BRG INSTITUTE

New Zealand Frontier Firms:
A Capabilities-Based Perspective

PREPARED FOR THE NZ PRODUCTIVITY COMMISSION

By David Teece and Kieran Brown
BRG Institute

August 2020

1. Executive Summary

"The competitive strength of national industries depends on the abilities of the core firms to function effectively and to maintain and enhance their integrated learning bases".[1]

While many aspects of New Zealand's economic performance have been strong, productivity has been a problem for decades. A brief boost occurred following a period of economic reforms in the early 1990s, but productivity growth has been flat or trended down slightly since 2000, and the level of productivity has lost ground relative to the top half of the Organisation for Economic Co-operation and Development.[2] In short, New Zealand has an ongoing productivity problem. The current Covid-19 pandemic crisis threatens to exacerbate it further. Other reports as part of this inquiry blame low international engagement, weak clusters in sectors with comparative advantage (mainly primary), risk-averse ownership structures and stifling regulations, and insufficient investment in skills and innovation. Management capabilities are mentioned but seldom analysed in detail.[3] Years of policy development, dozens of reports, much policy and other incentives have not shifted the dial significantly on this productivity puzzle.

Alternative approaches informed by new perspectives are required for New Zealand's productivity problem. We believe a "capabilities-based view" of the management and governance of New Zealand firms will better inform and shape future public policy and private investment than will standard economics-based approaches. Capabilities are underappreciated and only vaguely understood, yet they are the key to building firm-level productivity and competitiveness.

To move the New Zealand productivity frontier closer to the global frontier and improve competitiveness in international markets, New Zealand firms need a long-term programme of strengthening both ordinary and dynamic capabilities.[4] A better mix of policies and incentives, many which have been suggested by others as part of this inquiry, is a start. But success is far from guaranteed if the objective is limited to financial incentives and quantitative goals around productivity. Goal-chasing promotes an obsession with efficiency and KPI-driven management, which can be the enemy of innovation and dynamism.

The dynamic capabilities framework fosters a mindset that favours effectiveness and efficiency. The framework has grown rapidly since its introduction in 1990s to become one of the leading perspectives in

[1] Chandler, A.D., *Inventing the Electronic Century: The Epic Story of the Consumer Electronics and Computer Industries* (2001), New York: Free Press.

[2] See Figure 2, "Labour productivity is weak", in OEDC, *OECD Economic Surveys: New Zealand* (June 2019), available at: https://www.oecd.org/economy/surveys/new-zealand-2019-OECD-economic-survey-overview.pdf

[3] See, e.g. Skilling, D., *Frontier firms: An International Small Advanced Economy Perspective*, report for the New Zealand Productivity Commission (2020), p.26.

[4] Teece, D.J., Pisano, G., & Shuen, A., "Dynamic capabilities and strategic management", *Strategic Management Journal 18*(7) (1997): 509–533; Winter, S.G., "Understanding dynamic capabilities", *Strategic Management Journal 24*(10) (2003): 991–995; Teece, D.J., "Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance", *Strategic Management Journal 28*(13) (2007): 1319–1350; Teece, D.J., "Dynamic capabilities and entrepreneurial management in large organizations: Toward a theory of the (entrepreneurial) firm", *European Economic Review 86* (2016): 202–216; Teece, D.J., Raspin, P.G., & Cox, D.R., "Plotting strategy in a dynamic world", *MIT Sloan Management Review* (2020, forthcoming).

the field of strategic management.[5] It seeks to explain the differential long-run growth of firms and firm survival, stagnation or failure. The root causes lie in how particular firms are better or worse at identifying new opportunities, managing competitive threats, orchestrating their resources and effectuating necessary transformations as they interact with their business and regulatory environments.

Firms with strong dynamic and managerial capabilities are more resilient and more productive, allowing them to pay higher wages and support innovative cultures.[6] Strong dynamic capabilities require alignment of the organisation, its strategy, its employees and the board. Strengthening dynamic capabilities is hard because they generally can't be bought—they must be built. This requires nurturing at the firm level by entrepreneurial management teams and well-informed boards acting in concert. The potential payoff in the form of higher productivity and higher wages expands the frontier outward and makes the dynamic firms more competitive. Meanwhile, better ordinary capabilities, such as industry best practices, will move laggards towards the NZ frontier.

One aspect of dynamic capabilities to which we will pay particular attention in this report is the board of directors. In New Zealand, an increasing amount of the board's attention is focused on compliance, risk and reporting which many directors feel comes at the expense of time spent on long-run strategy matters. There is an overabundance of legal and accounting functional expertise at the board table, and too few directors with science, technology, strategic or marketing experience at the international level, which limits the board's ability to sense and evaluate new opportunities in deep uncertainty. The gospel of shareholder primacy, which dominates western corporate governance approaches (New Zealand's included) need not—but does tend to—deflect attention from long-run stewardship.

Capability development at the firm level is typically ignored by industrial policy, which, like economic theory, tends to treat firms as homogeneous, interchangeable black boxes. Policies unsupported by a deliberate focus on capabilities are only half conceived and will fall short over the long run.

A capability action plan for New Zealand firms

With a capabilities-based approach in mind, we suggest targeted action in four key areas:

1. **Build dynamic capabilities at firm level:** The first step to execute this is to establish a Frontier Firms' capability programme. The programme should be developed and led by a cross-sector team and involve managers of private firms, researchers, experts and policymakers. Core business of the programme will be to establish a pilot programme to help self-selected firms run internal diagnostic assessments of selected aspects of dynamic capabilities, such as innovativeness, research and development orientation and decision-making. The goal is to identify management capability gaps to be addressed and then develop targeted interventions. This programme is best focused on a targeted sector of the economy that already includes some elements of competitive advantage, some exporting and international activity. This is a more bottom-up approach to developing firm-level capabilities to help improve productivity, performance and competitiveness. The New Zealand economic agencies with external agencies could lead this programme jointly with involvement from private firms, relevant scholars, Iwi and external experts as needed. In addition, more focused research is needed into the micro-foundations of

[5] Di Stefano, G., Peteraf, M., & Verona, G., "Dynamic capabilities deconstructed: A bibliographic investigation into the origins, development, and future directions of the research domain", *Industrial and Corporate Change 19*(4) (2010): 1187–1204.
[6] Barth, E., Bryson, A., Davis, J. C., & Freeman, R., "It's where you work: Increases in the dispersion of earnings across establishments and individuals in the United States", *Journal of Labor Economics 34*(S2) (2016): S67–S97.

firm-level competitiveness, productivity and capabilities that include both management and boards in New Zealand.

2. **Develop policy and a competitive fund to support building of ordinary capabilities at firm level:** Establish policy and a competitive funding pool to build firm-level productivity through ordinary capability development. Through provision of central government funding, develop a programme aimed at identifying, acquiring and widely diffusing existing best-practice ordinary capabilities and technologies. Similar challenges funds are being experimented with by the UK government with the Business Basics Programme.[7] This programme will need strong monitoring and evaluation of the experiments over time, which will to inform decisions to scale up as appropriate. This programme, if well documented, can also help inform current and future research into firm-level productivity building and capabilities development. The New Zealand economic agencies could lead the establishment of this programme with support from a strong research institution and from external technology transfer and management experts.

3. **Develop stronger international orientation and better cross-border networks and alliance building for New Zealand managers**: Dynamic capabilities also can be enhanced with a focused international exchange and mentoring platform for managers in New Zealand frontier firms with foreign multinationals to build enduring relationships whose progress is measured and monitored. This is not a one-off or "study tour"-type arrangement, but one that needs high-level CEO and Ministerial support for a deep multiyear engagement that leads to enduring capability improvements. New Zealand's external agencies should lead the development of this initiative, with support from New Zealand's largest listed and exporting firms, which have existing relationships with global multinational corporations.

