

# **Solve ambitious, hard problems**

Submission from Jim Donovan to the New Zealand Productivity Commission  
in response to its draft report:

**New Zealand firms: Reaching for the frontier**

February 2021

## Introduction

This submission is made by Jim Donovan in response to the draft report “New Zealand firms: Reaching for the frontier”, published in December 2020 by the New Zealand Productivity Commission.

I am a Chartered Fellow of the Institute of Directors with wide experience in technology-based businesses, pan-industry bodies (manufacturing, infrastructure, and governance), and the public sector (including economic development groups, the Tertiary Education Commission, and REANNZ Ltd - the specialist high performance telecommunications network serving the research and education sector). I began my career as an information systems engineer, progressing through project management, sales, marketing, and general management in Britain and New Zealand. I have advised major corporations and industry groups in NZ, Australia and SE Asia on strategy, performance improvement, and industry reform. As a CEO, I led the turnaround, repositioning, and growth of substantial companies in electricity supply, IT services and, most notably, Deltec - a global technology leader in advanced antenna systems for mobile telecommunications, a multi-category and Supreme Award winner at the NZ HiTech Awards, before being acquired by a Fortune 500 company. I am making this submission as a private citizen with a strong interest in strategic thinking, economic policy, and industry development.

## Build frontier firms by using the government’s agenda to solve ambitious, hard problems

The 2002 NZ ICT Industry Taskforce Report<sup>1</sup> set a bold aim of having at least 100 technology companies, each turning over \$100 million in annual sales, within 10 years (it’s taken somewhat longer than that, but the ambition was laudable). The taskforce recommended a series of relatively modest measures from the government - more education, more infrastructure, more venture investment, less regulation, various tax reforms including a level playing field for productive value creation versus asset holding, and so on. Some recommendations were adopted, some were not, but we can celebrate the technology sector’s success since then. Similar supportive strategies in education, science, infrastructure, tax, and investment have been employed by many nations. And therein lies the problem - these are useful, but unambitious, unchallenging, me-too strategies.

Me-too strategies are unlikely to overcome our particular challenges of a small home market and long physical distance from large international markets; and me-too strategies didn’t bring about the economic step-change that Britain achieved in the 18th and 19th centuries.

Why did the Industrial Revolution happen in 18th-century Britain, rather than anywhere else? Robert Allen, former Professor of Economic History at Oxford University, discounts any notions that Britons were superior entrepreneurs or innovators; indeed, other countries had enjoyed similar advances in science, education, institutions, and commerce at that time. Instead, Allen points to some primary factors which came together in Britain and nowhere else<sup>2</sup>:

- The highest wages in the world (following the Black Death and its particularly drastic effects on the size and structure of British society).
- Hugely diminished supplies of timber for fuel (forests were cleared to expand wool production, to supply a massive expansion in naval and merchant ship-building, and to meet the construction and energy needs of Britain’s rapidly growing cities).

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<sup>1</sup><http://www.nzherald.co.nz/business/taskforce-seeks-quantum-leap-in-ict-industry/VZHEGF2UKTTV7QFVSA4UHKLHCO/>

<sup>2</sup> Robert C. Allen, The British Industrial Revolution in Global Perspective, CUP, 2009

- An abundance of cheap energy from coal (not very useful until then, other than in blacksmith forges) once new heat and motive technologies had been developed to burn coal more effectively and to de-water deeper mines.
- Ample supplies of iron ore close to that deep coal.

Those factor conditions did not come together anywhere else. Other countries did not have the incentives for creating the wave of technological, product, and business innovation that transformed Britain (and later the world). Solving major labour, energy, and motive problems utilising abundant, but challenging resources gave Britain a unique combination of technical, logistical, commercial, and financial capabilities which transformed it into the richest nation on Earth for over 200 years.

