NZTech

TECH ALLIANCE

BRIEFING PAPER
FOR INCOMING MINISTER

Creating a socially and economically prosperous New Zealand underpinned by technology

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BRIEFING TO INCOMING MINISTERS

Creating a socially and economically prosperous New Zealand underpinned by technology.

This NZTech briefing paper provides a high-level aggregation of the various interactions NZTech and the Tech Alliance currently has across Government and highlights recommendations for action in the immediate and midterm.

INTRODUCTION

NZTech welcomes you as Ministers within New Zealand's tech ecosystem.

As a Minister that is a technology stakeholder, your portfolio represents a substantial opportunity to make a transformational contribution to grow and diversify the New Zealand economy out of COVID-19 in a sustainable and socially beneficial way. The opportunity is significant and will pay dividends for years to come.

The government has proactively taken steps through Industry Transformation Plans, investment in infrastructure, the Digital Council for Aotearoa New Zealand and of course, the new Digital Economy and Communications portfolio.

Given the chair of NZTech also chairs the Digital Council for Aotearoa New Zealand, we believe we can act as a trusted technology adviser and enabler.

Whether it is technological education to help those in need of retraining or assisting SMEs to build resilient businesses with global reach, technology is playing a critical role as an enabler. In health, public infrastructure and primary production the role of technology is transformational by optimising resources and creating new business models. In the coming years, the way we approach artificial intelligence, data ownership, identity and equity with define New Zealand for generations. New Zealand tech businesses can be part of the delivery because as New Zealanders we understand our people and unique culture.

We would welcome the opportunity to work with you because we are your bridge between the private and public sectors. With the New Zealand Tech Alliance, we provide you with a willing partner, which has representatives from central and local government, private enterprise and NGOs.

Graeme Muller
Chief Executive
NZTech

NZTECH's ROLE IN NEW ZEALANDS TECHNOLOGY ECOSYSTEM

1. Technology is a major COVID-19 proof economic contributor

In 2019, the tech sector employed 114,000 people or around 4 percent of the employed labour force. It created 2,148 new jobs and generated 555 new companies. The country's 200 largest tech exporters generated overseas sales of $8.7 billion with annual sales growing around $1 billion a year.

The sector is resilient and throughout COVID-19 the majority of firms have continued trading, providing support and services across the New Zealand economy, exporting and creating jobs across New Zealand.

2. NZTech is your peak-body for New Zealand's technology ecosystem

NZTech is the peak body for the tech ecosystem and is a not-for-profit membership-based organisation, drawing its members from the private and public sector. We connect tech ecosystems, organisations and people to create a coordinated national voice for technology. We furthermore support the New Zealand Tech Alliance, described in the appendix, which comprises not-for-profit organisations representing 20 tech associations across the public and private sectors that represent over 1,500 organisations which, collectively, employ more than 100,000 New Zealanders.

3. NZTech partners with ministers, departments and agencies

NZTech's work with government focuses on ensuring the essential elements for creating a technically advanced nation are in place, including high levels of connectivity, infrastructure, cybersecurity, digital education, regulation, talent development and trade. The major portfolios that NZTech and the Tech Alliance engage with include:

- Agriculture (including Fisheries and Forestry)
- Biosecurity
- Broadcasting, Communications and Digital Media
- Commerce and Consumer Affairs
- Defence
- Digital economy and communications
- Economic Development
- Education
- Environment
- Finance
- Food Safety
- Health
- Justice
- Internal Affairs
- Land Information
- Research, Science and Technology
- Revenue
- Statistics
- Trade and Export Growth

4. NZTech and MBIE Digital Technology Industry Transformation Plan (ITP)

A thriving digital ecosystem is a necessary prerequisite for a more productive, sustainable and inclusive economy. The digital technology Industry Transformation Plan (ITP) is joint work between MBIE and NZTech. This articulates an agreed vision for the digital technology sector for how it can underpin a more productive, sustainable and inclusive economy and society towards 2050. NZTech believes there is scope for a logical evolution of the ITP into a Digital New Zealand Strategy informed by Digital Council for Aotearoa New Zealand work programme.

