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TECHLEADERS EXECUTIVE DISCUSSION PAPER
Industry, education and the workplace of tomorrow

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TechLeaders Executive Discussion Paper
Industry, education and the workplace of tomorrow

This TechLeaders discussion paper provides insights from the recent TechLeaders Executive Launch Event. It includes key observations from roundtable discussions with the TechLeaders Executive, senior technology and digital transformation executives from New Zealand's largest corporations and agencies.

EXECUTIVE SUMMARY

Automation, artificial intelligence (AI) and digital transformation is expected to impact many of today's jobs and the income of many Kiwi families. Over the next few years, automation will change just about every industry in New Zealand and rapidly change the number and type of jobs available. If we act now to prepare the New Zealand workforce for these changes it may provide opportunities. If left unaddressed, these opportunities will become challenges and potential threats, leading to increased social and economic difficulties and a strain on government resources.

Technology leaders from some of New Zealand's largest organisations met to discuss the role of industry in helping prepare New Zealand's future workforce. At the forefront of technology change, these senior executives have insight and see two critical elements in ensuring Kiwi families all have jobs in the future:

- We need to ensure that our education system is developing the skills needed for a future workforce, in particular, an understanding of digital technologies and collaborative working practices.

- We need to start developing policy and a national shared purpose around how to re-train or upskill current employees who work in jobs that may change or disappear rapidly due to technology.

In-depth discussion identified a number of ways where technology leaders and industry could play an active role in helping secure the future of work for Kiwis, including:

- Working to bring a stronger connection with education to help prepare students, support teachers and support the introduction of the new digital technology curriculum.

- Working with government to help reshape the national conversation away from, 'the robots are taking my job' to a more positive view to encourage upskilling.

THE FUTURE OF WORK

Research by the Future of Work Commission in 2016 identified that the pace of change is undoubted. It was noted that according to McKinsey, the uptake of technology in the digital age is at a pace estimated to be ten times that of the industrial revolution at three hundred times the scale. Driven by new and advanced technologies, higher levels of unemployment from rapid automation, and less full time stable work seem likely.

Against this backdrop, a group of technology leaders from some of New Zealand's largest corporations and agencies are working together to help reduce the potential negative social and economic impact of the rapid growth of advanced technologies such as AI and automation.

The TechLeaders fundamentally believe that a future where thousands of people can no longer work doesn't have to be the New Zealand reality. As individual organisations they will continue to make decisions that enable their businesses to be more efficient and this will result in losses of jobs. However, many more jobs are likely to be created, so the challenge that industry and government need to immediately address is how to prepare the future workforce.

"We have a responsibility as industry leaders to come together and help prepare our country and future generations for what tomorrow holds. We are well placed people to help tackle the difficult questions that need to be addressed to ensure future work for generations of Kiwi's," said TechLeaders Chairman, David Kennedy on opening discussion.

CONNECTING BETTER WITH EDUCATION

The need for the industry to develop closer connectivity with the education sector was a key point of discussion. There was a sense that a closer relationship between companies with digital roles and their local schools will provide material value for both parties:

- Students and teachers will gain insights to the knowledge and capability necessary to gain employment as new jobs emerge.

- Industry will be able to close the perceived skills gap by finding ways to help prepare their future workforce better.

Professor Tim Bell of the University of Canterbury, a guest in attendance was able to provide an update on the development and implementation of the new Digital Technologies/Hangarau Matihiko curricula. As a leader in the development of the new curricula Professor Bell was able to share the background and process for the development of this new curricula. Digital

technologies will be part of the national curriculum from 2018, from years one to 13.

With technology permeating every facet of our work lives, the group was pleased to learn that digital technology will become a core part of our education curriculum. The importance of digital technology skills for the future workforce could not be over stated as the growing number of digital technology roles already points to a need for better pathways into the workplace.
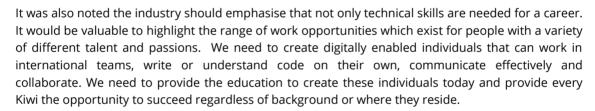
Shaping Pathways

A clearer shaping of 'career pathways' was highlighted as crucial. There was consensus that the industry could play a stronger role in the development of these pathways. Traditional IT pathways may no longer be sufficient as digital technologies extend across all sectors and across multiple positions within firms, not just IT departments.

Having pathways that develop the individual towards a different job type through various education choices empowers and educates the individual to control their future. This will enable young people from different backgrounds to apply their talent and passions to careers in technology. Creating career pathways can help lead young people with a range of talents and interests to different jobs in technology is one way to help develop the future workforce.