Allen also shows that this transformation came about from the cumulative efforts of individual entrepreneurs, engineers and other innovators addressing real business problems and opportunities which, because they were common across Britain, also generated both classic industry cluster effects and pressure for legislative reform. There was no conscious strategy from the British government; the state played very little part in the nation's industrial transformation, other than in creating the developing legislative framework demanded by the burgeoning middle class. (Indeed, the modern liberal democratic state emerged because of the greater power of the middle class created by the transformation). However, the world today is very different, with the state having much greater financial and regulatory power, and a central role in national capability-building.

As well as asking what, if anything, the government should do to sustain and grow the industries we already have, policy-makers should take a cue from the Industrial Revolution's beginnings and ask:

- What hard problems and opportunities do we have which, if resolved, will enable us to create or transform sustainable, high value industries<sup>3</sup>?
- Having identified such opportunities, what role, if any, should the government play in supporting their development?

Others will no doubt address national capability building, including education, research, infrastructure, legislation, etc, but I want to address the Commission's draft report from the perspective of seizing major opportunities to solve hard problems, and in particular, hard problems which the government has a direct need to solve.

### **The government's roles in firm-level financial support**

Before doing so, I want to make some comments with regard to financial incentives for firms. Tax incentives and government grants are popular policy tools deployed in the hope that they will stimulate research & development with subsequent high value economic development, but this concept is flawed. Firstly, firms that live and die by product & process innovation will invest in R&D anyway, with or without government incentives. Firms with limited R&D are unlikely to lift their R&D by any significant level, but instead will reclassify other necessary expenditure as R&D to get the tax break if they can. Even the justification for tax breaks to match other countries is a road to nowhere. Overall R&D is only marginally affected.

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<sup>3</sup>Note that I refer to industries, rather than firms. The legitimate focus for policy is at that level, with firm-level support deployed as a means to achieving industry development.

Secondly, this special treatment for R&D ignores the reality that successful firms need not be defined by technology and process R&D. Great marketing, operational logistics, specialist knowledge, and management can be at least as powerful as product and process R&D in driving business success, but these receive no special tax status and rarely any grant money (except for occasional schemes with questionable rationales, processes, and outcomes). Again, the true frontier firms will develop sophisticated marketing, logistics, knowledge, and management capabilities without grants and tax breaks.

Despite oft-touted claims that such transfers create a nett economic gain for the country, this is highly questionable (the “broken window” fallacy) compared to the economic multiplication from taxpayers paying less tax and spending their greater nett income on other choices. Adding the agency cost and complexity of administering such tax and grant incentives only adds to the questions over such schemes. Similar arguments can be made about most other conventional innovation and productivity support schemes; ie. they will be rapidly taken up by firms that would undertake those activities anyway, while achieving only marginal shifts in other firms. (I do acknowledge some schemes foster talent development, give access to new knowledge and tools, and build useful links between firms and institutions).

So what primary financial roles could the government have in encouraging direct development of frontier firms? There are four:

- A. As a large scale conventional institutional investor for normal long term savings, income, and risk insurance (through various sovereign wealth funds such as ACC, National Superannuation Fund, etc), which may include some private equity and venture investing as part of a portfolio. This can support large scale firm expansion when it makes commercial sense, and should be conducted free from political interference.
- B. As a venture investor where the normal investment market has yet to sufficiently develop (eg. the NZ Venture Investment Fund). Although the initial injection of capital is speculative, the investment should be on standard commercial terms, with normal venture and private equity returns. Again the process should be largely free of political interference, but with an investment bias towards sectors which advance national economic development and transformation goals. This role should see a switch in focus over time as sectors mature and new opportunities emerge.
- C. As a strategic development investor in a very few major game-changing initiatives to:
  - Establish the new initiative when there is no firm or institutional co-investor of sufficient scale,
  - Provide additional investment to existing firms who lack the necessary scale or risk appetite (as with the financing of the national fibre broadband network),
  - Provide additional investment to existing firms where the government wants to share in the upside of government contracts underpinning a firm’s broader growth.

This strategic development investor role carries much much higher risk, but also potentially much higher rewards for its capital in line with the risks (reinforcing the preference for investment capital to be sourced through the normal market, which may include the government in its A or B investor roles). It is in this strategic development investor role that the need for making large policy calls arises, and therefore it is almost certain to require political involvement in both general investment bias and in major project approvals, but, once initiated, should be largely free from political interference.