4. **Evolve corporate governance to support dynamic capabilities:** Establish a "Long-Run Stewardship Programme" for current and future directors in New Zealand that focuses on evolving governance in the twenty-first century that values stakeholder interests, purpose-led innovation and the development of unique organisational capabilities. This programme is timely and can help bring together CEOs, founders, scholars and directors to inform future selection, training and succession planning in New Zealand. In addition, a pilot programme should be launched to experiment with procedural and structural changes that create additional space for a subset of the board to focus on long-run strategy, innovation, investment and international opportunities. To support and challenge management successfully, boards—especially the chair—need their own separate resources to commission strategic analysis, conduct research and convene dialogue. The Commission and the Institute of Directors in New Zealand should establish this programme jointly with a leading business school, with involvement by existing (and high-potential) directors in private firms and by legal and strategy experts.

2. Introduction

The New Zealand Productivity Commission (the "Commission"), under direction from the Minister of Finance, has launched this timely inquiry into frontier firms. The inquiry is aimed at investigating how the economic contribution of frontier firms can be maximised through policies and interventions aimed at a) improving performance of frontier firms themselves; and b) helping new technologies, efficient

[7] The UK Business Basics Programme launched by the government in 2019 set aside £9.2 million over a four-year programme to fund the identification, diffusion and adoption of existing business practices and technologies that increase firm productivity. There are currently eleven trials and fifteen proofs of concepts underway in the UK. The programme is delivered in partnership with Innovate UK and Nesta. https://www.gov.uk/government/collections/business-basics-programme

business practices and other productivity-enhancing innovations diffuse more effectively to other New Zealand firms. Under direction, our preliminary contribution draws on secondary sources only, including many of the reports that the Commission has already released.

This report will explore possible applications of the dynamic capabilities' framework to the question of productivity and performance. The report will describe briefly the current state situation. Following that, in section 3, is a quick review of the dynamic capabilities' framework, with a hopefully practical table with real examples of what key dynamic capabilities are for managers to consider for possible application for New Zealand firms. Section 4 will concentrate on a the challenges and opportunities afforded by a capability-based view of corporate governance, and section 5 will offer some recommendations.

The Commission has chosen to direct attention for this inquiry to the Organisation for Economic Co-operation and Development's (OECD) framework which defines frontier firms as those in the top 10% of the productivity distribution among either firms globally (the global productivity frontier) or domestic firms (the domestic productivity frontier). There is nothing hallowed about 10%. Some studies use a 5% or top quartile cut-off to define frontier firms. The Commission has told us to be flexible in the interpretation of the definition of a frontier firm. What they are, and how many there are, has varied from study to study. We have not adopted a strict quantitative approach but rather a qualitative conceptual framework that treats firms as falling into either a "frontier" (could be ready to develop dynamic capabilities) or "laggard" (need to develop ordinary capabilities) category throughout this report in our thinking and recommendations.

The Minister of Finance, The Commission and New Zealand is right to worry about moving more of its firms towards the domestic and international productivity frontiers. But more ambition is needed for pushing out the whole frontier, which involves pioneering new market spaces through the innovation of products, services and whole new business models. This raises productivity not by increasing efficiency alone but by being more effective and innovative, sometimes in totally new areas which build on and extend existing capabilities and commercial strength. A recent example of the sort of ambition needed to bust out of traditional spaces with established players is the highly successful firm A2 Milk and its bold litigation against dairy giant Fonterra in the early 2000s to carve out a space for its new, specialised milk products.[8]

The definition of "frontier firms" (i.e. those firms the Commission and the government focus on in this inquiry and in the interventions to come) should be expanded beyond the narrow OECD-inspired definition. Fifteen years ago, neither Facebook nor Xero would have been shining lights in this narrow definition and now both are economic superstars. In other words, it's not just high-productivity firms, but high *potential*-productivity firms, that should be considered as part of this programme and future interventions.

New Zealand's economy is at an inflection point. The choices made in the coming months in response to the significant shocks from Covid-19 will have long-lasting effects. The pandemic crisis, which has so far seen New Zealand among the best in class in terms of stopping the novel coronavirus, presents both unprecedented challenges and opportunities for the New Zealand economy and the firms that power it. The UK *Financial Times* has called out clearly, "The new demand is for a safe haven from Covid-19 … Bring on New Zealand. The country's isolation has suddenly gone from historic disadvantage to unique

[8] Hawthorne, M., "A2 Milk: The rags to riches tale", *Financial Review* (18 July 2018), available at: https://www.afr.com/companies/retail/a2-milk-the-rags-to-riches-tale-20180713-h12myu

selling point".[9] Locally, there have been calls for "bold action" to not waste this opportunity and to use the crisis as a catalyst for broad-based transformation, greening of the economy and creation of a vision that is enduring and cuts across parliamentary cycles.[10] Great efforts to improve the productivity performance and capabilities of New Zealand firms are critical given the impending economic crisis, reduced labour supply, the halt of international tourism and students, and the many structural and ownership challenges in primary industries.

During the post-reform period of the 1980s productivity per hours worked and per capita income have grown, but productivity fell to a relatively low level by OECD standards and has remained modest.[11] To take one point of comparison, per capita income in New Zealand is about one-third lower than in Australia.

The point hardly needs much more ink after this point: New Zealand has a productivity problem.

Most GDP contribution in the last thirty years has been as a result of additional hours worked, not productivity gains. A recent study highlighted the need to invest more heavily into skills, research and development (R&D) and innovation as a major future priority for frontier firms in New Zealand.[12] This poor productivity performance is the reason that GDP per capita in New Zealand remains 30% below the average of the top half of the OECD, even though rates of labour utilisation are relatively high.

One drag on New Zealand's productivity is its relatively low R&D spending.[13] Private investment in R&D has been shown to be directly linked to increases in productivity.[14] A key message from the dynamic capabilities framework is that value-creation activities, such as R&D, require equally potent value capture activities, such as business model design, to produce higher revenue and wages. Nor should R&D be viewed through the narrow lens of level of spending. How R&D funds are spent is also important. One dimension is international collaboration. Cross-border networking is an important means of accessing fresh ideas that may be locally new and valuable. By one measure—international patents filed in the US—New Zealand firms engage only modestly in international R&D collaboration. A 2017 study found that New Zealand firms ranked equal with modestly innovative countries like Malaysia and Hungary.[15] They showed less international collaboration than in Mexico, Poland or Norway, and far less than in Germany, South Korea or Australia.

[9] Cooper, Simon, "Is This New Zealand's Chance to Become the Place to Do Business", *The Financial Times* (30 April 2020), available at: https://www.ft.com/content/24411500-8906-11ea-a01c-a28a3e3fbd33
[10] Oram, R., "NZ's Moment for Bold Action", *Newsroom* (14 June 2020), available at: https://www.newsroom.co.nz/2020/06/14/1228746/rod-orams-june-12-column
[11] Conway, P., "Can the Kiwi Fly: Achieving productivity lift-off in New Zealand", *International Productivity Monitor* 34 (2018), available at: https://pdfs.semanticscholar.org/0722/d491f87db02fbc9790ca460062c2864405dc.pdf
[12] Skilling (2020).
[13] de Serres, A., Yashiro, N., & Boulhol, H. *An international perspective on the New Zealand productivity paradox*. New Zealand Productivity Commission Working Paper 2014/01 (2014), available at: https://www.productivity.govt.nz/assets/Documents/an-international-persepective-on-the-nz-productivity-paradox-6/8eba14c657/An-International-Perspective-on-the-New-Zealand-Productivity-Paradox.pdf
[14] E.g. Griliches, Z., & Lichtenberg, F.R., "R&D and productivity growth at the industry level: is there still a relationship?" in Z. Griliches (ed.), *R&D, Patents, and Productivity*, University of Chicago Press (1984), pp.465–502.
[15] Su, H.N., "Global interdependence of collaborative R&D-typology and association of international co-patenting", *Sustainability* 9(4) (2017): 541.

