hubs were identified:

- A facilitation and leadership function: bringing stakeholders together to develop a unified approach to engineering training and education at a regional level, identifying opportunities for collaboration and innovation within regions, and providing feedback to national policymakers.

- A service function: advising and informing students, providing liaisons between students, institutions and industry.

## Recommendations from the research

The team identified a series of factors that needed to be considered in the establishment of regional hubs:

### • Defining ‘regional’ in this context

‘Regional hub’ describes groups that are organised around local geographical locations or populations.

### • Hub ‘drivers’

Regional hubs should be based around a specified need or gap of relevance to the region.

### • Hub partners

Hubs should be formed from ‘like-minded’ organisations, which are willing and able to cooperate to fill the common need or gap, including: educational institutions (universities, technical colleges, polytechnics, schools); employers; and civic groups (such as careers service, professional industry bodies).

### • Hub governance

Regional hubs require a governance structure in order to be ‘viable’ self-sustaining entities. Governance, as always, implies defining the vision, ensuring there is accountability and oversight of operations, managing risk, controlling budget and continual evaluation and improvement.

### • Co-creating educational pathways around the needs of the learner

Regional hub members should co-create educational pathways around the needs of the learner.

### • Physical contact with the hub

Regional hubs need a point of contact for the learner. This will be a space where the learner can interact with employers or educational providers, be guided by them, but also inform them of their needs and requirements, so that a pathway can be tailored for them.

### • Piloting the regional hub proposal

In attempting to establish regional hubs in the New Zealand context, there is a need for a pilot hub to be trialled in one region. The hub will be based around an identified need within one region, and will ‘test’ or validate the mechanisms for governance, cooperation, physical location and delivery.

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