InternetNZ

InternetNZ submission: Technological Change and the Future of Work Issues Paper

Productivity Commission

June 2019

InternetNZ

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1. Introduction

1.1 Thank you for this opportunity to submit on the Technological Change and the Future of Work Issues Paper (the Issues Paper).

About InternetNZ

1.2 InternetNZ is the home and guardian of .nz, providing the infrastructure, security and support to keep it humming. We help New Zealanders harness the power of the Internet through our community grants, research and policy. We are champions for an Internet that is accessible, open, and secure for all New Zealanders.

1.3 We see our role as particularly important given the Internet is now a key communication tool for New Zealanders in business, education, and in personal and social life, with 97% of us going online more than once per week[1].

We support the inquiry and Issues Paper

1.4 We support the Productivity Commission's inquiry into technological change and the future of work and commend the approach taken to ensure there is an open process with feedback and input incorporated throughout.

1.5 We have focused our feedback on the following four areas, reflecting InternetNZ's policy areas of focus:

a) General comments about the definition of technological change and framing of the Issues Paper.

b) The four scenarios for technological change and the future of work (Chapter 3).

c) The policy goals for wellbeing and the future of work (Chapter 3).

d) Digital divides and other wider issues in the Education and Skills supply chapter (Chapter 5).

1.6 We have provided recommendations throughout our submission.

1.7 We are happy to discuss any aspect of our submission with Commission officials. Please contact Ben Creet, Policy Manager, if you have any questions or would like to set up a time to meet. Ben's email address is ben@internetnz.net.nz.

2. General comments

Setting up the wider context of technological change

2.1 The Issues Paper does not discuss specific technologies or applications, beyond short case studies and examples. This technology-agnostic approach makes sense given the topic of the inquiry, and the difficulty of making accurate predictions about future of technologies and their applications.

2.2 However, without some context and description about the nature of technological changes we are dealing with (or could be facing), it will be hard to make proactive decisions—including around what skills or education changes might be needed, or the nature of the labour market.

2.3 InternetNZ thinks it would be beneficial for the inquiry to investigate expected/known changes that will likely have big impacts (for example 5G, advancements in AI/machine learning, new modes of human-computer interaction), and make a judgement whether there are appropriate capabilities and/or infrastructure investments currently being developed in New Zealand to accommodate these.

[1] InternetNZ, Internet Research 2019, <https://internetnz.nz> p 34.

Recommendation One: That, as part of its inquiry, the Commission looks at the types of technological change and disruptions that New Zealand is expected to face in the short-to-medium term, and whether we are doing enough to prepare.

The definition of technological change in the Issues Paper

2.4 The report defines technological change as "the overall process of invention, innovation and diffusion of technology or processes". While this has the benefit of simplicity, it does not separate out technologies from their applications or the business models of the firms that implement them.

2.5 For instance, in some cases, many impacts on workers are not due to an underlying technology, but the business model implemented by firms. Uber, Airbnb and Mechanical Turk are all examples of this.

2.6 The Issues Paper also does not differentiate between specific products and technologies (e.g. smartphones, autonomous vehicles), and the systems or meta-technologies that enable them to function (e.g. 5G and other internet infrastructure, massive computing power).

2.7 Parsing out the differences between technologies, business models, and underlying systems may be useful in order to better understand the impacts of technology on the future of work.

Recommendation Two: Re-define "technological change" and the way it is used throughout the Issues Paper to differentiate between underlying technologies, the applications of technologies, and the business models that are enabled by technologies.

3. Chapter three: Looking to the future

Question 1: Are the scenarios developed by the Commission useful for considering the future labour market effects of technological change? How could they be improved?

3.1 We support the development of scenarios for considering how technological change might impact future labour markets and agree that scenarios are a useful tool against which policies and institutions can be assessed.

3.2 However, we think there is room to improve the scenarios, to give a more even coverage of the possibility spaces, make a judgement of a preferred scenario, and to broaden the variables analysed. This would allow the Productivity Commission to make a more nuanced analysis of potential impacts of technological change on the labour market and the lives of workers. Further detail is provided below.