Nevertheless, it is a promising sign that R&D spending by New Zealand business, particularly in the service sector, has shown a dramatic increase in recent years.[16] However, it is a concern that an exploratory survey of a small sample of CEOs and managers found that most felt they were underperforming in innovation.[17] This is one area where a larger capabilities-focused investigation might yield positive results.

Many hindrances to productivity improvements have been identified, and valuable suggestions have been made many times over.[18] Most reports at least mention capabilities,[19] but none explore the topic in depth.[20] A sound understanding of firm-level capabilities is essential if one is to understand why the performance of one firm differs from another.

3. The Capabilities-Based View of Firms

"The proximate cause of differences in the wealth of nations lies, for the most part, in the capabilities of firms".[21]

Capabilities and why they matter

Firms are the engines that drive economic development, and the premise of this inquiry and of this report is that some firms are more productive and competitive than others in the same industry or business. Yet, until recently, mainstream economics and industrial policymakers have treated firms mostly as homogeneous black boxes. The traditional paradigm (known in economics and finance as "agency theory") suggests these black boxes are run by opportunistic and self-interested managers which boards of directors must monitor and control by limiting access to funds for investment. We believe a different approach is called for, one that harnesses managerial capabilities and talents to make existing firms more productive and competitive.[22] It is helpful to look at firms from a bottom-up perspective (micro-foundations) regarding the capability challenges affecting innovation, growth and productivity.

---

[16] Data shows that the business share of national R&D expenditure has risen dramatically in recent years, from 46.4% in 2014 to 55.2% in 2018, even as overall R&D spending (which includes government and university spending) grew at a healthy pace. Stats NZ, "Research and Development in New Zealand: 2018" (17 June 2019), available at https://www.stats.govt.nz/assets/Uploads/Reports/Research-and-development-in-new-zealand-2018/Download-data/research-and-development-in-new-zealand-2018.xlsx

[17] de Waal, A., Maritz, A., Prebble, D., & Unitec, A., "Managing innovation: a typology of theories and some practical implications for New Zealand firms", *International Journal of Organizational Innovation 3*(2) (2010): 35–57.

[18] For instance, Conway (2018): 40–63.

[19] For instance, Skilling (2020).

[20] An exception is a paper on "absorptive capacity" that provides numerous insights into innovation capabilities; see Harris, R., & Le, T., "Absorptive capacity in New Zealand firms: Measurement and importance", *Science and Public Policy 46*(2) (2019): 290–309.

[21] Sutton, J., *Competing in Capabilities: The Globalization Process*, Oxford: Oxford University Press (2012).

[22] Teece, David J., "Management and governance of the business enterprise: agency, contracting, and capabilities perspectives", in Dennis C. Mueller (ed.), *The Oxford Handbook of Capitalism*, New York: Oxford University Press (2012), pp.220–249.

The concept of management capabilities is relevant to all firms, regardless of size. It is perhaps most associated with larger firms, in which the managerial function is shared across a team. In small firms, the managerial function often will be performed solely by the entrepreneur(s), but the roles of entrepreneur, manager and leader are important to distinguish because the skill sets involved are different.[23] The capabilities view of the firm has emerged mainly in the field of strategic management. This view looks beyond asset accumulation and production functions to recognise the importance of how firms learn and orchestrate assets in ways that markets and other firms cannot replicate easily.

Capabilities define what a firm does at a point in time and shape what it can do in the future. They are complex amalgams of physical assets, human skills, organisational routines and managerial vision. Organisational capabilities take time to build and will continue to evolve through intentional and incidental learning, possibly becoming "signature" processes that provide a unique underpinning to a firm's competitive advantage.[24]

Capabilities are untethered from particular products or services. For example, a capability to make machines powered by small, compact internal-combustion engines of any kind can manifest itself in the manufacturing of motorcycles, outboard boat motors or lawnmowers. Other capabilities, such as the ability to offer outstanding customer service, may not be tied to a particular product area.

A more nuanced appreciation and understanding of capabilities in general—and of the managerial function in particular—can provide vital support for productivity improvement policies and industry-led measures. For example, after China liberalised its economy in 1979, it discovered eventually that it needed to introduce better formal management training. From a handful of piloted MBA programmes in 1991, China's business education has grown to more than two hundred programmes with tens of thousands of students.[25] But this is still not enough, because it takes time to improve the quality of newer management programmes and time for new graduates to gain practical experience. China has no shortage of entrepreneurs, capital or access to appropriate technology, yet its ability to grow is considered by some observers to have been hindered by a scarcity of experienced managerial capabilities and talent.[26]

Understanding and building firm-level capabilities

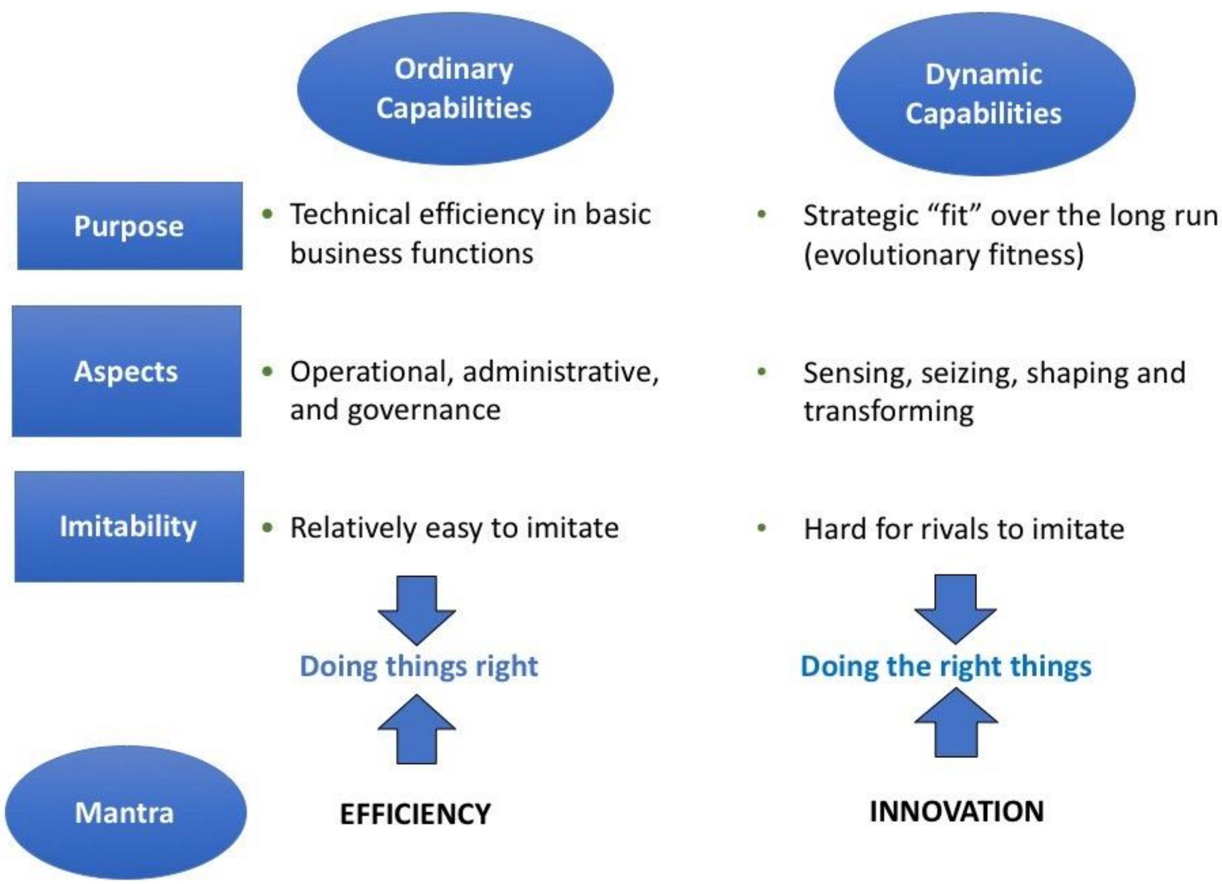
Firm-level capabilities can be thought of usefully as falling into one of two interconnected (but analytically separable) categories: ordinary capabilities and dynamic capabilities (Figure 1). Ordinary capabilities are to a large extent operational (doing things right). Strong ordinary capabilities incorporate "best practices" across the main dimensions of management of operations, people, finance, marketing/brand and technology. Ordinary capabilities mostly are those taught in business schools and applied by most management consultancies and technology vendors. This is good news, because generally they can be acquired through identifying and adopting existing practices and technologies, or through the use of technical consultants and other sources that provide access to industry best practices. A