- D. As a strategic buyer of important and innovative products and services which further the government's broader policy agenda while supporting the growth of firms to develop and supply those products and services. This is perhaps the most effective role for government, and has been successfully used by other advanced nations (eg. USA and Israel) to stimulate innovation and capability building. Importantly, however, it should neither compromise the government's normal purchasing power nor be used as an excuse for mercantilist government procurement from favoured local suppliers (such measures also being subject to the "broken window" fallacy). Its primary aim should be to create new industrial capability or significantly transform existing capability.

In all its investor and buyer roles, the government should not be a soft touch for funding, but seek returns as least as good as private sector investors. This represents a major shift from many earlier development funding initiatives.

### **Examples of government agenda/industry development opportunities**

Undoubtedly many opportunities are available within existing industries, such as agri-tech for horticulture. Those are well-understood, although I suspect the drivers for many of them will be greater in larger food-producing nations. Similarly, I will not explore the various threats to those industries, such as vat-produced meat and milk, with its potential impact on the world's pastoral industry and livestock farmers worldwide competing for any remaining premium market, assuming the social licence to kill animals is not lost eventually. Instead, I want to suggest some opportunities to tackle other large problems that the government needs to address in its own agenda, which offer opportunities to build or transform industries with at-scale frontier firms. This is not a comprehensive list, but rather some examples to demonstrate the idea. There are undoubtedly more opportunities elsewhere, eg. in health, education, etc.

#### **Road user charging**

I begin with a simple example of a tangible problem for the government and an opportunity to support frontier firm development. The next 10-15 years will see the national vehicle fleet switch from petrol and diesel vehicles to electric vehicles, hybrids, and other alternatives such as hydrogen-fuelled heavy trucks. The country's road development and maintenance programme is largely funded by road user charges. Road user charges for petrol-fuelled vehicles are levied mainly through petrol taxes (using fuel consumption as an increasingly inadequate proxy for road use). Because of diesel's off-road applications, its road users pay charges based on kilometres, axles, and weight. However, the current system of pre-purchasing road use credits is costly and inflexible to administer, and the current free ride enjoyed by electric vehicles is unsustainable. Introducing demand management and road financing mechanisms such as congestion or toll charges (including variable charging by route, date, time, or weight) is complex using current systems, with a plethora of different one-off solutions. We need a new, comprehensive road user charging system.

New Zealand already has the basis of an answer. Local company E-Road<sup>4</sup> provides on-board electronic road user charge systems for heavy vehicle fleet owners in NZ and overseas. It could be contracted as part of a consortium of software and roadside equipment providers to develop an open standard and pilot for a new sophisticated national road charging system (including transition mechanisms), to be fitted as vehicles are registered, or retrofitted to existing vehicles (with the old manual systems priced to reflect their higher operating costs). This is a sizable

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<sup>4</sup> <https://www.eroad.co.nz/nz/why-eroad/our-story/>

problem that has to be solved anyway and, with 300,000 annual vehicle registrations and a potential retrofit market of 3.5 million vehicles, an attractive first market to serve. Adopting an open standard would enable other vendors to emerge and compete for on-board and roadside equipment. (It could also be a mechanism for tolling on behalf of local councils, eg. parking, tourist routes, etc.) As a small nation, NZ can adopt this system much more easily than larger nations, giving our firms an early-mover advantage in a global market.

The government would primarily act in its type D strategic buyer role, although opportunities for its type B venture investor role may emerge.

### **Citizen-centric identity and data**

Bad actions by governments, commercial interests, political movements, mobs, criminals, and malicious individuals have raised serious concerns about digital identity and data security for individuals, firms, and governments. We need a very different approach which gives citizens control of their identity and data, and a regulated system of identity and access qualification, verification, and authorisation. This raises some exciting possibilities for how future data systems are designed and operated, including robust technical and legal frameworks for personal identity and data management, with an important role for the state.