5. NZTech (through AgritechNZ) and the All of Government Taskforce on the Agritech ITP

New Zealand can lead the world with a globally competitive agritech ecosystem, producing ingenious value-adding companies that provide meaningful jobs, solving New Zealand and the world's sustainability challenges. We stand alongside our primary sector partners in a vision of developing production systems fit for a better world and in doing so creating new value around the world. Agritech New Zealand acted as the key sector interface with the government's agritech taskforce, in the creation of the Agritech Industry Transformation Plan. This plan initiated several High Impact Projects and a broader ecosystem development plan, which is now driving industry action. Key activities are included throughout this briefing.

TECHNOLOGIES SOCIAL, CULTURAL AND ECONOMIC CONTRIBUTION

6. Technology welcomes the Digital Economy and Communications portfolio

An expanded portfolio over the previous Government Digital Services is welcome as is the Hon Dr Clark being both the Minister of Commerce and Consumer Affairs as well as the Minister of Statistics. There is a natural crossover between the digital economy and these other portfolios. It presents a considerable opportunity to advance Financial Technology, Education Technology, Artificial Intelligence, Blockchain as well as Digital Identity. NZTech would like to see this portfolio eventually expanded into one called 'Technology,' by adding hi-tech manufacturing and biotechnology, for example. This respects the natural division between Research, Science and Innovation, a separate portfolio and what is essentially applied technology.

A joined up approach to technology should accelerate and improve the application of technology for New Zealand's benefit. To gain benefits from digital trade, the digital transformation of businesses, the education and enablement of digital citizens and economic growth from technology exporters, sound foundations will need to be in place. These foundations include such things as the consistent local production of people with advanced digital skills, open data and standards, digital identity, cyber-security, more transparent and efficient Government technology, and capital willing to invest in technology. The combination of the new Digital Economy and Communications, Statistics and Commerce and Consumer Affairs portfolios provide the opportunity for more joined up thinking to some of these opportunities.

7. A review of immigration settings is imperative

As there is an immediate COVID-19 bottleneck within Immigration NZ, we ask Ministers to urgently consider current settings with a view to allowing more rapid entry of targeted candidates with critical advanced digital skills. This is affecting inward technology investment while starving the economy of critical skills that are needed now:

ACTIONS: NEXT 100 DAYS	ACTIONS: NEXT 1,000 DAYS
⇒ **An immediate border exemption for non-citizens granted visas before border closures** with at least 50 Managed Isolation and Quarantine (MIQ) places per day reserved for skilled migrants needed by technology and other economic contributors. ⇒ **A separate and expedited Immigration NZ approvals process** for technology investors and migrants with in-demand technology skills.	⇒ **Verify Immigration NZ's Long-Term Skill Shortage List** by way of a technology skills audit of returning New Zealanders and permanent residents using passenger arrival card data and quantitative research. ⇒ **A dedicated Technology Skill Shortage List (TSSL)** identifying occupations needed in particular regions, to support economic growth, the Industry Transformation Plan, education and other initiatives.

8. Strategy and standards are vital to realise digital potential

The realisation of our digital potential will come from the 'why' not the 'how'. To be really impactful the 'why' should be a shared aspiration. To develop a shared 'why' we need to understand where we start and the direction we would like to travel together. There is a fundamental lack of data on the current digital state resulting in no shared targets or direction of travel. For example, even though Government purchases 29 percent of New Zealand's ICT there is no measurement or tracking of this purchasing and no aggregated view, making it difficult to maximise its impact. With clarity of data and direction, standards will also support industry-led innovation:

ACTIONS: NEXT 100 DAYS	ACTIONS: NEXT 1,000 DAYS
⇒ **Launch a Digital NZ Diagnostic** to create baseline metrics to inform policy development, the Digital Council for Aotearoa New Zealand work programme and the eventual Digital New Zealand Strategy. This would include measures of readiness, culture, capability, capacity, productivity, growth and inclusion. Refresh, enhance and expose work by Statistics New Zealand on a Digital Domain Plan as the starting point for a Digital NZ Diagnostic. ⇒ **Expedite the Digital Identity Trust Framework** to provide a Government endorsed framework so industry can confidently start developing solutions. ⇒ **Expedite Consumer Data Rights** following consultation that closed in October 2020. ⇒ **Launch the development of a National Artificial Intelligence strategy** to support the transformation of the digital technology sector and the economy as a whole, as a core pillar of the ITP.	⇒ **Implement the Digital Technologies Industry Transformation Plan** delivered as a partnership between NZTech and MBIE. The ITP focus is on cross cutting foundations such as data, skills and the tech story to enable transformational growth from AI, Maori tech success and increased export. ⇒ **Ensure digital emphasis to NZTE Regional Business Partners programme** to support SMEs that are ready to go with digital take-up, digital trade, e-commerce, Open Data opportunities and cybersecurity. This would be funded in Budget 2021/22. ⇒ **Ensure alignment with International Standards Organisation** and/or new AS/NZS for coding, API's and specifications relating to cybersecurity, blockchain, cryptography, cloud computing, Internet of Things, emergency management and content technologies. ⇒ **Implement the national Artificial Intelligence strategy** delivered as a partnership between NZTech (through the AI Forum) and MBIE, Statistics NZ and other agencies as part of the ITP including public education to ensure it builds and maintains a social license. ⇒ **Ensure alignment with industry collaborations on agri-data interoperability** being driven by NZTech (through AgriTechNZ) as part of the Regulations and Standards workstream in the Agritech ITP. ⇒ **Establish a Technology Branch within MBIE from 2022/23** to take ownership of cross cutting policy, skill development, funding/grants and the international promotion of New Zealand tech. The technology branch would also support non-digital technologies, such as biotechnology, creative tech and engineering technology. ⇒ **Launch the first Digital New Zealand Strategy** in 2022/23 for release in Q1 2023 and to be reviewed five-yearly. The first

strategy would be informed by the ITP, the first two years of the Digital Council for Aotearoa New Zealand and the Digital NZ Diagnostic:

- Digital infrastructure
- An end to digital poverty
- Skills and training
- Digital business start-up support
- SME Digital enablement
- Cybersecurity
- Open Data
- Regulatory enablement
- Digital government and procurement
- Global marketing and promotion
- Digital identity and trust
- The digital social license

The Digital NZ Strategy would be funded in Budget 2021/22 and start after the release of the Infrastructure Commission's (physical) Infrastructure Strategy (September 2021). The Digital NZ strategy could inform Budget 2023/24 spending decisions.

⇒ **Form a Technology Portfolio** potentially from 2023/24 that incorporates Digital Economy and Communications with data, cyber security and non-digital technologies in an integrated technology ecosystem.

9. Boosting education and skills

There is a pressing need to reduce medium and long-term dependency upon immigration while providing skills at all levels. Since the introduction of the ICT Graduate School there has been a 30% compound annual growth rate in students graduating with post-degree IT qualifications helping meet the needs of the tech sector whose skills shortages are for experienced advanced specialists. The majority of these graduates have been reskilling from other careers or qualifications. However, budget 2019 terminated funding for the ICT Graduate Schools. It is vital that this is reversed by extending its funding to June 2021 and allowing the ICT Graduate Schools to be reviewed and restructured. Declining participation of domestic students in NCEA technology standards and tertiary information technology courses. A cross agency coordinated approach is needed to boost the development of local talent, including better promotion of future career opportunities and new education to employment integrated pathways such as Technology Apprenticeships:

ACTIONS: NEXT 100 DAYS	ACTIONS: NEXT 1,000 DAYS
⇒ **Immediately extend ICT Graduate School Funding** to 30 June 2021 to prevent their closure at the end of 2020. ⇒ **Announce Technology Apprenticeships** to be piloted as part of the ITP. Commencing with Digital, these would target school leavers while providing in-employment retraining opportunities. Pilot with Ngai Tahu in the South Island and the Pasifika community in South Auckland.	⇒ **Review ICT Graduate School** governance, structure and objectives before a potential multi-year appropriation from Budget 2021/22. ⇒ **Extend Digital Boost to build SME digital skills capability** by dedicated training programmes to be delivered via the NZTE Regional Partners Network and/or virtually. Funded from Budget 2021/22, this would offer basic, intermediate and advanced skills to SMEs.

⇒ **Form a taskforce to scope Kaupapa Māori and Pasifika technology insights** to inform school, post-school and commercial/cultural opportunities to create a unique New Zealand technology ecosystem.