[23] Teece (2016).
[24] Gratton, L., & Ghoshal, S., "Beyond best practice", *MIT Sloan Management Review 46*(3) (2005): 49–57.
[25] Zhang, W., "Reaping the benefits of brain circulation: the impact of the overseas study and the returnees on the development of the management education in China", in I. Alon, V. Jones, and J.R. McIntyre (eds.), *Innovation in Business Education in Emerging Markets*, London: Palgrave Macmillan (2013), pp.208–221.
[26] E.g. Lane, K., & Pollner, F., "How to address China's growing talent shortage", *McKinsey Quarterly 2008*(3) (2008): 33–40; Caye, J.-M., Michael, D., Lee, R., & Nettesheim, C., "Four ways to stop worrying about talent in China", *BCG Perspectives*, Boston Consulting Group (10 May 2012), available at: https://www.bcg.com/publications/2012/globalization-people-management-human-resources-four-ways-stop-worrying-talent-china.aspx

major study that introduced superior management practices to seventeen major textile firms found that the main reasons the better practices hadn't been adopted before involved lack of knowledge, uncertainty about the benefits, attachment to existing methods and lack of time.[27] There is potential failure of market forces alone to raise firm-level productivity to competitive levels, particularly when firms sell mostly in the domestic market (as is the case in New Zealand). Targeted interventions at firm level can overcome these information and capability barriers.

The adoption of managerial best practices (i.e. strong ordinary capabilities) can measurably raise productivity, but it doesn't guarantee future growth. An narrow management focus on best practices alone can stand in the way of the innovation that dynamic capabilities seek to foster, because best practices are about optimisation and efficiency (doing things right). By contrast, dynamic capabilities are forward-looking and strategic in nature. They are integral to selecting, developing and coordinating ordinary capabilities and help determine where and how companies allocate their financial, technological and organisational resources to shape and respond to markets (doing the right things). The management of successful frontier firms must be able to balance both efficiency now and effectiveness for the future.

Figure 1: Ordinary versus dynamic capabilities at firm level



[27] Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., & Roberts, J., "Does management matter? Evidence from India", *Quarterly Journal of Economics 128*(1) (2013): 1–51. This study introduced a set of best-practice management methods to a group of large Indian textile firms. Their productivity grew by 17% in the first year, and within three years the firms opened more production plants.

The UK government launched a productivity improvement programme for firms in 2018, executed by Innovation UK and Nesta (which run the lab and methodology), over four years with £9.2 million in funding. This Business Basics Programme[28] is harnessing experimental methods (test and fail fast) to identify the best ways to support diffusion and adoption of existing successful business practices and technologies to drive firm-level productivity growth. A similar programme could add value for laggard firms in New Zealand to help push them toward the frontier. The programme forms part of a strategic package of measures aimed at tackling the UK's productivity problem at a firm level.

The programme focuses mainly on strengthening what we would consider ordinary capabilities, which move firms towards the productivity frontier. The aims of the programme are:

- **Raising the productivity of small and medium enterprises (SMEs)** by identifying and testing the most effective, scalable productivity-boosting interventions, giving SMEs greater confidence to adopt them.
- **Driving innovation** by sourcing new ideas from traditional and non-traditional sources; taking a dynamic, experimental approach in order to learn and develop as the programme develops.
- **Enabling better investment decisions at a local and national level** by providing a new, robust evidence base for those interventions which are the most effective in raising productivity; taking an inclusive approach such as involving SMEs from different areas and different sectors and focusing on the transferability and scalability of interventions.

Firms can pursue ordinary and dynamic capabilities at the same time, theoretically, but they involve very different sorts of skills, routines and mindsets. Moreover, they can be at cross-purposes, because innovation and change (the proximate goals of dynamic capabilities) pose a problem for efficiency (the goal of strong ordinary capabilities).

The dynamic capabilities framework is the subject of a large and growing scholarly literature in the field of strategic management.[29] The overarching goal is to explain the differential long-run growth and survival, stagnation or failure of firms by conceptualising how particular firms can be better or worse at identifying new opportunities, managing competitive threats, orchestrating their resources and effectuating necessary transformations. It is a scalable, system-level concept that encompasses strategy and the business environment.[30]

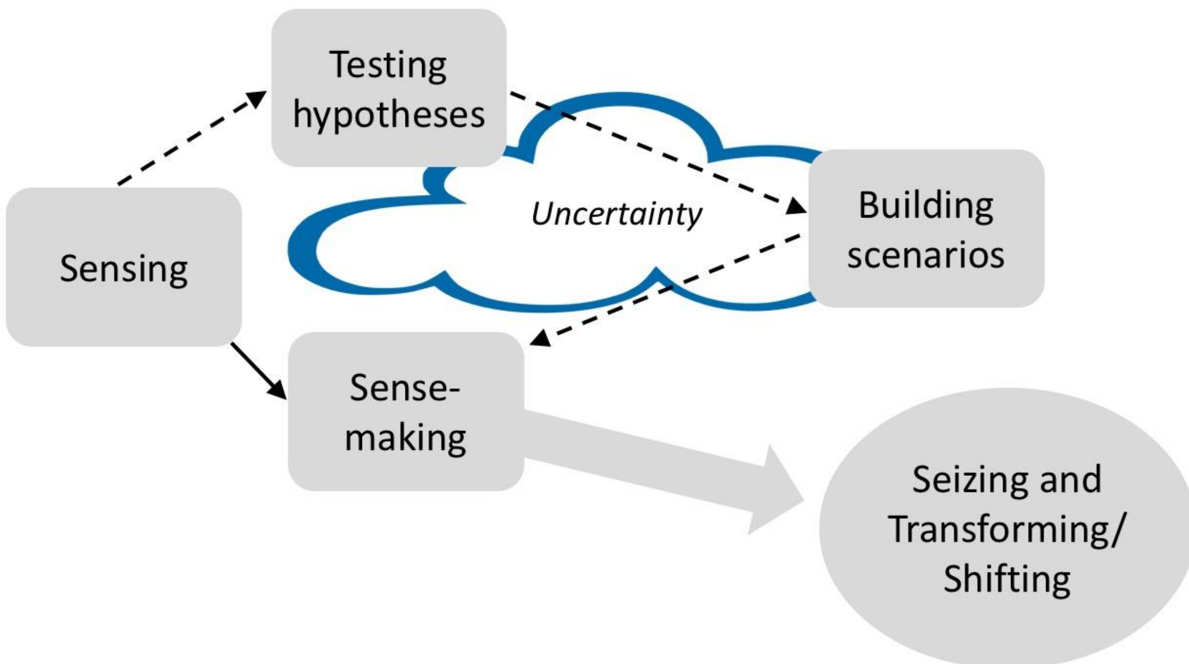
A key feature of dynamic capabilities is that they are forward-looking. Firms with strong dynamic capabilities manage their current businesses profitably while also exploring whether it's the right business for the future and what other threats and opportunities it may face. This requires a set of capabilities known as "sensing". This is largely a matter of continuously seeking information and processing it with a combination of analysis and intuition.

When the future looks uncertain, sensing requires more complex activities known as sensemaking (Figure 2). This involves abductive reasoning, building a narrative around what is going on and likely outcomes.

