Submission to the Productivity Commission inquiry into technological change and the future of work by EdTechNZ

About EdTechNZ
The Education Technology Association of New Zealand (EdTech NZ) is a community dedicated to the growth of understanding of the benefits of technology in education and the growth of education technology exports from New Zealand. Members include large technology companies, start-ups, tertiary and secondary educational institutions. It is a member of Tech Alliance, a group of independent tech associations from across New Zealand that work together to ensure a strong voice for technology. For more information please see http://edtechnz.org.nz

Our perspective
Working at the meeting points of education and the tech industry, our members are keenly aware of the challenges ahead for the New Zealand workforce as modern technologies disrupt jobs and industries. We also are actively embracing and creating many new opportunities.

EdTechNZ has established a Digital Skills Working Group (DSWG) to inform our members and promote to interested parties the solutions available right now to help close the digital skills gap. We believe this gap will grow wider without co-ordinated action by both public and private sectors.

Members of the EdTechNZ Digital Skills Working Group currently include:
- Annabel Robertson
- Andrew McPherson
- Anne Taylor
- David Glover
- Shane Kerr
- Tara Fagan
- Truman Pham

This brief submission has been produced by DSWG members and supports the view that the future of education is critically linked to the future of work, and the two must be considered together in the Commission's inquiry. It is not necessarily representative of the views of all members of EdTechNZ, who can be called upon for further contributions as and when is useful.

We note the intention to publish a short report on education and training and would welcome the opportunity to engage with this specific project, and any other work by the Commission touching upon education issues.

Answers to specific questions posed in the paper.
Given the nature of our organisation we have limited ourselves to addressing selected questions from Section 5 of the issues paper, concerning Education and Skills Supply.

Q17. How well do the current outcomes from the education and skills system position New Zealand to respond to changing technology and different future scenarios?

Future workers will need both advanced technical skills to operate in an increasingly digital working environment but also higher order "soft" skills for the roles that cannot be easily automated. We encourage the Commission when considering the subject of skill development and training to apply the World Economic Forum's conceptualisation of 21st Century Skills.[1]

While work is being done, at present we do not believe that New Zealand's education and skills system has a shared view of the current or desirable outcomes for a society that is increasingly dependent on digital technologies. Consideration should be given to how the skill needs of the tech industry can be better understood by the education sector, perhaps through an industry body forum.

It is encouraging that digital technologies have been added to the technology curriculum and likewise Hangarau Matihiko to Hangarau. Given the need to upskill the teaching workforce, both pre and post service in this area suggest it will likely be some time before this generates positive results.

Workers now and in the future will need an education system than can keep up with the pace of global technical change. We're already seeing firms and companies question the validity of traditional courses of study as their industries undergo rapid transformation.

Q18. What changes to immigration policy to address skills needs might be required under different future scenarios?

The Commission's data suggest that the average migrant worker is less skilled than the average domestic worker. This needs to be reversed, with new migrants bringing in much needed technologically-relevant skills, along with the ability to mentor and upskill the existing workforce. A change in immigration policy settings may be required.

Q19. What, if any, further measures are needed to improve skills among adults with low proficiency to enable them to successfully participate in any future labour market?

It is imperative that the 20% of adults described in the Commission's report with low levels of literacy and/or numeracy are provided with effective access to tools and training that can lift their capability. There are a number of EdTech products and pedagogies that can be further deployed in this area, and the EdTech sector could be more effectively incentivised to address this priority.

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[1] https://www.weforum.org/agenda/2016/03/21st-century-skills-future-jobs-students/

Q20. What evidence is there of digital divides in New Zealand? What are the consequences for labour market participation and which groups are most disadvantaged?