Possibility Spaces

3.3 Overall, the scenarios focus more on outcomes where there are increased rates of technological adoption. As Robert Hickson points out in his SciBlogs post, there are additional possibilities, including that technology adoption could slow but job numbers could still increase. This outcome could be the result of an increase in artisanal production, or changes to underlying infrastructure or business models which result in the creation of new jobs.

3.4 While it is understandable that the Commission is most focused on scenarios that involve an increased rate of technological change, an even-handed approach to scenarios might be expected to include other scenarios as well.

The drivers of change

3.5 The two drivers of change—"the rate of adoption of new technology" and the "net effect on jobs"—are fairly high-level. Consequently, the scenarios they produce are at risk of being too general to provide a useful test of policy options. There are other factors that the chosen drivers do not take into consideration. These include:

a) The type and quality of jobs created by technological change (although we note that the Issues Paper does talk about the changing nature of work on page 17). The Shift Commission has a good analysis of the nature of work.[2]

b) The underlying landscape, including the technological infrastructure that facilitates the creation of new technology, the regulatory environment, etc.

c) The variable impacts of technological uptake, with some technologies (such as deep learning) likely to have huge impacts while others will be comparatively minor.

3.6 Some scenario models use more than two variables. Scenario modelling that incorporates three or more variables may provide a more nuanced set of scenarios, which in turn might be more useful when testing policy options.

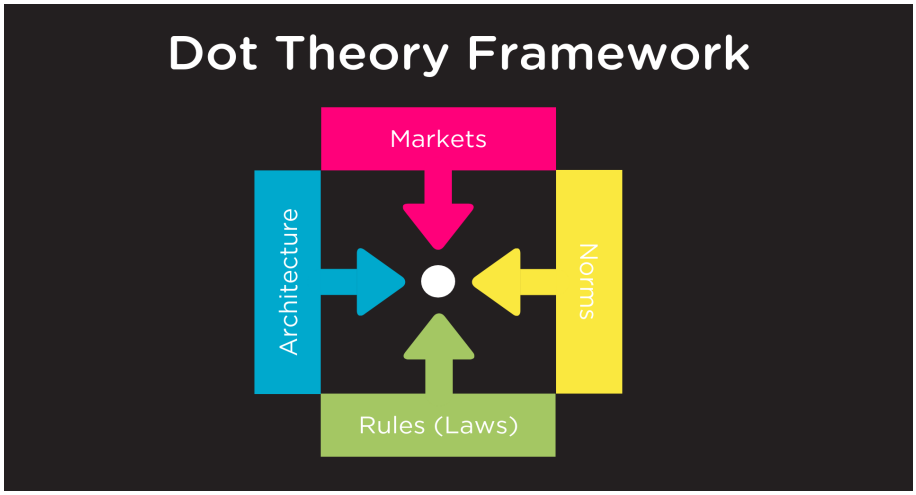
Recommendation Three: That the Commission consider incorporating three or more variables in the scenario development, or focus on different variables. Additional variables that may be worth considering include the type of work created by increased technology adoption (e.g. jobs vs tasks), and the level or pace of worker skill acquisition.

The drivers of technological change

3.7 The Issues Paper tends to frame the development of technology as an inevitable force that people, firms, and governments must decide how to deal with. However, the process of creating and implementing technology is a multi-stage and multi-stakeholder process that takes place within a specific regulatory and legislative framework. We think there is room to re-frame the discussion to acknowledge the multiple forces behind the creation of technology. This could help firms, people, and governments better understand how they can participate and intervene in actively shaping a future of work.

3.8 One framework that may be useful is the Pathetic Dot Theory (also referred to as Dot Theory), which considers how the lives of individuals are regulated by the law, social norms, markets, and architecture (or infrastructure). These four forces might provide a useful framework for understanding the factors that contribute to and regulate technological change and its impacts. An overview is shown in **Figure One**. A more detailed description is in Lawrence Lessig's book *Code: Version 2.0* (page 121). The book can be downloaded here (it is published under a Creative Commons licence).