[28] See https://www.gov.uk/government/collections/business-basics-programme
[29] For instance, see Albort-Morant, G., Leal-Rodríguez, A.L., Fernández-Rodríguez, V., & Ariza-Montes, A., "Assessing the origins, evolution and prospects of the literature on dynamic capabilities: A bibliometric analysis", *European Research on Management and Business Economics 24*(1) (2018): 42–52.
[30] Teece, D.J., "Dynamic capabilities as (workable) management systems theory", *Journal of Management & Organization 24*(3) (2018): 359–368.

Before building a narrative, a manager often needs to generate multiple hypotheses about the path of industry evolution and run "contests" between them, such as by conducting limited experiments with prices, quantities, features or bundles. As a dominant hypothesis emerges, the manager develops a new frame that determines which factors are deemed important for future strategising.

Figure 2: Management sensing in uncertain environments



The other key categories of dynamic capabilities are "seizing" and "transforming". Seizing includes innovating and implementing a business model to satisfy customers, shape markets and market outcomes, and capture value.[31] The development of a business model starts with a deep understanding of the customer's problems and benefits from familiarity with the dozens of models that exist already. Truly new business models are exceedingly rare.

A firm's transforming capabilities address the need for a realignment of the firm's resources when new opportunities are to be pursued or when rigidities that develop over time from asset accumulation, standard operating procedures and the development of organisational fiefdoms and siloes need to be softened.

Additional activities involved in sensing, seizing and transforming are listed in Table 1.

[31] Teece, D.J., "Business models and dynamic capabilities", *Long Range Planning 51*(1) (2018): 40–49.

Table 1: Key dynamic capabilities for firms

Dynamic capability domain	Capability specifics
Sensing	Capabilities include processes to: • direct internal R&D • provide scenario planning and environmental scanning "foresight" • tap development in exogenous science and technology • tap supplier and complementor innovations • identify target market segments, changing customer needs and customer innovations
Seizing	Capabilities involve: • putting new products, processes or services into production • analysing large, complex data sets • delineating the customer solution and business model, which includes selecting the right product and service model architecture and the business model to capture value from innovation and invention • strengthening the appropriability/amount of natural and legal protection afforded the innovation by the circumstances prevailing in the market • selecting enterprise boundaries to manage complements and "control" platforms; the critical strategic element associated with capturing value from innovation is the ability of the innovating enterprise to identify and control the "bottleneck assets" or "choke points" in the value chain, from invention through to market • selecting decision-making protocols by creating systematic routines at both executive and board levels to identify bias, awareness of incentives, groupthink and narrowness
Transforming	Capabilities involve: • change management capacity, agility and readiness • strategic fit so that asset combinations are value enhancing • integration and coordination: organisational units must have considerable autonomy but remain connected to activities that must be coordinated • checks on strategic malfeasance; boards stacked with inexperienced "independent" members may not have the requisite talents (as is often the case in science, technology and engineering) to diagnose strategic "malfeasance" properly and respond accordingly • knowledge-transfer procedures to monitor the transfer of technology and intellectual property

Dynamic capabilities are hard to measure because they encompass so many separate activities, many of which will differ from one firm to another. One method is to identify a specific activity, such as capital reallocation, and assess how it correlates with performance across a sample of firms (see box, "Dynamic Capabilities in Action"). Another method is to make firm-level assessments using already-validated survey instruments to self-assess aspects of the firm's dynamic capabilities, such as openness to external knowledge and entrepreneurial orientation.[32]

The fulcrum on which strong dynamic capabilities are built is the top management team. The management team must guide and inspire the organisation that it runs and must develop compelling strategies to build support from its board of directors. In an increasingly uncertain global business environment, managers must be entrepreneurial leaders who can build new organisational capabilities that enable innovative offerings and new business models.[33]

Dynamic Capabilities in Action: Reallocation and Firm Performance[34]

A recently published study found that firms which performed more reallocation of capital across business segments (evidence of the orchestration skills that are part of strong dynamic capabilities) performed better in terms of Return on Assets (and on another measure called Absolute Value Added). The sample involved nearly 2,000 listed firms active during the period from 1990 to 2007.

One finding is that the level of reallocation is a relatively stable firm characteristic, not just an ad hoc response to a specific problem. For all firms, there was a strong positive relationship: the more a firm reallocated among segments from year to year, the better its returns were likely to be. Past some point, too much reallocation can harm performance, but that was the case for less than 2% of sample firms. Active, entrepreneurial support of internal opportunities through the firm's "internal capital market" is likely to be beneficial to shareholders.

Capability challenges for New Zealand firms

Measuring management capabilities is difficult. However, evidence points clearly in one direction: namely, that enduring management capability challenges exist in New Zealand firms.

A study that looked at over 150 medium and large-sized New Zealand manufacturing firms across eighteen management-capability dimensions revealed common themes.[35] Operations management capabilities had room for improvement, but human capital attraction and retention were the furthest behind international comparative benchmarks. Organisational design is a key component of dynamic capabilities, and the report found that high degrees of management autonomy and decentralised decision-making were correlated with superior performance. The report concluded that a deliberate approach to diagnose management capability gaps and a programme of improvement interventions were warranted.

[32] See, e.g. Danneels, E., "Organizational antecedents of second-order competences", *Strategic Management Journal 29*(5) (2008): 519–543; and Jantunen, A., Puumalainen, K., Saarenketo, S., & Kyläheiko, K., "Entrepreneurial orientation, dynamic capabilities and international performance", *Journal of International Entrepreneurship 3*(3) (2005): 223–243.
[33] Schoemaker, P. J., Heaton, S., & Teece, D., "Innovation, dynamic capabilities, and leadership", *California Management Review 61*(1) (2018): 15–42.
[34] Lovallo, D., Brown, A.L., Teece, D.J., & Bardolet, D., "Resource re-allocation capabilities in internal capital markets: The value of overcoming inertia", *Strategic Management Journal* 41(8) (2020): 1365–1380.
[35] Green, R., et al., *Management Matters in New Zealand—How does manufacturing measure up?*, report commissioned by the NZ Ministry of Economic Development, conducted by University of Technology, Sydney and London School of Economics (2010), available at: http://worldmanagementsurvey.org/wp-content/images/2010/07/Report_Management-Matters-in-New-Zealand-How-does-manufacturing-measure-up.pdf

There was a strong linkage between firm management capabilities and firm performance, competitiveness and operational productivity.

Some bodies of work link innovation and competitiveness with differences in corporate and national cultures.[36] One study into New Zealand national culture and value capture revealed several issues: a strong desire for centralised control exacerbated by highly negative attitudes to failure which resulted in narrow capital structures; friction with rules and bureaucracy; short-term orientation; negative attitudes towards external collaboration or "coopetition"; and reluctance around giving and receiving feedback, placing limits on learning cultures.[37] The study concluded that the New Zealand experience is characterised by a deep avoidance of uncertainty which is ubiquitous in global markets. These problems are compounded by the difficulty for firms from a small, somewhat remote nation to easily and readily form international strategic alliances.[38]

Performance and productivity are not a one-time goal. Firms must respond to sometimes sudden shifts in their business environments. A 2015 study into the resilience of New Zealand manufacturing firms found that firms which thought of their activities in terms compatible with strong dynamic capabilities were more resilient during the global financial crisis.[39] Managers in the most resilient firms had clear sensing, seizing and transforming capabilities which covered the actions and processes used to find or invent technology or opportunity, create new business models and structures, and continually evolve and capture value from new offerings.

These findings have implications for the internationalisation of New Zealand firms, which has been associated with higher productivity.[40] As internationally active firms are usually strongly exposed to the rapid changes in a global marketplace, the development of requisite dynamic capabilities is crucial for international performance.[41]

It is no great secret that firm-level management capabilities in New Zealand lag behind peers. This managerial capability gap has a negative impact on performance and productivity. This also negatively effects firm culture, outward orientation, risk appetite and strategic alliance and network-building activities abroad. These major capability issues need to be addressed at their microfoundational levels in firms. Firms in New Zealand need a deliberate effort to build ordinary and dynamic capabilities. Management teams and boards are jointly responsible for this.