⇒ **Initiate a COVID-19 education technology review** to identify gaps and opportunities for seamless remote learning for primary, post-primary and tertiary education. This would address skills, human resource, technology, equipment and other gaps within school and home environments whilst also better exposing New Zealand developed edtech better to the New Zealand education system.

⇒ **Expand technology micro-credentialisation as 'fees free'** there is scope to increase the range of microcredentials that supports technology skill adoption to quickly qualify retraining workers that may not need to commit to full traditional degrees.

⇒ **Extend Technology Apprenticeships** to other aspects of technology aligned with career pathways such as creative tech / game development.

⇒ **Develop primary industry digital enablement plans** as part of the Agritech ITP Skills workstream.

⇒ **Deploy Kaupapa Māori and Pasifika technology findings** to unlock non-western tech approaches; from digital to biotechnology. This builds upon school, non-school, community and marae imbued connectivity to build a uniquely New Zealand ecosystem and promote Pasifika and Māori participation in the tech economy.

⇒ **Review the promotion and delivery of technology in schools** to redress falling participation in NCEA technology standards and haphazard uptake of the Digital Technologies and Hangarau Matihiko (DT) curriculum across New Zealand schools.

⇒ **Develop a roadmap to end digital poverty** within New Zealand by resourcing digital education for schools and students in home environments along with digital proficiency within teacher training and professional development.

10. Unshackling biotechnology and agritechnology

We remain locked in the early 2000s with respect to the regulation of genetic technologies while nutraceuticals/pharma face issues highlighted by medicinal cannabinoids. These impede value-adding and transformational biotechnology with entities leaving New Zealand to work in genetic modification, gene editing and gene-silencing, despite the enormous potential it has to solve wicked problems such as climate change, waste reduction and cancer treatment. Regulatory reform need has been advanced by industry, the Royal Society and Professor Gerrard; the Prime Minister's Chief Science Advisor:

ACTIONS: NEXT 100 DAYS	ACTIONS: NEXT 1,000 DAYS
⇒ **Announce a Government Inquiry** into the regulation of genetic technologies in concert with Cabinet colleagues (Agriculture, Forestry, Oceans and Fisheries, Science, Research and Innovation, Environment and Māori Development).	⇒ **An amendment Bill to the Hazardous Substances and New Organisms Act 1996 (HSNO)** to enable genetic technology research for commercial application within New Zealand.
⇒ **Implement the AgriTech Industry Transformation Plan** delivered as a partnership between NZTech (through	⇒ **Review regulatory impediments** to the development and manufacture of

	nutraceuticals, pharma and animal remedies within New Zealand.
AgriTechNZ) and the all of government agritech taskforce.	⇒ **Open access summaries of IP** owned by CRIs, SOEs, tertiary, agencies and departments to overcome knowledge barriers and to enable domestic and international partnerships to realise and accelerate the commercialisation of IP in partnership with the public sector.

11. Funding, capital depth, R&D, promotion and taxation

Less than 10 percent of software research and development (R&D) investment that has been enabled and supported via the Government's R&D Growth Grants for the past five years will be eligible for the new R&D tax incentive due to definitions for eligibility. Many of New Zealand's largest investors in R&D are software companies who are have had to planning on reduction in their investment in R&D from March 2021 and the consequent release of large R&D teams onto the market prior to that date. A review of the new R&D tax incentive regime and its impact and potential unintended impacts is necessary as is an interim solution to avoid completely throwing the brakes on New Zealand's software R&D.

Government has tried hard to remedy a lack of capital depth to support tech start-up and retention but there is also a pressing need for Series C investment for mid-stage companies (or small/mid-cap if on the NZX). The $300 million Elevate NZ Venture Fund represents an important start for tech, but this is likely to be heavily over-subscribed while biotech's elongated development timescale is not well catered for in New Zealand:

ACTIONS: NEXT 100 DAYS	ACTIONS: NEXT 1,000 DAYS
⇒ **Extend the Callaghan Innovation Growth Grants** for software R&D for an additional year, or introduce a software development grant to allow time for a full review of the R&D Tax Incentive regimes impact on software R&D.	⇒ **Create a standalone technology investigator-initiated research fund,** by recognising that the Marsden Fund is ill-suited to technology. This new fund would have a multi-disciplinary panel comprising digital/information technology, engineering, and biotechnology.
⇒ **Explore ElevateNZs evolution into an internationally significant fund beyond Series A and B investment,** with Treasury, MBIE, Callaghan Innovation, and the NZ Super Fund. This would focus primarily on Series C funding for successful mid-stage tech businesses. ElevateNZs evolution could take advantage of overseas investment dislocation to attract prospects and talent: • A new Series C investment fund for mid-stage tech companies. • Enlarged ElevateNZ Series A & B funding. • A new specialist biotech Series A and B sub-fund.	⇒ **Endow evolved ElevateNZ at international scale,** circa USD2 billion, with its global launch synchronised with regulatory, skills and immigration reforms to spark a paradigm shift.
	⇒ **Maintain and grow the levels of agritech funding** focus in the Elevate NZ Venture Fund and others funds.
	⇒ **Invest in the Tech Story, an ongoing international technology marketing campaign** led by MBIE and NZTE in partnership with industry. This would feature ease of doing business, ease of regulation, lifestyle and New Zealand's simple tax regime. It could be augmented by HSNO Act amendments and/or evolved ElevateNZ investment fund(s).
	⇒ **Review the Taxation (Research and Development Tax Credits) Act 2019** at the start of 2021 to ascertain the impact of the

	Frascati approach, eligibility definitions and implementation of the Act on software R&D.
	⇒ **Maintain and promote New Zealand's simple corporate tax regime**, which is considered an asset compared to other jurisdictions.

12. Better integration of IT across local and central government

Sense Partners (2020) estimates that New Zealand's infrastructure shortfall may be as high as $75 billion in 2019; equivalent to around 25 percent of GDP. This does not include planned works and highlights the fundamental role that digital technology and artificial intelligence could play in forecasting, modelling, delivery and operation of infrastructure. It furthermore includes health, which in 2020, broke the $20 billion mark for the first time in Budget 2020.

ACTIONS: NEXT 100 DAYS	ACTIONS: NEXT 1,000 DAYS
⇒ **Embed specific New Zealand targets and measurements** into the Rules of Procurement to better ensure support of New Zealand technology. Do NOT extend the Rules of Procurement out into local government as they currently stand as this will push out a culture of work arounds and exceptions as well as barriers for participation for small businesses and Maori businesses.	⇒ **Embed New Zealand preference** in All of Government (AoG) and individual Agency and Department technology procurement by updating the Rules of Procurement to ensure genuine opportunities for New Zealand's domestic tech sector to grow its capacity and capability. This can be done within agreed trade rules with mechanisms such as contribution to New Zealand requirements. For example, cohort bids including SME delivery partners or number of local jobs.
⇒ **Explore a national patient health information system** that is common to public (DHBs), PHOs and specialists, which would end a paper-based records system within the hospital system and its risks therein. Centred on National Health Index numbers this would see digitisation of records to improve health and wellbeing outcomes at best economic cost.	⇒ **Explore a nationally uniform infrastructure forecasting and management system** arising from the 30-year infrastructure strategy across all infrastructure classes using artificial intelligence to aid and model decision support at both local and central government. This should be developed as a private public partnership led by industry with the support of the Infrastructure Commission.

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NZTech

TECH ALLIANCE OVERVIEW

Creating a prosperous New Zealand

underpinned by technology

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InsurTechNZ
WealthTechNZ
EdTech NEW ZEALAND
FinTechNZ
New Zealand IoT Alliance
LocationTech
DIGITAL IDENTITY .NZ
TECH LEADERS EXECUTIVE.
BLOCK CHAIN NZ
TECH ALLIANCE
forum NEW ZEALAND
Te Kāhui Atamai Iahiko o Aotearoa
techwomen
BIOTECH NEW ZEALAND
Agritech NEW ZEALAND
NZTech
techweek
Tech Marketers

AFFILIATE GROUPS

CULTIVATE IT
Canterbury Tech
NZ HI-TECH AWARDS
nzsa
NZGDA NEW ZEALAND GAME DEVELOPERS ASSOCIATION
NZHiT Enabling a Healthier New Zealand

20	1,543	10%
TECH ASSOCIATIONS	MEMBERS	OF THE WORKFORCE

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