Figure One: An Overview of Dot Theory



[2] The Shift commission: https://shiftcommission.work/

No preference given to any scenario

3.9 The Issues Paper does not specify a preferred future state scenario, although there does appear to be an implicit preference for Scenario One.

3.10 We think it would be beneficial to pick a preferred scenario, which lines up with the policy goals and wellbeing outcomes. With a preferred future in mind, workers, firms, and governments will be better equipped to work towards a desired outcome.

Recommendation Four: That the Commission specify a preferred potential future scenario. Without this distinction, there is a risk that technological change is perceived as something that "just happens", rather than something that can be shaped by a number of different tools.

Question 2: What other consequences might be expected under each scenario?

3.11 Under the current scenarios, potential consequences not covered in the Issues Paper include:

a) In the "more tech and more jobs" and the "more tech and fewer jobs" scenarios, there is a possibility that middle-income jobs will be at greatest risk of replacement by automation or AI, while the increase in jobs is due to growth in low-skilled and low-waged sectors. The World Economic Forum's 2018 *The Future of Jobs Report* discusses this likelihood on page 9.

b) In the "steady as" and "stagnation" scenarios, working conditions and environments may continue to evolve as firms evolve their policies and expectations towards employees, even without an accelerating rate of technology adoption. These changes may include more remote workers, more gig workers, and more tech-enabled small businesses.

Question 3: How might the impacts of each scenario vary across different groups in society or across different locations in New Zealand?

3.12 Under the current scenarios, the impacts will likely be highly variable across different groups and locations. These include:

a) In the "more tech and more jobs" and the "more tech and fewer jobs" scenarios, the opportunities presented by technologies like AI and automation are likely to be most available to workers with moderate or advanced digital skills. Those without digital skills are likely to face higher levels of job insecurity and to be excluded from opportunities. In addition to the groups identified in the *Digital New Zealanders: the Pulse of our Nation* report (as noted on page 37 of the Issues Paper), the Government's *Digital Inclusion Blueprint* outlines further groups that may be at risk of being digitally excluded (page 19).

b) In the "more tech and more jobs" and the "more tech and fewer jobs" scenarios, the opportunities presented by technologies like AI and automation are likely to be most available to workers with adequate access to Internet infrastructure including broadband and, soon, 5G. InternetNZ's Digital Divide Map and Broadband Map show which geographies have more and less access to the Internet and broadband. People living in areas with lower access may miss out on employment opportunities.

Question 4: How should government monitor the impacts of technological change on the labour market

3.13 The Issues Paper recommends that government take a watching brief approach to technological change, characterised by "keeping options open, collecting and monitoring information, engaging with stakeholders, delaying difficult-to-reverse decisions, real-options analysis, building flexible institutions and taking action just-in-time" (page 18).

3.14 We recognise the uncertain nature of technological change, but do not fully agree with the watching brief approach. We think there is room to take some aspects of a "traditional policy process", including setting high level objectives and goals for the future of technological

change (and actions where appropriate). This would help New Zealand actively work towards desired outcomes, rather than be a passive receiver of change.

3.15 We also note that while there is a level of uncertainty around the future of technological change and uptake, there is a body of international thinking on the future of work, including the likely skills needed, and the nature of evolving business models. This research provides reasonable grounds for the Commission to make high-level assumptions about changes in the short-to-medium term, and recommendations about what needs to be done to prepare.

Recommendation Five: That the Commission take a "hybrid approach" between the two policy approaches outlined on page 17, combining a watching brief with the setting of high-level goals and outcomes to aim for. This approach might result in a set of actions and policies that are flexible enough to change over time as technological changes occur and new circumstances arise.