"If kids are following their passions, then what role can we play to make those careers real and to show how technology actually shapes their career and makes it possible for them to have an impact?"

Sonya Crosby, Chief Innovation Officer, SkyCity Entertainment Group.

It was also noted the industry should emphasise that not only technical skills are needed for a career. It would be valuable to highlight the range of work opportunities which exist for people with a variety of different talent and passions. We need to create digitally enabled individuals that can work in international teams, write or understand code on their own, communicate effectively and collaborate. We need to provide the education to create these individuals today and provide every Kiwi the opportunity to succeed regardless of background or where they reside.

A key factor in achieving this is to demystify technology without oversimplifying it. In addition, technology training, especially for young people, should focus less on the technology itself and more on the outcomes that can be achieved through technology.

Technology is not in isolation

The importance of not teaching technology in isolation from other subjects was also raised. Technology is interwoven with many roles and becoming increasingly less likely to be a standalone role in many businesses.

"Instead of just computer classes self-selected by those who already have an interest in it, it would be better to talk about technology in different classes, in different ways. It's trying to make it not about technology, and actually making it about the outcome."

David Godfrey, Chief Information Officer, NZX.

Professor Bell explained that integration of technology in other subjects is being encouraged as it could save under resourced teacher time and provide more motivation for students to continue with technology learning. It can also help address concern about adding technology to an already cluttered curriculum.

Developing practical skills

A crucial issue raised was that many graduates do not possess the real life, practical skills they need to succeed in today's workplace, let alone tomorrow's.

There is often a disconnect between what industries need and what education tends to focus on, and that universities often teach subjects, rather than the competencies businesses require in their employees.

> *"It's not enough to just know the subject - there has to be a whole lot of competency as well. If I was recruiting someone to be junior accountant, as an example, I'm not looking for the person who got the highest marks in accounting. I'm looking for the rounded individual that can bring a range of skills which will make them a better accountant at the end of the day."*

Diane Edwards, GM People, Systems & Technology, Ports of Auckland.

A clear need exists to ensure that throughout their educational journey, students gain the experience and skills they need for work. For this reason, industry needs to work closely with the education sector to help map their required skills into educational pathways. While career pathways and skills mapping have been previously completed, with the increasingly rapid changes in technology driving changes in roles there was an opinion that this could be reviewed with industry support.

RESHAPING THE EDUCATION CONVERSATION

The TechLeaders Executive also raised how to support those who influence and impact schools – the principals, the teachers and the board of trustees. In addition, addressing the perceptions of parents, who still steer their children to more traditional careers.

We need to reshape the conversation with educators and better educate parents about opportunities for their children through the learning of digital technologies.

It was acknowledged that funding will be a barrier to implementing changes in the educational system. However, there are already many initiatives that technology leaders could engage in with no cost to the education sector.

"There's a lot we can do for free. We do mentorship, we work with different universities and schools to bring people in for a day and offer internships. We've also got people who could spend time helping in different initiatives, training teachers or just being involved in some sort of digital community and share ideas."

Nicki Raistrick, Group GM Digital, Fletcher Building.

Industry could also investigate ways to help provide teachers with resources and materials they need to spark the interest of their students in technology. The TechLeaders all agreed that a closer relationship with industry would greatly benefit students.

It recognised that the design of the New Zealand school system means local communities have considerable influence on the direction and the pace of change within a school. Parents, could help inspire principals and teachers to change how they teach technology. However, parents first need to be made aware of why this is important for their children. They also need touchpoints where they can access further information on how to guide their children towards more resilient future careers.

There was hope that the Ministry of Education would engage in an awareness raising campaign alongside the implementation of the new curricula. During the discussion there was agreement that industry should play a role, wherever possible, to help raise awareness of opportunities emerging in the future of work, that will be underpinned by digital technology education.

In lieu of formal mechanisms, the TechLeaders Executive wondered whether teachers would be open to engaging with them via informal online education communities, such as Facebook groups, in which they are already active. This could create opportunities for teachers to engage directly with the industry, to seek volunteers, ask expert advice or arrange workplace visits.
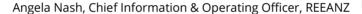
NZTech's existing ShadowTech Day, which matches 500 Year 9 girls with women working in tech for a day, was offered as an example of mechanisms that are already working to support the uptake of technology.

