



VERACITY LAB

TO EXPLORE, PROMOTE AND SUPPORT A HIGH INTEGRITY NATIONAL DIGITAL FUTURE

Within our reach: Becoming a global leader on a values-based and human-centred approach to digital technologies for a fair, just, and equitable digital future

A submission to the **Te Ara Paerangi - Future Pathways** consultation
by the Veracity Lab community.

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Executive summary

Ka oti te ao, ka piri ko te tangata ki tona ahi kā

We live at a time where—alongside the extraordinary benefits digital technologies bring—we see ample evidence that digital technologies can be and are used against its users: us. A social contract for digital wellbeing in the digital age has never been established, while our society is drifting into a digital future created by a few large, offshore organisations. Despite these confronting challenges and threats, they also present us with a timely opportunity to steer Aotearoa New Zealand towards a fair, just, and equitable digital future, and even to expand Aotearoa New Zealand’s profile as a high trust nation to a digital economy that attracts progressive digital innovation to happen here.

We make eight key recommendations in this submission to support the courageous and ambitious step of engaging all of Aotearoa New Zealand’s society in designing the values and principles for a digital future, thus letting people claim control over their digital identity, data, and actions. These recommendations have the potential to put Te Tiriti at the heart of our digital future, and position our island nation as a progressive global leader in values-based and human-centred digital technologies.

- **Recommendation 1** — Enable and empower all people, including Treaty partners, to co-design Aotearoa New Zealand’s unique identity as a digital nation, and make this co-design process transparent and continuous.
- **Recommendation 2** — Establish a first-of-its-kind, high-veracity, digital infrastructure for the nation, based on Te Tiriti, to foster agile, fair, just, and equitable digital innovation that puts citizens' and Iwi interests ahead of any tech company’s self-interests, and is respectful of and empowers a plurality (or diversity) of views and aspirations.
- **Recommendation 3** — Foster and support transformative research and development capability into values-based digital technologies.
- **Recommendation 4** — Invest in improving diversity, equity, and inclusion within a growing technology workforce.
- **Recommendation 5** — Ensure people remain in control of all their data and digital traces, and have their digital identity and assets protected, irrespective of where they use digital services, consistent with the principles of Māori data sovereignty.
- **Recommendation 6** — Establish a Ministry of Digital Affairs or other entity that becomes the custodian of the nation’s digital infrastructure and plans our digital future holistically, alongside the Data Iwi Leaders Group and across all ministerial portfolios.
- **Recommendation 7** — Ensure all decisions and actions taken in government that are subject to Administrative Law are explainable, auditable, and appealable, in real time (or as close as possible thereto), with automatic digital traceability to relevant legal authorities, available to all New Zealanders.

- **Recommendation 8** — Expand the NZ Government Digital Service Standard to include veracity principles, practices, and requirements for all government services, with independent assurance and public reporting of compliance.

Submission

Digital technologies are not inherently all beneficial, and thus a national digital strategy needs to **start from a social contract**

Digital technologies underpin an ever-increasing volume of services and activities across political, business, and social aspects of society. However, there is growing evidence—nationally and internationally—that the digital technologies underpinning these services and activities are in crisis.

The **digital technologies we depend on are predominantly developed by large, offshore organisations with near-monopolistic control**, that embed specific values in their products and services. The harmful focus on online advertising supported by digital surveillance is just one, often insidious, example. Whenever people use a digital service these days, whether they pay for its use or not, most providers of such services will also capture these peoples' digital data and traces (i.e., users' digital journeys over time) for further monetisation, often without clear, informed consent.

Many people do not understand that the underlying technology does not need them to give away control over their digital data and traces. **People have been conditioned to accept the corporate business models imposed upon them.** Our society has never discussed whether this is the sort of fair, just, and equitable business practice that we actually want to subscribe to.

The harm to human livelihoods, because of the malicious or unintended use of people's digital data and traces, is increasing at a worrying pace. Hence, the government has a responsibility to: (a) make people aware of the threats posed by technology; (b) to engage in an open and safe conversation about what Aotearoa New Zealand wants to do to protect the life of our people; and (c) to reach a social contract about how we want to achieve our wellbeing in a digital age. In line with the Public Service Act 2020 requirements, government departments must report on how they are delivering on this co-design process.

Recommendation 1: *Enable and empower all people, including Treaty partners, to co-design Aotearoa New Zealand's unique identity as a digital nation, and make this co-design process transparent and continuous.*

Providing connectivity and isolated investments into digital business **is no longer a sufficient role for government to take**

The decoupled and globally networked nature of modern digital technologies creates fertile ground for surveillance, deception, identity theft, and malicious use of information. Digital technologies have been used against our communities in a number of contexts and need to be re-tooled to enable benefits to be created for and by communities.