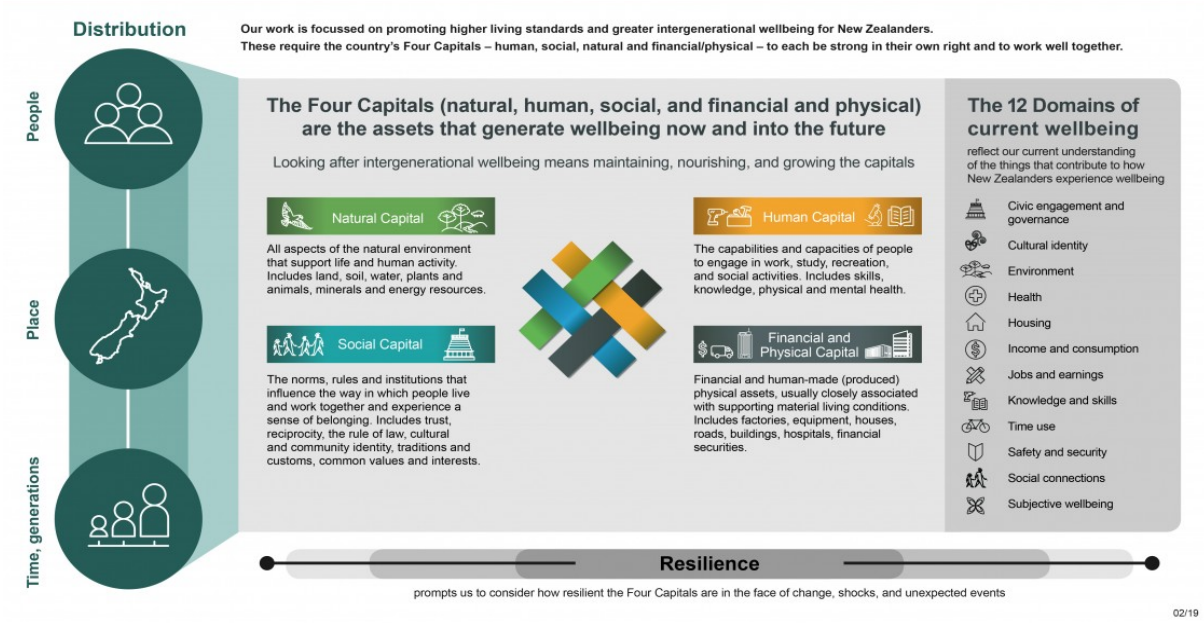
Question 5: What policy objectives should governments pursue for the labour market of the future?

Applying the Living Standards Framework

3.16 Before a set of clear policy objectives can be decided, InternetNZ considers that it is important to have an agreed high-level framework from which all policy objectives should be mapped. The Issues Paper notes that the draft policy goals are for "wellbeing and the future of work". It would be helpful for the inquiry to specify further the meaning of wellbeing in this context.

3.17 The New Zealand Government has adopted a Living Standards Framework, to better recognise non-economic concerns in policy development. This framework aims "to put sustainable, or intergenerational, wellbeing at the core of policy development and evaluation".[3] An overview of the Living Standards Framework is shown in **Figure Two** below.

Figure Two: Overview of the Living Standards Framework



3.18 While the Issues Paper endeavours to take a neutral viewpoint, we think there is an implicit employer-centric viewpoint throughout the Issues Paper. Using the Living Standards Framework could help ensure there is a full assessment of impacts across all four capitals (natural, social, human, financial and physical).

3.19 We also note that Te Puni Kōkiri and the Treasury have recently published a paper called *An Indigenous Approach to the Living Standards Framework*, which recommends that wellbeing is also looked at through an indigeneity lens that includes Te Tiriti o Waitangi, Te Ao Māori, and a whānau-centred approach.

Recommendation Six: That the Living Standards Framework be used as a tool for developing and considering policy options related to technological change and the future of work.

[3] Treasury, Our People, Our Country, Our Future: Living Standards Framework, Background and Future Work<treasury.govt.nz> ("Living Standards Framework").

