

EMERGING TALENT NETWORK ESSAY COMPETITION 2020 WINNER: KATE SLATER, RUSSELL MCVEAGH

THE DIGITAL FUTURE OF INFRASTRUCTURE

Seizing the COVID-19 crisis requires a fundamental change to New Zealand's approach to infrastructure. To build back better, and to look to the future, New Zealand must prioritise digital infrastructure. Digital infrastructure is the technology, equipment and systems that connect people and communities with data, products and services.¹ This includes mobile spectrum, the internet of things, cloud services and data centres. This essay will explain the importance of digital infrastructure, and discuss strategies for using digital infrastructure to drive the COVID-19 recovery with reference to Infrastructure New Zealand's five pillars framework.

Why pivot to digital?

Digital infrastructure has been critical to the national economy during the lockdown as New Zealanders have moved to working, interacting and consuming remotely, and this form of infrastructure will be increasingly important going forward. A recent report by McKinsey shows that, due to COVID-19, the adoption of technology advanced five years in eight weeks.² The allocation of resources, including stimulus funding, in the COVID-19 recovery needs to reflect this shift to digital.

Just as digital capability was a key determinant of businesses success during the lockdown periods,³ investment in digital infrastructure can be the differentiator that drives New Zealand's success during the economic recovery. Technology is already the fastest growing export sector and New Zealand has ambitions of growing a digital economy "where our people, businesses and government are all using technology to drive innovation, improve productivity, and enhance quality of life for all New Zealanders."⁴ Digital infrastructure projects generate significant spillover benefits, for example creating the platforms that allow entrepreneurs to build and scale technology business that will contribute to New Zealand's gross domestic product.⁵ Advanced digital infrastructure is also likely to attract foreign investment as New Zealand builds a reputation as a digital hub where international businesses benefit from collaboration and connectedness. These spillovers and synergies mean that benefits of digital infrastructure investment accrue to the private sector and the economy more broadly which increases the value of digital infrastructure investment from a government perspective. Digital infrastructure can also increase productivity, considered New Zealand's biggest economic challenge,⁶ as businesses increase efficiency through improved technology.

Some governments, including Australia's, have already begun this pivot by directing funding to digital infrastructure initiatives.⁷ To capitalise on the early-mover advantage, New Zealand needs to immediately prioritise digital infrastructure investment. Singapore provides a useful example of a country that has benefited from a focus on digital infrastructure. Singapore launched the Smart Nation initiative in 2014, which aimed to "put in place the necessary infrastructure and policies to build capabilities and a supportive ecosystem, so that people and companies can take full advantage of the digital revolution". Singapore has subsequently ranked No 1 in the world on the Network Readiness Index⁸ and has a consistently high GDP per capita.⁹

Digital infrastructure is also more climate resilient than traditional infrastructure because digital infrastructure assets often do not have a fixed physical location (ie satellite broadband or mobile spectrum) and their asset life can be relatively short, allowing more resilient assets to be deployed as part of the replacement cycle.¹⁰ Digital infrastructure is less likely to be damaged by severe weather events or natural disasters, or to be left behind during a managed retreat. Investing in digital infrastructure will also mean New Zealand is more prepared in the event of future pandemics or crises that require a return to remote work and education.

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The digital sector is poised for growth

In New Zealand, digital infrastructure, like traditional infrastructure, has suffered from historic underinvestment, however digital infrastructure has not benefited equally from the recent influx of investment and attention. This may be because New Zealand lacks a government agency with a digital infrastructure mandate comparable to the New Zealand Transport Agency's role in roading projects or the Ministry of Education's mandate for building schools, or that digital infrastructure does not easily fit within existing perceptions of value. Delivering a digital infrastructure project may not earn a government as many votes as a new hospital or railroad because digital infrastructure is often intangible or out of public view.¹¹ It is also harder to quantify the economic benefits of digital infrastructure, particularly 'pure' digital infrastructure that is intangible, which can make building a business case more difficult. As outlined above, this does not mean digital infrastructure is not worth investing in, only that investment policies may need to be reviewed in light of new digital business models and digital assets.

Nonetheless, New Zealand's technology sector has experienced record growth over the last decade and is now the fastest growing sector.¹² New Zealand is well-situated to capture the benefits of digital infrastructure investment due to the relatively stable and accommodating regulatory environment and an appetite for infrastructure investment more generally.