---

[36] O'Reilly, C., "Corporations, culture, and commitment: Motivation and social control in organizations", *California Management Review 31*(4) (1989): 9–25; Tushman, M., Tushman, M.L., & O'Reilly, C.A., *Winning Through Innovation: A Practical Guide to Leading Organizational Change and Renewal*, Cambridge, MA: Harvard Business Press (2002); Shane, S., "Cultural Influences on National Rates of Innovation", *Journal of Business Venturing 8* (1993): 59–73; Shane, S., "Uncertainty avoidance and the preference for innovation championing roles", *Journal of international business studies 26*(1) (1995): 47–68; Shane, S., Venkataraman, S., & MacMillan, I., "Cultural Differences in Innovation Championing Strategies", *Journal of Management 21*(5) (1995): 931–952.
[37] Smale, T., *The Influence of National Culture on New Zealand's Innovation Outcomes*, MBA dissertation, Henley Management College, Henley-on-Thames, United Kingdom (2008).
[38] Paradkar, A., Knight, J., & Hansen, P., "Innovation in start-ups: Ideas filling the void or ideas devoid of resources and capabilities?" *Technovation 41* (2015): 1–10.
[39] Collins, S. *Strategising for Resilience*, PhD thesis, Victoria University of Wellington (2015), available at: http://researcharchive.vuw.ac.nz/xmlui/bitstream/handle/10063/5035/thesis.pdf
[40] Skilling (2020).
[41] Augier M., & Teece, D.J., "Dynamic capabilities and multinational enterprise: Penrosean insights and omissions", *Management International Review 47*(2) (2007): 175–192.

4. Corporate Governance, Capabilities and the Firm

Dynamic capabilities are organisational capabilities because all of the elements of the organisation—management, employees, routines, organisational design and more—must be aligned for the capabilities to be effective.[42] Employees unwilling to embrace change, or company functions not organised for collaboration, can torpedo otherwise promising initiatives.

One component that is easy to overlook is the board of directors, because many think of it as mainly dedicated to narrow traditional functions, including CEO selection, performance management, compliance and oversight. CEO selection is of course hugely important in terms of setting the direction for the firm. Experienced directors also can help connect a firm with strategic investors, partners or overseas opportunities.[43]

Beyond that, supporting and overseeing the management team's development of a long-term strategy is often given lip service but fails to take place in practice. This poses a problem for the capabilities of the firm. An underinformed and/or under-resourced board is less likely to understand and support innovative but risky investments and complex technical capability building.

The board's configuration and attitudes also matter. Just as an overly accommodating board can allow a firm to slide needlessly into difficulties, an overly risk-averse board can prevent reasonable investments with potentially large payoffs.

For boards to be effective, they must have strong capabilities of their own. Meta studies of prior research demonstrate consistently the strong correlation between good governance (diversity, some independence, effectively aligned long-run incentives and renumeration, etc.) and firm-level performance and productivity.[44]

Rival paradigms of boards and governance

There is a growing push to rethink the roles that boards play.[45] Yet the oversight role of boards is deeply entrenched in official regulations, investor expectations and traditional, and largely outdated academic theory.

The dominant academic paradigm of corporate governance is known as agency theory.[46] In the agency view, the enterprise is little more than a web of (in some cases implicit) contracts in which the key choice variables are the incentives for and monitoring of performance by management for the benefit of shareholders. The underlying assumption is that managers, given enough leeway, will squander resources on vanity projects. Firms that are loaded up with debt are considered safe from managerial predation because access to capital is limited.

---

[42] Teece, D.J., "Strategic renewal and dynamic capabilities: Managing uncertainty, irreversibilities, and congruence:, in A. Tuncdogan, A. Lindgreen, F. Van Den Bosch, and H. Volberda (eds.), *Strategic Renewal: Core Concepts, Antecedents, and Micro Foundations*, New York: Routledge (2019), pp.21–51.
[43] Smith, J., & Garden, S., *The role of boards in lifting New Zealand's productivity frontier*, New Zealand Productivity Commission working paper (2020).
[44] Deloitte and Nyenrode Business Universiteit, *Good Governance Driving Corporate Performance* (2016), available at: https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/risk/deloitte-nl-risk-good-governance-driving-corporate-performance.pdf
[45] See, e.g. Barton, D., & Wiseman, M., "Where boards fall short", *Harvard Business Review 93*(1) (2015): 98–104.
[46] For a review, see Eisenhardt, K.M., "Agency theory: An assessment and review", *Academy of Management Review 14*(1) (1989): 57–74.

The problem with firms run in this way is that the board is so focused on policing managerial opportunism that it can fail to attend to the needs of supporting management's pursuit of promising opportunities. This tendency is exacerbated by the limitations of board members' expertise and resources for evaluating management proposals. This is one reason that superstar firms such as Amazon and Netflix are often led by visionary founders with larger voting shares than the typical CEO. In this traditional perspective, firms are in the business of providing ordinary goods and services. These approaches to economic activity downplay or ignore the central economic function of firms and managers: namely, the entrepreneurial development of new products and services. This sort of traditional paradigm permeates legislative regulatory spheres as well as shareholder rights, and wider "stakeholder" expectations create a "them and us" mentality between management in firms and the boards that govern them. This long run has a negative impact on collaborative decision-making and co-creation and places downward pressure on bold and risky innovation-related decision-making.

Capabilities-based view of corporate governance

The capabilities perspective, in contrast, acknowledges that management requires board oversight, but also sees the potential for much more dynamic decision-making and co-creation of good strategy by management and the board. It does not ignore that the management team is capable of making inappropriate decisions out of self-interest, but it recognises that the board's main responsibility is to assess how well the team is guiding the firm forward through future uncertainty. Has it ensured the presence and renewal of strong organisational capabilities? Has it set strategic goals based on a well-founded understanding of the market's trajectory? Are profit streams protected from appropriation by partners and competitors? The quality of these decisions shapes enterprise performance, productivity and competitiveness.

In the capabilities perspective, the primary governance challenges are not about solving moral-hazard problems and guarding against opportunism, but rather about assessing, supporting and sometimes challenging management's strategic planning and not just shareholder primacy. Oversight will generally be more "hands on" at firms closer to their startup phase.[47] At more mature firms, the role of good governance by the board of directors is to be a trusted partner and wise counsel, as well as provide checks and balances on behalf of shareholders and stakeholders. At leading firms, the role of the board is tilted heavily towards long-term strategy, innovation, CEO empowerment and building an entrepreneurial management culture from the top down.

The current corporate governance landscape

Concerns around corporate malfeasance, which have deepened in response to high-profile governance failures such as Enron and Lehman Brothers, and with Mainzeal closer to home, have led to increased legislative obligations, personal liability and regulatory compliance requirements and public scrutiny and in places this was sensible. However, their presence, can limit the time and agenda space directors have to deeply consider long-run strategy and productivity transformations. This is particularly the case for listed companies, which are facing increasing regulatory responsibilities on several fronts.

There continues to be a widening of expectations for New Zealand directors. Ripple effects from the review of the finance sector by the New Zealand Financial Markets Authority, which encourages the

---

[47] Smith & Garden (2020).

development of a culture that avoids excessive risks, are likely to influence all sectors.[48] And broader disclosure requirements from the New Zealand Stock Exchange, and rafts of reporting requirements on new topics such as sustainability also absorb board capacity and focus. Directors have many legal duties and liabilities under various pieces of legislation with general application (e.g. the Health and Safety at Work Act 2015, Fair Trading Act 1986). Some also have duties and liabilities under legislation relating to specific industries (e.g. the Food Act 2014, Financial Markets Conduct Act 2013).

In terms of capabilities, the rules of contemporary governance are tending towards a focus on overseeing ordinary capabilities, which are comparatively easy to quantify. This is in the context of inherent short-termism, and shareholder primacy doctrine in corporate governance. Meanwhile, there is no immediate penalty for leaving strategic issues, complex innovation investment and international alliances in the "too hard/no time" basket for management to sort out. If management proposes a bold vision, a risk averse and compliance-burdened board may be reluctant to support it. Board members are held accountable for sins of commission, but less so for sins of omission.