Policy goals

3.20 We think that whatever policy goals are decided on should link back to the Living Standards Framework, and a preferred future scenario for the future of work.

3.21 There is an opportunity for the policy goals to include a specific focus on the nature of the jobs available for New Zealanders (beyond flexibility), including an aim for fulfilling, well-paid work.

3.22 The policy goals could be separated out into sections focusing on workers, firms and society as a whole.

Question 6: What are the potential tensions between different policy goals? How might such tensions be best addressed?

3.23 There is a tension between wellbeing of workers and achieving "best outcomes" for businesses and productivity that are inherent in the draft policy goals and the Issues Paper but not explicitly called out.

Question 10: Apart from a potential increase in gig work, what other new work arrangements are emerging, or are likely to emerge in the near-future? What are the implications of these work arrangements, and what response from government might be required?

3.24 Freelancers and contractors make up a growing percentage of workers. This group includes gig workers who access work through precarious "on-demand" marketplaces, as discussed in the Issues Paper. It also includes contractors, freelance workers and sole-traders. These workers tend to have more specialised skill sets, and they are often enabled by advances in digital technology, allowing them to find clients and run businesses outside of a traditional office environment. It could be worth differentiating between the two types of "gig work", as requirements will be different for both.

3.25 Government responses to the growing group of gig workers may include increasing labour protections, or creating programmes that help provide these workers with benefits like sick leave or retirement planning tools.

3.26 Adoption of digital technology is also creating new work arrangements for employees. InternetNZ's 2019 research indicates 65% of people say being able to work from home is a key benefit of the Internet, and many would prefer to work from home some or all of the time. However, 29% say their employer doesn't offer flexible working options. The government may consider developing incentives that encourage firms to let employees work remotely where viable — this ties in with the broad policy goal of "flexible working conditions" identified on page 18 of the Issues Paper. The planned Government-funded rollout of nationwide broadband may be another factor that provides more New Zealanders with the resources needed to work remotely.

4. Chapter five: Education and skills supply

Question 17: How well do the current outcomes from the education and skills system position New Zealand to respond to changing technology and different future scenarios?

4.1 The lack of specificity in the current scenarios makes it difficult to parse out what specific skills will be needed to respond to each future scenario, and therefore whether the skills system is working as-is. Depending on the specifics of the types of technology, infrastructure, and business models that evolve, there are a few skill categories that might be useful to consider:

a) Technical digital skills like coding and programming.

b) Technical infrastructure skills like network architecture, IT maintenance, software installation.

c) Manual/combination infrastructure skills like broadband installation, server maintenance, and electrical work.

d) Workflow and management skills like Agile methodology, product management, and project management.

e) "Soft" skills including critical thinking, problem-solving, creativity and the ability to be resilient and adaptive.

Depending on the future scenario that comes to pass, training may be needed across all these areas. The Issues Paper currently keeps its discussion of skills and education at a very high level. Further specificity in this area may help to define what kinds of training and education are necessary.

Question 18: What changes to immigration policy to address skills needs might be required under different future scenarios?

4.2 We welcome the inclusion of immigration policy within the scope of the inquiry and note that immigration is currently an important tool in dealing with New Zealand's senior high tech talent gap (see *Digital Skills for a Digital Nation*). Both now, and in the future, we see a need to preserve the ability to recruit needed skills from abroad, while also encouraging the New Zealand ecosystem to do more to onboard and develop homegrown tech talent.

Question 19: 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?

4.3 As a starting point, work to ensure all New Zealanders are digitally included will be necessary.

Question 20: What evidence is there of digital divides in New Zealand? What are the consequences for labour market participation and which groups are most disadvantaged?

4.4 Digital divides (and digital inclusion, the end state in which all the divides have been closed) is a key policy focus for InternetNZ. We have published (or supported the publication of) two papers in the last year:

a) *Solving Digital Divides Together* (InternetNZ position paper),

a) *Out of the Maze: Building Digitally Inclusive Communities Together* (written by Marianne Elliott for the Workshop, supported by InternetNZ and the Vodafone Foundation).