Investing in digital infrastructure to build back better

New Zealand's digital infrastructure investment strategy can be built on the five pillars of: vision, leadership & governance; long term integrated plans; delivery, capability & capacity; laws, regulation, culture & incentives; and funding & financing.¹³

A first step will be to clarify responsibility for digital infrastructure leadership and governance. There are no shortages of agencies with the capability to take on this mandate, including the Infrastructure Commission, the Government Chief Digital Officer, or the Ministry of Business, Innovation and Employment (which has a Digital Economy team). Alternatively, the private sector and industry bodies may have a greater role in driving digital infrastructure strategy. Developing digital infrastructure is likely to involve greater public-private collaboration, in leadership, capability and funding, compared to traditional infrastructure, because digital expertise is less centralised.

Long Term Integrated Plans are required to provide a pipeline of digital infrastructure projects. A cohesive nationwide digital infrastructure investment strategy will also prevent or mitigate digital exclusion, where New Zealanders do not have equal opportunities to participate in society using digital technologies.¹⁴ Such inequalities are exacerbated during the COVID-19 pandemic where New Zealanders are reliant on digital infrastructure to work, study and connect. Government involvement will be necessary to procure digital infrastructure investment in underserved areas that may not be profitable.

Increasing private sector involvement at the governance level can be expected to flow through to delivery and funding. This has been the case for many of New Zealand's existing digital infrastructure assets, which have largely been entirely private sector funded and managed projects, such as Microsoft and Datacom's investments in data centres or the Southern Cross fibre optic cable. Prioritising digital infrastructure is likely to increase the proportion of total national infrastructure that is privately funded and/or owned. While private sector involvement can be beneficial in terms of the increased access to funds for infrastructure projects, it must be counterbalanced by comprehensive regulation. Digital services are, increasingly, viewed and used as utilities, akin to water and electricity, it follows that a similar model of regulation should apply.

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Digital infrastructure, in many ways, requires a fundamentally different approach to traditional infrastructure and there are many factors to consider when planning, funding and delivering digital infrastructure projects. These are issues that need to be answered now because digital infrastructure investment will improve productivity, employment and economic growth.

In conclusion, while New Zealand's COVID-19 recovery should indeed be infrastructure-led, the type of infrastructure projects that will fuel economic recovery in 2020 will not be the same as those that were successful in the 1930s. Today it is digital infrastructure that is key to building back better.

Footnotes

- 1 NSW Government "Public Digital Infrastructure" (29 July 2020) <www.digital.nsw.gov.au>.
- 2 Amer Baig, Bryce Hall, Paul Jenkins, Eric Lamarre, and Brian McCarthy "The COVID-19 recovery will be digital: A plan for the first 90 days" (14 May 2020) McKinsey & Company <www.mckinsey.com>.
- 3 IBM and the Trans-Tasman Business Circle "Let's Rethink How the World Works: Embracing Opportunity in a post-Covid-19 World" (June 2020) <www.ibm.com>.
- 4 Ministry of Business, Innovation & Employment "Digital economy" <www.mbie.govt.nz>.
- 5 Jonathan Haskel and Stian Westlake Capitalism without Capital: The Rise of the Intangible Economy (Princeton University Press, Princeton, 2017).
- 6 Treasury "Productivity" (25 February 2019) <www.treasury.govt.nz>.
- 7 Phillip Coorey "Business to get \$800m in government's digital push" Australian Financial Review (online ed, 29 September 2020)
- 8 Digital Inclusion Research Group "Digital New Zealanders: The Pulse of our Nation" (May 2017) Ministry of Business, Innovation & Employment <www.mbie.govt.nz>
- 9 World Bank "GDP per capita" <data.worldbank.org>
- 10 E. Fryer "Digital infrastructure: And the impacts of climate change" (2017) 11 Journal of the Institute of Telecommunications Professionals 8
- 11 Ernst & Young "Lifting our gaze: Making broader outcomes a reality in the delivery of major infrastructure projects" New Zealand Infrastructure Commission — Te Waihanga (January 2020) <infracom.govt.nz>
- 12 Technology Investment Network "The Investor's Guide to the New Zealand Technology Sector" (2019) Ministry of Business, Innovation & Employment <www.mbie.govt.nz>
- 13 Infrastructure New Zealand "Strategic Plan 2020-2023" (March 2020) <www.infrastructure.org.nz>
- 14 Digital Inclusion Research Group "Digital New Zealanders: The Pulse of our Nation".