Without effective, secure, and resilient digital technologies, large parts of Aotearoa New Zealand's business, innovation, and public sector ecosystem are at moderate to severe risk, as demonstrated

by the effects of the recent ransomware attack on the Waikato DHB and DDoS attacks on the NZ Stock Exchange. In our professional opinion, cybercrime will be an increasing threat to all New Zealanders.

With the immense opportunities that lie in artificial intelligence (AI) comes a global arms race for who gets to capture and store the data that is needed to offer high-quality AI. **New Zealand businesses will be increasingly disadvantaged if the data that is produced as part of their operations here does not remain under their own control for further onshore value creation.** Under the current paradigm of our digital economy, New Zealand businesses need to buy back their data assets from offshore data providers, and, in the worst case scenario, are at risk of being cut off from their data if an unanticipated event disrupts the global technical or political landscape.

Critical shortcomings in the design of services relying on the Internet and the World Wide Web (such as the way data can be taken and disconnected from its original source and context) now can pose a direct threat to human livelihoods. **The openness of content creation on the Internet, for example, has brought tremendous benefits, but with it the risk of misinformation, harassment, and unsafe online spaces.** Social media has amplified these risks, making it easy for anyone with an Internet connection to reach millions of other online users. Yet, there is currently no oversight or enforcement of these digital public spaces, and we cannot rely on private corporations to do the right thing as evidenced by the recent allegations against Facebook¹.

Digital technology is used by all of society, yet it is currently designed by a tech workforce that is not representative of our society as a whole. We must pledge to participatory design of a values-based digital infrastructure to ensure our digital technologies truly are designed to include all members of society. Of course we must remain integrated with the global digital landscape, but we need infrastructure that can ensure New Zealanders are safe in the digital world.

Alongside this submission, **the wider Veracity Lab community, together with a number of indigenous collaborators, has initiated the co-creation of a discussion and consultation paper titled “Digital Whenua, Sovereignty and Rights for Aotearoa - A Te Tiriti inspired framework for public digital infrastructure, with recommendations for a fair, future-proof, extendable, adaptive & humane digital economy”.** That paper outlines how Aotearoa New Zealand could use Te Tiriti as a structural foundation for digital public infrastructure. We will carefully continue to co-develop this conceptual paper by consulting with a diverse range of communities and authoritative figures on Te Tiriti. **We invite the government to work with the Veracity Lab, communities, and other groups on this important and potentially transformative way of co-designing values-based digital public infrastructure².**

¹ <https://www.nzherald.co.nz/world/ex-facebook-employee-says-network-hurts-kids-fuels-division/WY6N5RG5XSFS2ICMW4EQIGVPFY>

² To be part of this consultation and co-design process, please get in touch with us via one of our engagement channels: <https://veracity.wgtn.ac.nz/#engage>

Recommendation 2: *Establish a first-of-its-kind, high-veracity³, digital infrastructure for the nation, based on Te Tiriti, to foster agile, fair, just, and equitable digital innovation that puts citizens' and Iwi interests ahead of any tech company's self-interests, and is respectful of and empowers a plurality (or diversity) of views and aspirations.*

New Zealand can position itself as a **leader in creating value-based, human-centric digital technology**. Moving from technology adopter to technology creator **needs strategically well-supported, diverse, local talent**.

Most technology gets developed offshore and is then applied upon us, or gets developed here and is rapidly taken offshore. This takes away our opportunity to co-design those technologies and prevents us from bringing our own values into the development process.

When thinking of the digital sphere, people often equate the US with Silicon Valley and social media giants, China with artificial intelligence and the great firewall, Europe with GDPR and the digital single market, and Estonia with eEstonia. What will people think when thinking about Aotearoa New Zealand in the digital sphere? **What is the distinct expertise and perspective we add when taking our seat at the table of global conversations on the digital future?** In putting together our digital strategy, we believe Aotearoa New Zealand should commit to being a leader in creating digital technology that puts the needs and wellbeing of society at the forefront.

We recommend that the digital strategy clearly sets a trajectory away from a “buy it, configure it, use it” mode of digital technology use, and commits to **focus on onshore digital technology research and development across all layers of the technological stack from cable to cloud**. MBIE's 2021 Research, Science, and Innovation report⁴ on the one hand touts the efficiency of Aotearoa New Zealand's university researchers in terms of publications produced per dollar invested, while on the other acknowledging that Aotearoa New Zealand vastly underspends on R&D as a proportion of GDP compared to other small, advanced economies. This comes hand in hand with a frequently demonstrated critical skills shortage in digital technology development.