4.5 As noted in the Issues Paper, there is limited data about digital divides in New Zealand. Both *Solving Digital Divides Together* and *Out of the Maze* acknowledge the continued gaps in data about digital divides and those affected. Until very recently, there was no approach for measuring digital inclusion or its benefits in New Zealand. A Government-issued outcomes framework was published in late May and can be found here.

4.6 Most current thinking on digital divides and digital inclusion breaks down the issue into a number of parts—usually four—all of which are needed. InternetNZ names the four parts as capability, access, motivation, and trust. Some other organisations use the term "skills" instead of capabilities.

4.7 In May 2019, Hon Dr Megan Woods, Minister for Government Digital Services, released the Government's *Digital Inclusion Blueprint*. The Blueprint includes an overview of key data points from New Zealand and abroad (pages 11-12).

4.8 InternetNZ has been working closely with the Department during the development of the Blueprint. InternetNZ Chief Executive Jordan Carter is a Member of the Digital Economy and Digital Inclusion Ministerial Advisory Group.

4.9 We note that the *Digital Inclusion Blueprint* was released along with Government's digital inclusion Action Plan for 2019. A proposed set of questions for a digital inclusion research agenda was published for feedback in late May, as was the Government's *Digital Domain Plan*, which has digital inclusion as one of the key strategic priorities for data collection about the digital domain.

Question 21: What, if any, further measures are needed to address any digital divides in New Zealand?

4.10 Barriers to digital inclusion are multi-faceted and are felt unevenly across New Zealand. With regards to bridging digital divides, we think it will be necessary for government to provide dedicated, sustained and substantial funding. As a country, we need to fund and prioritise research and monitoring to understand what's working and track outcomes so we can work towards a future that works for firms and workers alike. The *Digital Inclusion Blueprint* and associated Action Plan are a good starting point for action from government, but there needs to be a continued, concerted effort.

4.11 InternetNZ's *Solving Digital Divides Together* position paper lists a series of recommendations for addressing digital divides on page 12, and *Out of the Maze: Building Digitally Inclusive Communities* lays out a series of potential suggestions on pages 41-49. Summaries of these recommendations are attached as **Appendix One** and **Appendix Two**, respectively.

Question 25: What programmes exist to support people to retrain, upskill or adapt to changing technology, and how effective are they?

4.12 InternetNZ funds community-based initiatives that can shape the Internet's growth, development and use to ensure all New Zealanders have the Internet access and skills needed to adapt to changing technology. Recently funded initiatives are listed in **Appendix Three**.

4.13 InternetNZ's Digital Divide Map is an interactive tool that visualises the "digital divides" that exist within New Zealand. This dynamic map may be a useful tool to gauge the impact of programmes and initiatives over time.

4.14 InternetNZ is also aware of stocktakes of existing digital inclusion programmes. For example, the 20/20 Trust hosts an online map of digital inclusion initiatives, and the Department of Internal Affairs carried out a stocktake of community-led digital inclusion initiatives in 2018. These stocktakes may provide a useful starting point for assessing gaps and allocating additional funding.

Summary of recommendations

4.15 In this paper we make the following recommendations.

a) **Recommendation One**: That, as part of its inquiry, the Commission looks at the types of technological change and disruptions that New Zealand is expected to face in the short-to-medium term, and whether we are doing enough to prepare.

b) **Recommendation Two**: Re-define "technological change" and the way it is used throughout the Issues Paper to differentiate between underlying technologies, the applications of technologies, and the business models that are enabled by technologies.

c) **Recommendation Three**: That the Commission consider incorporating three or more variables in the scenario development, or focus on different variables. Additional variables that may be worth considering include the type of work created by increased technology adoption (e.g. jobs vs tasks), and the level or pace of worker skill acquisition.

d) **Recommendation Four**: That the Commission specify a preferred potential future scenario. Without this distinction, there is a risk that technological change is perceived

as something that "just happens", rather than something that can be shaped by a number of different tools.

e) **Recommendation Five**: That the Commission take a "hybrid approach" between the two policy approaches outlined on page 17, combining a watching brief with the setting of high-level goals and outcomes to aim for. This approach might result in a set of actions and policies that are flexible enough to change over time as technological changes occur and new circumstances arise.

f) **Recommendation Six**: That the Living Standards Framework be used as a tool for developing and considering policy options related to technological change and the future of work.