Citizen-centric identity and data systems offer a promising way forward, based on some key principles to ensure your identity and data are under your control, not your service provider's.

- All identity and data usage and property rights belong to you;
- Any service you authorise to access to your identity and data can only access those aspects necessary to provide you with the service;
- No extension of use or access by the provider or any third parties is allowed without your explicit permission;
- Anyone granted permission by you to access your data has a duty of care to protect your identity and data, your identity and data rights, and your privacy;
- You retain the right to withdraw access at any time, and any data held must be deleted except for the legal minimum to fulfil statutory record keeping.

These rules would require most current service providers to redesign their business processes and systems, but they are not technically infeasible if phased in as systems are replaced and renewed with a requirement that they adhere to an appropriate standard. Government systems have the scale and impact to play a key role in satisfying citizens' desire for data and identity security, building national technical capability in such systems and the underlying platforms, and demonstrating how such systems work.

One possible model has been developed by Tim Berners-Lee (the inventor of the World Wide Web). The central focus of the Solid Project<sup>5</sup> is to enable the discovery and sharing of information in a way that preserves privacy. Imagine you have a virtual folder stored on a secure online service of your choosing. It contains your identity record and subfolders with your personal information, together with all your school, health, welfare, and other records (with appropriate measures to ensure the data is tamper proof). You decide which of various qualified, approved,

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<sup>5</sup> [solidproject.org](https://solidproject.org)

and verified service providers can be your identity, access control, and record-holding data service providers. You might have multiple providers who have particular expertise or in case something goes wrong with your primary provider; you might even carry a personal digital copy of your records yourself. You grant access to service providers like your doctor or teacher to read and add to your relevant records (and only those) via their qualified and verified IT systems.

While Solid's model does not strictly require government oversight, I see a valuable role for the government to provide the legal framework and to provide a root identity service. This could be based on an enhanced, fit-for purpose birth and identity record, augmented with other key identity elements, such as genetic profile, genetic/birth/legal parents, name and address changes, guardianship changes, next-of-kin, biometric markers, photographs, multi-factor authentication keys, etc. It would be our proof to the world of who we are, and our means of verifying and authorising others to access our data. Government would also set record standards (including forward compatibility as standards evolve) where it has a legitimate interest (such as in health, education, etc.) and it may certify trusted service providers.

The government investment in this opportunity is primarily via its strategic buyer D role, with a strong mandate across the public sector to adopt the model. There may also be opportunities to invest in firms developing the relevant platforms and services, in type B or C investor roles.

Services and enabling technologies based on such a model would likely attract demand worldwide, from individuals, firms, service providers, and governments. It will take a while to develop, starting with limited scope, but ultimately, a citizen-centric identity and data model can be transformative, not just in government, but across society.

If we adopt a truly innovative, citizen-centric identity and data strategy, with accompanying regulatory frameworks, and build expertise and platforms developed to serve government's and citizens' needs in identity, health, education, etc., this can open up some very interesting possibilities as a safe haven for the world.

### **Safe haven New Zealand**

Normally, discussion of New Zealand's distance and physical isolation is seen as a major hindrance to economic development. I suggest that we turn it into an opportunity. The citizen-centric data trend is a global one. Individuals, firms, and even nations are increasingly distrustful of misuse of their data, not just by service providers, but by governments too (eg. revelations that security software and cloud services have been compromised by government agencies covertly or openly inserting "backdoors" for security or espionage purposes). New Zealand has an enviable reputation as one of the world's most trustworthy nations, and unlikely to be perceived as a threat by others. With our stable government, freedom from corruption, reliable legal system, and reputation as honest, capable and straight-dealing people, we can make a credible offering that New Zealand is the safe place for your data and cloud services, while retaining due process for legitimate law enforcement.