In a 2019 survey, when a sample of New Zealand directors was asked about the greatest challenge to board effectiveness, 65% chose "balancing time spent on performance and conformance"—making it the single biggest problem.[49] In the same survey, nonexecutive directors reported that time required for board activities had expanded by nearly 60% from 2014 to 2019. A survey of over 2,500 directors across four hundred firms in New Zealand showed the majority (67%) of firms felt it was urgent to increase the amount of time spent on strategic planning.[50]

Compliance and regulatory requirements impact small and medium firms disproportionately. In New Zealand, compliance costs are three times higher per employee in small firms than in large, and in the period from 1999 to 2008 over two thousand new regulations were introduced.[51] Across the OECD only a handful of countries—of which New Zealand is not one—have programmes to both monitor and also control down and mitigate compliance costs and burdens.[52]

Nevertheless, some change is in the air for corporate governance. A 2019 speech by the NZ Financial Markets Authority CEO argued that the "Milton Friedman model" of shareholder primacy (a key tenet of agency theory) is broken.[53] Stakeholder models, which consider the interests of employees, suppliers and others in making long-term plans, are gaining ground, as exemplified by changes to the UK Companies Act in 2018.[54] However, what constitutes the interests of those who are not in a position to state their own

[48] Chapman Tripp, New Zealand Corporate Governance Trends (2019), available at: https://chapmantripp.com/media/qdbfq3zi/corporate-governance-trends-insights-2019.pdf

[49] Institute of Directors & MinterEllisonRuddWatts, *Always on duty: The future board* (2019), https://www.iod.org.nz/resources-and-insights/publications/insights/always-on-duty-the-future-board

[50] Strategic Pay, New Zealand Directors' Fees Renumeration Report (2020), available at: https://www.strategicpay.co.nz/site/strategicpay/files/pdfs/Directors'%20Fees%20Overview%202020.pdf

[51] Business NZ, *Regulation Perspectives*, available at: https://www.businessnz.org.nz/__data/assets/pdf_file/0008/89504/Regulation-Perspectives.pdf

[52] Jacobzone, S., Choi, C., & Miguet, C., *Indicators of Regulatory Management Systems*, OECD Working Papers on Public Governance, 2007/4, OECD Publishing (2007). doi:10.1787/112082475604, available at: http://www.oecd.org/regreform/regulatory-policy/39954493.pdf

[53] FMA, "Presentation by Rob Everett at the NZ Capital Markets Forum" (21 March 2019), available at: https://www.fma.govt.nz/news-and-resources/speeches-and-presentations/nz-capital-markets-forum/

[54] Our view is that a "long-term shareholder" perspective is the appropriate goal for management and the board. This will (a) require a focus on stewardship, (b) include identification of the stakeholders who matter for survival and growth and (c) necessitate keeping environmental, social and governance (ESG) goals tethered to the sustainability of productivity, jobs and earnings for reinvestment.

case will be quite open to interpretation in terms of how it intersects with the long-term interests of the company. This shift potentially creates more work for the legal professional by opening opportunities for legal challenge and seems likely to intensify board risk aversion.

One positive development globally and domestically is the push for greater board diversity, which is positively related to corporate innovation.[55] A study of FTSE350 firms found more functionally diverse boards are better equipped to deal with deep uncertainty and complexity, professional networks and alliances are improved, and there is better monitoring.[56] Further reflections on the advantages of diversity in thought and skills in a specifically New Zealand context can be found in a companion paper to this report based on interviews with directors of New Zealand firms.[57]

Diversity is a multidimensional concept, which can involve race and gender, but also functional and intellectual experience. Gender is where NZ boards have made the most visible progress, and 29% of S&P/NZX50 directorships were female in 2019—on track to meet the 2020 target of 30%.[58] The case has also been made in a recent report that the inclusion of more "creatives" on boards in New Zealand firms can help drive innovation and avoid groupthink.[59] Geographic diversity should also be a key consideration. Directors with international experience in high-growth firms and multinationals have a wealth of experience and capabilities to benefit New Zealand firms.

The introduction of outsiders, however, can be overdone. By the mid-2000s, just over half of NZ directors were independent.[60] A 2012 study into New Zealand boards revealed independent directors add little to, or affect negatively, firm value.[61] By design, they know less about the business, and they have weaker incentives to back bold and risky innovations. In short, all things in moderation.

Functional diversity may be more important than the more observable diversity measures.[62] Drawing directors from different functional areas such as strategy, technology, brand and operations is important to compliment those with the legal, accounting and financial backgrounds who tend to dominate in board recruitment. A 2016 report found that directors of listed companies in New Zealand overwhelmingly had specific accounting or finance experience or had been CEOs themselves in other large firms.[63] The report referred to a "relatively homogeneous, 'clubby' social network of New Zealand directors" who, at the top

---

[55] An, H., Chen, C., Wu, Q., & Zhang, T., "Corporate Innovation: Do Diverse Boards Help?" *Journal of Financial and Quantitative Analysis*, pre-publication view (2019). https://doi.org/10.1017/S0022109019001005
[56] Goyal, R., Kakabadse, N., & Kakabadse, A., "Improving corporate governance with functional diversity on FTSE 350 boards: Directors' perspective", *Journal of Capital Market Studies 3*(2) (2019): 113–136.
[57] Smith & Garden (2020).
[58] NZX Gender Diversity Statistics (February 2020), http://nzx-prod-s7fsd7f98s.s3-website-ap-southeast-2.amazonaws.com/attachments/NZXO/348022/316268.pdf
[59] Rodda, A., & Moe, S., *Tomorrow's Board Diversity: The Role of Creatives*, white paper. Christchurch, NZ: Parry Field Lawyers (2020), available at: https://www.parryfield.com/tomorrows-board-diversity-the-role-of-creatives/. See also Nemeth, C., *In Defense of Troublemakers: The Power of Dissent in Life and Business*, New York: Basic Books (2018).
[60] Koerniadi, H., & Tourani-Rad, A., "Does board independence matter? Evidence from New Zealand", *Australasian Accounting, Business and Finance Journal 6*(2) (2012): 3–18.
[61] Ibid.
[62] The need for intellectual diversity applies equally to the top management team. See e.g. Hambrick, D.C., Cho, T. S., & Chen, M.J., "The influence of top management team heterogeneity on firms' competitive moves", *Administrative Science Quarterly* 41(4) (1996): 659–684.
[63] Ware, D., *Great Expectations: what shareholders and directors expect from New Zealand public company boards*, thesis submitted for PhD studies, Victoria University of Wellington (2016).

level, are few and (mostly) overcommitted. Diversity of function and opinion is essential for boards to be successful at strategy stewardship.

How boards get information and "sense" the external environment is also a critical capability to have. Management is the major source of information for boards in New Zealand. This places a premium on the quality of management's communication with the board. Netflix has developed a system that immerses the board in the running of the company. Board members periodically attend (as observers) monthly and quarterly senior management meetings. Board communication from management takes the form of a quarterly memo of roughly thirty pages that includes links to supporting analysis and all data on the company's intranet.[64] This requires more preparation time by directors but has led to a more dynamic and collaborative relationship with management.

The goal is to create a space in which strategy will receive due consideration without disproportionate distractions of operational and compliance issues at board level in firms. One way to ensure this is through board structure and procedure. New Zealand follows a single-entity board structure. Almost half of the OECD nations operate a dual-board structure or have the legal provisions to so.[65]

In general, the two parts of the dual board are a supervisory board, and a management board. The management board focuses on audit, risk, compliance and regulatory matters, while the supervisory board focuses on long-term strategy and investments, operations and talent. This structure has the benefit of separating out fundamentally different tasks and burdensome compliance matters from the creative discussions needed when discussing strategy and innovation. The downside is that the formalised split can inhibit information sharing and increase bureaucratic overhead. The key advantage from a capabilities perspective is that the supervisory board can focus on long-run strategy, the innovation pipeline, investments, international alliances, M&A, joint ventures and talent.