Government estimates that approximately 35,000 homes have no internet access and this impacts on approximately 100,000 children adding to the digital divide. Most of these are located in low socio-economic and rural areas. Projects that increase equity of access to reduce disparity e.g. [Raranga Matihiko | Weaving Digital Futures](#) along with the Ministry of Education's Digital Hub initiative helps provide access to our future workforce. Not only do initiatives like this enable access to the internet and technologies, they provide opportunities for our rangatahi to create meaningfully rather than just consume.

Q21. What, if any, further measures are needed to address any digital divides in New Zealand?

We believe cultural responsiveness and the respective measurements should be included in any approach to bridge the digital divides in our young population as most of the children, who lag behind in digital technology, are Maori and Pasifica, especially when the median age of Maori and Pacific population by 2026 is 25.4 and 23.2 respectively. Additionally, education technology, when being applied in the classroom, should go together with both pedagogy and cultural responsiveness. Without the inclusion of cultural responsiveness in the way we fill the digital gaps, the achievements won't be sustainable.

Q22. What factors underpin New Zealand's apparently poor matching of skills with jobs? To what extent are mismatches a problem?

The change in workplaces is moving at a more rapid and accelerating rate than the changes in the education sector, which historically finds it hard to innovate and scale new initiatives quickly in response to industry demand. In addition, due to the relatively large numbers of SME firms, employers are less likely to plan for or invest in future skills at the expense of the immediate needs and daily pressures of their business. These mismatches of capability and expectation are a major and growing problem.

Q23. What future scenarios are most likely to accentuate poor matching? What policy options are available to improve matching in the New Zealand labour market?

Of the four scenarios described, poor matching will accelerate with Scenario 1: More tech, more jobs (as skill shortages will increase) and to a lesser extent with Scenario 2: More tech, fewer jobs (as employers will have more suitable employees available to choose from).

Q24. How well does New Zealand's education and training system reflect the changing skill needs of industry? Is the education and training system able to effectively respond to changing technology and different future scenarios?

EdTechNZ supports the government's review of the vocational education sector as it presents an opportunity to develop a more coherent, connected education and training system that more closely matches skill supply with current and future industry demands. We are encouraged by the focus on digital technologies in the compulsory school sector, and this, along with the focus on the NZC key competencies of [thinking](#), using language, symbols,

and texts, managing self, relating to others and participating and contributing (soft skills) will produce students who are ready to enter the workforce or further training equipped with the skills that they need.

Q25. What programmes exist to support people to retrain, upskill or adapt to changing technology, and how effective are they?

There are a wide range of these provided across the country by both the private and public sectors, but further work is required to make them visible to all stakeholders and potentially beneficiaries of retraining.

Q26. How well equipped is New Zealand's education and skills system to support people to adapt to technological change over the course of their careers?

As noted above, the focus on the use of digital technologies in the curriculum is a welcome initiative in schools and kura. Learning to understand the design and development of digital outcomes along with computational thinking will support our young people as they progress from compulsory education. Tertiary education has no considered or coherent standards or strategy for including technological "future-proofing" of students in its programmes. Hopefully this will be discussed as part of the Reform of Vocation Education.

Q27. How might the incentives for firms to invest in staff training change under each of the Commission's future scenarios? Under which scenarios would there be a case for greater government investment in firm-based training?

Scenario 1: firms incentivised to retrain staff for specific new technological adoption where there are few hireable employees with appropriate skills

Scenario 2: firms less likely to invest in staff training where the workforce is being reduced

Scenario 3: reduced incentive to retrain as technology adoptions slows

Scenario 4: firms maintain current investment approaches

Not all firms do or will have the same understanding of the skill challenges or make the same level of investment in training beyond their immediate needs. Government has a role to raise awareness and urgency of the issue and also encourage the development of training for future skills needs which may not be readily apparent to the employer e.g. digital literacy. Government investment is required in every scenario.

Q28. What changes are needed to provide prospective students, including adults and those already part-way through a career, with the skills needed to make informed decisions about education and careers?

Greater transparency of and access to the tertiary education system, the ability to upskill as and when needed without committing to lengthy study, and financial support for retraining.