Data centres in themselves create few jobs, but building, managing, and operating large cloud services do. Of course, the services have to be world class in the function and manner they perform, but we are quite capable of building them (eg. Xero<sup>6</sup>). A cluster of citizen-centric applications and services, housed in data centres in seismically safe Northland and Southland, could have global potential. There will be investment required: global data centre operators

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<sup>6</sup> <https://www.xero.com/nz/about/>

demand triple-redundant telecommunication and electricity supply infrastructure (ie. three supply paths to each site, a challenge today). We would also need to partner with like-minded nations elsewhere to host local data centres in their regions, and attract major data centre operators and cloud service providers to New Zealand.

The government's role initially is supporting the development of the idea, creating the regulatory frameworks, and helping create the necessary international relationships. As the possibility grows in credibility, there may be further potential to invest in all roles, notably type C strategic investment in infrastructure.

Once you start exploring the proposition of New Zealand as a safe haven, other possibilities emerge with regard to international institutions, finance, etc. A true safe haven country might need to reimagine its international relationships. This extended idea of New Zealand may seem far-fetched to some, but I use it to show where an ambitious data strategy could take us, and it fits my idea of an ambitious, hard opportunity that can be developed over time into a conscious national proposition.

## Housing

Housing may seem an unlikely opportunity to build globally competitive frontier firms, but that misses the distorting effect that soaring property prices and rents have on the workforce and investment across the whole economy. We recognise the importance of telecommunications and electricity infrastructure to economic development. Housing is equally important; if we don't fix our housing problem, we will struggle to keep the skilled workforce we have, let alone attract skilled workers or firms from overseas.

New Zealand's housing problems are long-standing, with high demand, lack of supply of land and homes, poor quality existing homes, inefficient industry structures (both construction and rentals), and high unaffordability. In 2017, the Ministry of Business, Innovation and Employment estimated that over the following decade, the country would need 71,000 additional homes (45,000 in Auckland alone)<sup>7</sup>, driven by multi-factor demographic and population change. In 2021, that looks like a very large underestimate, with over 20,000 households on social housing waitlists, and many young couples unable to buy a first home.

This should be an exciting business opportunity, but the housing market is strangled by regulation, perverse incentives, and entrenched vested interests. The home construction, finance, and rental industries are ripe for massive structural change, with the primary immediate aim to boost supply and affordability, but important long term economic gains too. In addition to much-needed regulatory and policy initiatives to ease supply constraint and market distortions, two linked industry development opportunities stand out:

1. Large scale, sophisticated, prefabricated or modular home manufacturers, to supply high density terraced and apartment homes to the general market and in particular to -
2. Large institutional multi-dwelling landlords offering long-term rental homes (with a proportion of those homes, say 10-20%, bulk-leased to social housing providers such as Kāinga Ora).

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<https://www.nzherald.co.nz/business/mbie-figures-show-nationwide-housing-shortage-of-71000/55NUUYNEWZA3QJTTDCHE7W3T4I/>

A little progress has been made on the first element, but it is constrained from achieving true scale by regulatory roadblocks, current construction financing norms, and a lack of large institutional landlords able and willing to contract the base load for large-scale home manufacture. (One UK plant<sup>8</sup> aims to produce 3,500 homes annually with 400 non-construction workers in a highly equipped 5,500 sqm factory). As an institutional landlord itself, the government already has the need and the capacity to play a part, but the need is much greater than social housing. Lack of supply and unaffordability stymies would-be first home buyers who would otherwise move out of the private rental market, forcing rents higher and creating yet more demand for social housing. A major missing element is the large scale institutional landlord serving the wider market. Northern Europe has ample, high-quality, affordable, long-term rental homes in terraced housing and medium-rise apartment complexes, owned and managed by large institutional landlords, with landscaped grounds, communal facilities, and a mixture of residents. Respected listed firms like Germany's Vonovia<sup>9</sup> and Deutsche Wohnen<sup>10</sup> operate sophisticated, highly integrated businesses (including leasing some units within their complexes for council-subsidised social housing), with high volume demand for manufacturers, while offering a trusted long-term investment for savers and institutional pension funds. (In New Zealand, we could see communal land owners such as iwi or councils work with institutional landlords to operate high quality communal rental housing, without major capital outlay or administrative overhead). Good quality, affordable, abundant rental homes also mean purchase prices are much more affordable.