There is a risk that our researchers are treating publication as an end in itself, since Aotearoa New Zealand lacks the support required to translate research into practice, beyond academic publication. More specifically, computer science and software engineering are not shown as key scientific areas where Aotearoa New Zealand is leading. Yet, **computer science and software engineering are the fundamental academic disciplines that bring about new digital technologies and are areas where New Zealand researchers are world-class** as demonstrated by academic performance indicators such as the

³ The Veracity Lab community understands the term 'veracity' to mean the degree of trust, truthfulness and authenticity in the whole variety of interactions and transactions that occur in the modern digitised world.

⁴ <https://mbienz.shinyapps.io/research-science-innovation-report/>

Performance Based Research Fund (PBRF). We need to invest in these areas so that we can be seen as global leaders, attract and retain talent, and develop cutting-edge technology that aligns with the values of Aotearoa New Zealand.

Aotearoa New Zealand also needs to commit to increasing the diversity of those working within our tech sector. Only 8% of our tech workforce are Māori and only 5% are Pasifika.⁵ Women make up only 23% of the tech workforce in New Zealand.⁶ **The lack of diversity in our tech workforce may further embed inequities within technologies integral to society, failing to protect these underrepresented groups.** When digital technologies are created by diverse teams, the technology itself is more inclusive since more diverse perspectives are considered in its creation.

The digital strategy needs to both recognise the challenge of ensuring a diverse, inclusive, and equitable tech workforce and have clear directions on how New Zealand can be world leading in this regard. This must include strategies to both increase the pipeline of talent through extended opportunities and education and also on retention of diverse talent by ensuring the sector is inclusive and welcoming of diverse perspectives.

Recommendation 3: *Foster and support transformative research and development capability into values-based digital technologies.*

Recommendation 4: *Invest in improving diversity, equity, and inclusion within a growing technology workforce.*

The global digital landscape **remains a world with borders**

Of course, we recognise that New Zealanders will still rely on digital technology that is developed outside of Aotearoa. Likewise, technologies developed here need to interoperate with or complement other services in the global digital landscape. The digital strategy therefore also needs to **ensure New Zealanders are protected as best possible while using offshore services outside our direct control.** This will also involve ensuring transparency of what, where, and how data is stored so that consumers can make educated decisions when sharing their data.

Part of our digital strategy should involve a **commitment to high-quality standards and protocols for services that are hosted onshore.** This could make NZ an ideal place to host high-velocity applications. Our values-based digital infrastructure can give guarantees other countries cannot provide, so users can feel safe. This can create additional business potential and drive digital innovators here to work in this unique environment.

Recommendation 5: *Ensure people remain in control of all their data and digital traces, and have their digital identity and assets protected, irrespective of where they use digital services, consistent with the principles of Māori data sovereignty.*

⁵ <https://www.computerworld.com/article/3567095/it-snapshot-ethnic-diversity-in-the-tech-industry.html>

⁶ <https://files.myob.com/news/MYOB-women-in-tech-report-2018.pdf>

Digital concerns of national strategic scale need **purposeful and actionable goals and measures of success**

Our submission is a call to action regarding the significant threats that digital technologies pose to the livelihoods of our people. The COVID-19 pandemic highlights the need for a cross-government and cross-agency response in terms of data infrastructure and data logistics, to ensure that data can be made available for critical decision making in near real-time. We feel that similarly **a national, coordinated response is required, before principles such as truth, fairness, and democracy on which our national sovereignty is based are catastrophically eroded.**

This principle should be applied to all digital concerns so that digital initiatives are designed with an all-of-government mindset, and not just optimised towards individual departmental KPIs. Innovations such as StatsNZ's Integrated Data Infrastructure, have already demonstrated international leadership on how to develop and maintain high-integrity, cross-sectorial digital systems. **An individual governmental entity is required that does not just regulate but also innovates to increase national digital agility and independence.** This independence is required to develop strategy and regulation that ensures New Zealanders will live well in their digital future. This dedicated governmental entity is also required to ensure that all departments publish publicly their algorithmic transparency procedures, processes, and operational approaches, and that all decisions and actions by the government are explainable and available to citizens. **This agency should also always have as its starting point a social contract, not a technological one.**

Recommendation 6: *Establish a Ministry of Digital Affairs or other entity that becomes the custodian of the nation's digital infrastructure and plans our digital future holistically, alongside the Data Iwi Leaders Group and across all ministerial portfolios.*

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