ADDESSING THE FUTURE OF WORK

The TechLeaders Executive also addressed the real and impending risk to livelihoods from technology changes such as automation. While automation may not completely eradicate some roles, it will change them, requiring different skills and capabilities. Technology leaders spend their time looking at future technologies and their deployment in their organisations to improve efficiencies and serve customers better. With this exposure to the impact of new technologies, they are well placed to raise awareness among people whose jobs might be replaced and to help identify the future skills that they will need to learn.

"The job we have to do is get people to realise that we will still need people - new jobs are being created, but we need skilled people to take those jobs. We have to identify those roles and then actively upskill people who are willing."

Angela Nash, Chief Information & Operating Officer, REEANZ

Angus Armstrong, Chief Technology Officer of the Flight Centre explained how AI is already replacing certain tasks for the company's travel consultants. Similarly, AI is being adopted more widely in the legal profession. Instead of completely replacing jobs, it is enabling legal staff to focus on higher value work, rather than more mundane tasks.

Glen Willoughby of Downer agreed, that for each workforce that may be disrupted, other areas of opportunity will certainly be created.

"You don't want to get rid of all your capable people, you want to uplift them into higher value and I think that's sort of missing in lot of the public discussion about AI and automation."

Glen Willoughby, GM Information Technology, Downer

New careers are being created all the time and companies should be encouraged to develop education programmes. These programmes can teach their workforce what the future of work could look like for them and subsequently provide opportunities for re-skilling. Technology leaders should lead the discussion on the impacts of AI and automation by developing and reinforcing unified messages about how organisations and individuals can prepare for the changing face of work in the future.

CONCLUSION

From our TechLeaders Executive, a clear consensus emerged that technology leaders and industry have a role to guide and support initiatives to retrain people for the new skills paradigm brought on by technological change. This responsibility includes not only addressing the impact of automation on their own workforce, but also working with Government to help inform national policy. This will ensure New Zealand as a nation, is preparing for the future.

The development of the next generation of workers is critical. Technology leaders realise they have a role in providing guidance and inspiration for the educators of the next generation.

It is the responsibility of all New Zealand, not our educators alone, to ensure that the next generation workforce has the skills and capabilities to thrive.

It is important to highlight the range of skills needed by those working in technology. By emphasising that we need more than just technical skills, ideally, we can enable young people with a diverse set of skills to apply their talents into careers in technology.

Recommendations

The Tech Leaders Executive developed these recommendations for the Government:

Help the public understand automation

- Create and promote information directed at families, to provide context on the future to help them prepare. Also reduce fear inducing messaging about everyone losing their jobs and 'robots taking over'.

- To help Kiwi families understand what jobs will be automated create a website where an existing job role is entered for information on how likely it is to be automated. A similar initiative has been devised by the BBC in the United Kingdom.

Engage industry closer with education

- Work with industry to develop ways to promote the digital technology curricula and better engage industry and its digital employees in programmes to help support teachers and students. This could include mentoring, competitions and work experience.

- Revisit 'Career Pathways' taking into account the rapidly evolving workplace of the future and the changing skills requirements that today's students will need to be successful in tomorrow's jobs.

TECHLEADERS ATTENDING

Allan Lightbourne, Chief Digital Officer, Tauranga City Council

Andrew Cammell, Chief Information Officer, Chapman Tripp

Angela Nash, Chief Operating Office, REANNZ

Angus Armstrong, Chief Technology Officer, Flight Centre

Craig Ward, Technology Manager, Kiwi Wealth

Diane Edwards, General Manager People, Systems and Technology, Ports of Auckland

David Godfrey, Chief Information Officer, NZX

David Kennedy, Group Chief Information Officer, Transactional Services Group

Gerben Otter, Chief Information Officer, Fonterra

Glen Willoughby, General Manager Information Technology, Downer

Graeme Muller, Chief Executive Officer, NZTech

Mark Denvir, Director of Technology & Innovation, Auckland City Council

Matthew Cocker, Chief Information Officer, Freightways

Nicki Raistrick, Group General Manager Digital, Fletcher Building

Roger Jones, Chief Technology Officer, Auckland Transport

Sonya Crosby, Chief Information Officer, Sky City Entertainment

TechLeader Executive members unable to attend:

Andrew Goodin, Global Manager Information Services, Zespri

Craig Columbus, Chief Information Officer, Russell McVaegh

Dawie Oliver, Chief Information Officer, Westpac New Zealand

Keith Chilek, Chief Technology Officer, Tourism Holdings

Liz Gosling, Chief Information Officer, AUT

Matthew Cocker, Chief Information Officer, Freightways

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