As well as alleviating the housing market, the development of large-scale home manufacturers and institutional landlords will help to balance market power in the materials and construction supply chains, while providing an important nursery for general at-scale business, design, manufacturing, logistics, and commercial knowhow and skills, underpinning the wider manufacturing sector and other sectors of the economy..

In addition to the regulatory and policy changes needed to reform the housing market, the government can use its type D strategic buyer role as an institutional landlord in its own right (Kāinga Ora) to help establish at-scale manufacturing capability, perhaps augmented if necessary through its type A and B investor roles. The large scale institutional landlord may also be an attractive investment in its Type A institutional investor role, although it may be necessary to establish something initially using its Type C strategic development investor role, with a view to exiting to Type A or the private market later.

## **Zealandia**

I started this submission by referring to the Industrial Revolution's beginning in Britain, Where are the massive untapped, but hard-to-use resources that New Zealand has in abundance; that, if developed, could lead to major new industries to rival our farm-based industries in scale? Answer: Zealandia, the sunken continent and marine area that surrounds New Zealand, and the fifth largest exclusive economic zone in the world, bigger than Europe.

Even suggesting we look at Zealandia as an opportunity will evoke accusations of dirty capitalism and environmental plundering. And so it should, if we treat Zealandia as a huge untapped mine to be ruthlessly exploited with little upstream or downstream benefits for New Zealand beyond short-term resource fees. Tapping into our vast onshore and offshore biological, mineral and renewable energy resources will pose great technical, commercial, and social challenges. This all

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<sup>8</sup> <https://www.legalandgeneral.com/modular/>

<sup>9</sup> <https://www.vonovia.de/en/ueber-vonovia/ueber-uns/uebersicht>

<sup>10</sup> <https://www.deutsche-wohnen.com/en/about-us/company/company-profile/>

combines to make Zealandia fit the bill as an ambitious, hard opportunity. We are good at inventing solutions to difficult problems, we have a deep national affinity with the environment, and we have a rich heritage on land and sea. We can develop not only our own resources wisely, but more importantly, develop firms will create and deliver the necessary technologies, systems, products, and services for use here and overseas. That knowledge and capability also means international opportunities for New Zealand-based resource-using companies.

Politicians have been reluctant to address the opportunity that Zealandia affords us. This is short-sighted. Renewable energy and aquaculture are far less contentious than sea-bed mining, but will still require solutions for discovery, construction, harvest, processing and productisation. Developing the technologies and systems for them provides a way to get started, while exploring future options eg. high value metals and rare earths. Not only is Zealandia a huge opportunity in its own right, but it also provides us with an alternative should pastoral farming fall away as vat-grown meat and dairy gain traction. The scale of the opportunity and its challenges mean that the government is a necessary key cornerstone investor, on behalf of future generations.

This is likely to be a slow-building, multi-decade endeavour, and the government will be actively involved - creating the legislative framework, ensuring the environment is protected, and sponsoring the initial research and development. Later on, there may be opportunities for investment and buying in any of the A,B,C or D roles.

What other actions might government consider?

- Announce that Zealandia is open for business as a model of environmental management, and attract the attention of local and international investors, entrepreneurs, designers, and businesses.
- Give resource licence allocation a bias<sup>11</sup> for creating local operations to discover, develop, harvest, process and productize our resources.
- Ensure the regulatory regime encourages both resource development *and* environmental protection.
- Increase the proportion of government science funding allocated to discover, harvest, process and productize our marine biological, mineral and energy resources, and to develop the technologies and systems to do so in an environmentally sound way.