4.16 Thank you for reading out submission. If you want to discuss any of the points we have raised, or recommendations we have made, please feel free to contact Ben Creet, Policy Manager on ben@internetnz.net.nz.

4.17 Yours sincerely,

Ben Creet

Policy Manager

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Appendix One: Recommendations from the Solving Digital Divides Together paper

In 2018, InternetNZ published a position paper called *Solving Digital Divides Together*. It outlines a series of ideas for how to solve digital divides in New Zealand. A summary taken from the paper's conclusion (pages 20 - 21) is outlined below.

Motivation

- Local community-based solutions, leveraging digital champions in the region to encourage uptake
- Awareness campaigns from local organisations to get their communities engaged about the benefits of the Internet.

Access

Infrastructure

- Government should be looking at the future of rural connectivity, and making a plan for the last few thousand underserviced households
- Trial satellite broadband programmes which subsidise satellite connections for rural people in need.

Affordability

- Ministry for Social Development partner with Internet Service Providers to trial subsidised Internet connections
- Housing New Zealand explore and trial cost-sharing or subsidised Internet connections for its properties
- Expand projects like Spark Jump to be more accessible for families, and open them up to families without school age children
- Trial projects that target non-school age children and adults
- Internet Service Providers should work with communities to look at enabling payment methods that work for all New Zealanders. Ensure that credit card ownership and credit checks are not barriers for Internet access.

Capability

- Collect robust longitudinal data on digital skills in New Zealand, which can be disaggregated by region, gender, age, and other indicators
- The Computers in Homes programme should be re-funded and reformulated to centre on users needs in 2018 and beyond
- Build the skills and awareness of the technical and business community to build an accessible Internet
- Build training and educational capability that is not focused on one-size-fits-all tools, methods, and skills but focuses on multiple ways to achieve specific outcomes
- The Government Web Standards should be extended beyond the Public Sector organisations to apply to other government, local government and territorial bodies (e.g. Environmental Councils, DHBs etc)
- Development of digital services must include people with accessibility needs, to ensure the Internet we are creating is built for everyone.

Trust

- Facilitate work with existing, trusted organisations such as Citizens' Advice Bureau NZ

- We recommend that additional funding is provided to CERT NZ to scale up CyberSmart Week with a focus to getting 95% of New Zealanders using two factor authentication, running regular back-ups, patching and protecting devices with PINs.

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Appendix Two: Suggestions for action on digital inclusion from the Out of the Maze report

Note: these suggestions are from pages 51 - 53 of *Out of the Maze: Building digitally inclusive communities*. The paper was written by Marianne Elliott, and Published by The Workshop in Wellington in November 2018.

Suggestions for policy makers in central government

1. Revisit the baseline for social inclusion and consider whether basic Internet in every home is today's equivalent of last century's landline with free local calls.
2. Ensure a decent standard of living for all families with children.
3. Build a high trust, high care environment for family support, and remove conditions of support that participants experience as shaming and describe as a 'maze'.
4. Reduce transience in housing and reduce energy costs through healthier homes.
5. Ensure equitable support is provided to people with disabilities, irrespective of cause, and ensure all public services are accessible to people with disabilities.
6. Provide free wifi and devices to groups and communities facing economic and other barriers to digital inclusion (could be delivered via trusted community groups).
7. Introduce evidence-based programmes that improve student's ability to evaluate the credibility of online information.
8. Make Internet safety a core part of the curriculum, including evidence-based programmes to help young people have difficult conversations with confidence and care.
9. Invest in the availability of offline services for those who will not make the digital shift or fall through the gaps.