### **Draft report recommendations**

The Commission's draft report makes a number of recommendation which are relevant and, in general, consistent with this submission, notably:

- R2.1 The Government should develop a clear overall strategy and take deliberate steps (in collaboration with business, workers, educators and researchers) to upgrade New Zealand's innovation ecosystem and support the export, at scale, of goods and services with a difficult-to-imitate competitive advantage.
- R5.1 The Government should take a more proactive and deliberate approach to attracting multinational corporations (MNCs) that are knowledge-intensive, oriented to exporting and a source of spillover benefits.
- R7.4 As a complement to broad innovation policy, the Government should partner with stakeholders to: choose a small number of areas of the economy to focus innovation effort

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<sup>11</sup> Bias does not imply giving away resource licence fees to subsidise jobs, which is just another "broken window" fallacy example

for the purposes of raising firm productivity and export success; and support these focus areas with a large enough proportion of its funding for research, science and innovation, export assistance and economic development to make measurable progress towards its policy objectives

- R 9.3 The Government should introduce a consumer data right consistent with Australia's sectoral-designation regime. ...
- R 9.6 The Government should use its intended major health system reform to improve the mandate, funding and incentives for DHBs to participate in the healthtech innovation ecosystem, for the mutual benefit of the healthtech sector, and the productivity and accessibility of New Zealand's health and disability system.

I would add the following extensions and new recommendations:

- R2.1 extension: This strategy should include major opportunities for economic development and transformation within the government's wider agenda.
- R2.2 addition: Create an Office of Strategic Development (OSD) within either DPMC or MBIE, to identify and oversee a national programme of strategic governmental and economic development initiatives arising from the government's agenda, overseen at Cabinet level by senior ministers of Economic Development, Finance, and the Public Service, and at officials level by the chief executives of MBIE, Treasury, and the Public Service Commission. OSD would be responsible for developing processes for potential strategic initiatives to be proposed, explored, and developed (within mainstream departmental programmes, by policy frameworks for adoption across the Public Service, or by specific fundable investments). OSD would have an external advisory board to help shape its programme, recommendations, delivery oversight. OSD would have discretionary "seed corn" funds to develop proposals and exploratory projects for situations where normal agency funding would not be available.
- R7.8 new: Consider merging our two resource research institutes GNS (geology) and NIWA (water and atmosphere) to create an integrated resource science institute focused on Zealandia, including atmosphere, water, geology, fishing /aquaculture, minerals, energy, and upstream/downstream technology and value chains.
- R7.9 new: Development and renewal of major public service operations and systems should routinely include an examination of long term economic development potential. With appropriate safeguards for normal government procurement integrity, firms and industries should be able to unilaterally propose innovative ideas for public service development and have the opportunity to develop agreed ideas to pilot stage, retaining intellectual property rights where relevant.
- R9.3 extension: The Public Service should develop a comprehensive open model offer for citizen-centric identity and data, which would apply to future government systems developments, and encourage industry development of applications, platforms, and services to support it.

## Concluding remarks

If New Zealand wants a high-value economy, it needs more than just exporters. It needs global businesses that operate at home and internationally in multiple facets of their business. Phil Veal, a New Zealand investment banker with international experience, gave a presentation a few years ago to senior members of the Institute of Directors. A central point in his address was about the barriers impeding New Zealand business. To paraphrase Phil, the largest barriers aren't finance,

or innovation, or work ethic, or isolation, or sales ability. The largest barriers are boards with unambitious goals for their organisations, a lack of understanding of how to scale up, and a reluctance to take the risks involved and invest in the necessary people, resources, and capabilities.

Even when ambitious goals are adopted, however, many so-called strategies are little more than wishful thinking. Richard Rumelt, Emeritus Professor of the Anderson School of Management at UCLA, warns<sup>12</sup> that many government and business plans with lofty aims are light on specifics of how those aims will be achieved, and fail to commit the resources, money, and leadership necessary to implement those specifics.

I have proposed that we foster the development of frontier firms by embracing ambitious, hard problems, and in particular, problems that are already within the government's agenda. Assuming the government signs up to seizing some of these opportunities, they will require talent and leadership of the highest calibre (in both government and industry), a strong mandate across the public sector to back these initiatives, and serious capital investment in the government's various investment and buying roles:

Seizing these large, hard opportunities will require ambition and a bias for action. The potential rewards are even larger and more ambitious.

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<sup>12</sup> Good Strategy/Bad Strategy, Richard Rumelt, Profile Books, 2011