Suggestions for local government and iwi

10. Create, in partnership with communities and excluded groups, the type of safe, welcoming and free spaces people want and will use, where people can come together to access digital devices and services, and develop the skills, motivation and confidence to use them.
11. Extend free wifi to cover more spaces which are safe and easy for people to access and to use outside of business hours, including with children.
12. Ensure all public services are accessible to people with disabilities, and people who don't have digital access - including those who choose not to use digital services.

Suggestions for communications companies

13. Design contracts that allow people to move easily between different plans, without penalty, in response to insecure work and changing income.
14. Make it easy for people to move their contracts and connections to new addresses without additional costs.
15. Provide affordable prepaid packages for mobile devices, which don't charge people without a fixed address a higher rate for data.
16. Create 'kid safe' data plans, which limit access to pre-vetted child-safe sites.

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Appendix Three: Initiatives funded by InternetNZ to bridge the digital divides

The 2018/19 Community Projects Funding Round was launched on 26 September 2018 and closed 12 November 2018. We received 42 applications for over $150k in this round. Recipients are outlined below:

Blind Foundation ($30,000)

Voice activated access to information — phase 1 implementation.

To carry out a limited roll-out of the Amazon Alexa solution for 500 users nationwide. The roll-out includes installation, training, skill support, access to resources. Support will include an introduction to user privacy and how data collection works so users can make informed decisions regarding their online activities.

Digits ($8,970)

Digital Inclusion Community Hub.

To develop a drop-in-centre pilot project in Palmerston North and to create a business study for the broad Digits Hub idea. The drop-in-centre will be the backbone of the community hub which will focus on helping the community by solving a range of digital inclusion issues.

Digital Inclusion Alliance Aotearoa ($21,000)

Building Digital Well-Being: A Community Pilot in Hutt City.

To build on Netsafe and Stepping UP resources to create and pilot a new whānau-focused digital well-being programme for delivery in libraries and community centres throughout New Zealand. The target audience will be parents who don't have the confidence to guide and support safe online experiences for themselves and their children.

Hutt City Libraries ($6,720)

Stepping Out to Grow Stepping UP, digital skills programme.

The Lower Hutt Stepping UP classes have seen a huge increase in demand — from the initial target group of older persons, to migrants, deaf/hearing impaired, people with disabilities and special needs, and non-digitally-literate adults returning to work. This grant will go towards paying for tutor time in order to increase capacity and improve sustainability.

Te Ora Hou Wellington East ($10,000)

Digital Bridge.

To connect some of the most disadvantaged groups to increase their digital literacy, by using a community-led development approach, building the leadership within the community to help their own people. This project will support local people to understand more about what computers and the Internet can do, and the positive impact this can have on their lives.

Te Aka Toitū Trust ($30,000)

Help underprivileged students with learning online.

To purchase a supply of Customer Premise Equipment dishes to connect the home with the schools Network 4 Learning network where Kawerau and Murupara decile 1 and 2 students will be able to login to a WiFi network and complete homework.

Greater Christchurch Schools' Network ($20,000)

ConnectED Aranui.

To install 66 Chorus WiFi access points on telephone poles within the Aranui area in eastern Christchurch in order to provide student Network 4 Learning access at home.

Ten Forward Technology Lounge ($5,000)

Beginner Tech Workshops for Non-Tech Adults/Seniors.

To provide free digital skill workshops on a variety of topics that older adults need help with, such as how to update apps and get emails on your phone, how to communicate with your grandchildren, how to check the bus times, how to sell things on Trademe, and even how to set up a good online dating profile.

University of Waikato – WAND Network Research Group ($20,000)

Open Source Lawful Interception (OpenLI).

To develop the software to meet requirements identified at the recent TICSA/OpenLI workshop held in conjunction with the NZ Police and National Cyber Security Centre. These include improving the internal accountability logging and security of the software, improving performance and keeping current with developing standards of the European Telecommunications Standards Institute.