We are not advocating dual-board governance for New Zealand, nor would it be practicable in smaller firms which dominate the landscape. There are of course ways for New Zealand firms to emulate the advantages of a dual-board structure while avoiding the downsides. This could be as simple as creating a well-resourced strategy subcommittee with appropriate experience and ensuring that it remains sufficiently insulated from day-to-day issues to focus on the long term. In a smaller company with few board members, it largely would be a matter of setting aside time and resources to focus on long-term issues the company faces.

Gaps have been noted in the understanding of New Zealand directors about their roles in value creation, the linkages between corporate governance and strategy, and their roles in implementation.[66] Now more than ever, boards need to favour the future, tolerate mavericks, support bold investment and remove complacent managers to help shift lacklustre businesses towards the domestic productivity frontier and catapult the best New Zealand firms towards the global frontier through innovation and the building of global competitive advantage. The trend of increasing the already large amount of time that boards must spend on compliance has only accelerated as new board compliance requirements are piled on top of existing ones.

---

[64] Larcker, D.F., & Tayan, B., *Netflix approach to governance: Genuine transparency with the board,* Stanford Closer Look Series, Stanford Graduate School of Business (2018), available at: www.gsb.stanford.edu/sites/gsb/files/publication-pdf/cgri-closer-look-71-netflix-approach-governance-boards.pdf

[65] OECD, *OECD Corporate Governance Factbook 2019* (2019), available at: http://www.oecd.org/corporate/Corporate-Governance-Factbook.pdf

[66] Ingley, C.B., & Van der Walt, N.T., "The strategic board: The changing role of directors in developing and maintaining corporate capability", *Corporate Governance: An International Review 9*(3) (2001): 174–185.

In short, the structure, function, diversity and capabilities of management and boards in New Zealand need to evolve rapidly to take New Zealand productivity to the next level. Old ways of doing business are falling short. Innovation is needed to permit boards of directors to escape the gravitational attraction of risk averse box-ticking and develop capabilities to understand, co-develop and support management's pursuit of long-term competitive advantage. A fresh approach will allow the board to take its place developing and projecting the firm's strong dynamic capabilities.

5. Recommendations

To conclude, we make a number of recommendations for initiatives that could raise the capabilities and thereby positively impact productivity levels and competitiveness of New Zealand firms. The work of building capabilities cannot be forced on to firms, so the efforts will be limited to those who self-select, with targeted support of course. The hope is that other firms will see the benefits and invest, and a new wave of capabilities-based thinking permeates at board and management level across the country.

1. Build dynamic capabilities at firm level

Situation: Management practices and capabilities in New Zealand lag behind peers globally, as does investment in skills and innovation. Firms are the engine of economic growth, but capabilities at firm level are often the forgotten link of economic and industrial policy interventions. The problem is a lack of awareness among policymakers and managers around which capabilities are critical and how to develop them. There is room for improvement, and urgent action is needed. The importance of capabilities, including the dynamic capabilities framework, is reasonably well understood conceptually in New Zealand business schools and in discrete corners of the public sector, such as the Commission. This awareness does not yet extend in a large way to the business community. Firms with better capabilities (ordinary and dynamic), are more innovative, resilient, productive and competitive, and typically pay higher wages.

Recommendation: There is a need to develop stronger management capabilities and practice in New Zealand firms to support productivity gains and increase competitiveness. Perhaps most needed are capabilities related to outward management orientation, international network and alliance building, tapping exogenous science and technology, innovation of business models and orchestration of external complementary assets.

To build dynamic capabilities at the firm level in New Zealand, the first step will involve establishing a cross-sector Frontier Firms' capability programme. To be effective, the programme needs to have a multiyear commitment and funding to suit. Its core business will be to bring together key talent and resources in government, industry and academia to diagnose critical firm-level capability gaps that hinder the economic contribution, innovation and internationalisation of frontier and other firms in New Zealand. The programme could include a pilot diagnostic project with a mixed methodological approach that evaluates the current state of a firm's dynamic capabilities. This can help develop a firm- and sector-level capabilities inventory and contribute to additional research on the topic in New Zealand. Based on the findings, firm- and/or sector-specific interventions can be developed. New Zealand's economic agencies could lead this programme jointly with involvement from private firms, relevant scholars, Iwi and external experts as needed.

2. Develop policy and a competitive fund to support building of ordinary capabilities at firm level

Situation: A key aspect of New Zealand's productivity weakness is the apparent failure of many firms to adopt tried and tested technologies and management practices. For firms behind the frontier, significant productivity gains may be achieved in the short run simply by identifying and diffusing better ordinary capabilities (best practices) and existing technologies among New Zealand firms. This is not just about making up lost ground. If firms in the New Zealand economy are not supporting the diffusion of existing innovations and best practices, it will hamper the uptake of future innovations. The goals of this programme must be realistic, but there is probably plenty of "low-hanging fruit" to be harvested by targeted outreach.

Recommendation: Develop a policy and competitive fund to help identify and diffuse existing technologies and business practices which improve productivity in New Zealand firms. Central government funding can help acquire, develop and diffuse existing ordinary business capabilities and technologies to improve firm performance and productivity. Similar approaches are being experimented with currently in the UK, with some initial promising results.[67] A robust evaluation methodology needs to be developed, with randomised controlled trials (RCTs) to verify causal impact and inform the future direction of the fund and other investments. New Zealand's economic agencies should lead this programme with support from a strong research partner and from external technology transfer and management experts.

In addition, more focused research is needed into the micro-foundations of firm-level competitiveness, productivity and capabilities that includes both management and boards in New Zealand.

3. Develop stronger international orientation and better cross-border networks and alliance building for New Zealand managers

Situation: The most dynamic firms are characterised by open innovation strategies, a global orientation and participation in dense commercial, technical and research networks and alliances. In New Zealand, these are not strong due to factors including a domestic orientation, distance from global markets and a limited presence of major multinational firms as potential partners.

Recommendation: Develop a long-term exchange and mentoring programme for senior managers in New Zealand firms with global multinationals and centres of research excellence relevant to competitive New Zealand business sectors. The exchange of management know-how, through lived experience with executives in multinationals and research centres of excellence which have invested significantly in managerial practice, processes and systems, will benefit firms in New Zealand. This programme should have more depth than "study trips" and be co-created with managers in firms to ensure it is fit for purpose and enduring. In the Covid-19 era, this could kick off virtually. This programme will need strong monitoring and evaluation of the experiments over time, which will to inform decisions to scale up as appropriate. This programme should be led by New Zealand's external agencies with support from larger listed and exporting firms, which have existing relationships with global multinational corporations.

---

[67] Department for Business, Energy & Industrial Strategy, *Business Basics Programme: Progress Report*, BEIS Research Paper number 2019/014 (October 2019), available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/838492/business-basics-programme-progress-report-october-2019.pdf

4. Evolve corporate governance to support development of dynamic capabilities

Situation: In New Zealand firms, the board's ability and capacity to collaborate with management on capability development, investment in risky innovation and long-run strategy is under constant pressure. Time spent on compliance and regulation is ever increasing, and consequences of "sins of commission" are severe, unlike those of omission. Compliance-oriented professions such as legal and accounting tend to be overrepresented instead of those with deep technology, science, engineering and innovation expertise or with international experience and outlooks. The voices of the young, mavericks and creatives are tending to be largely unheard in most board rooms. Most board procedures and processes have not evolved greatly with the times. This situation makes it difficult for the board to be active stewards, with management, of long-run strategy and capability development.

Recommendations: Develop awareness and understanding of dynamic capabilities among directors on boards in New Zealand firms to enable them to better partner with management on long-run strategy and capability development. One practical first step is to establish a "Long-Term Stewardship" programme for current and future directors in New Zealand that focuses on governance for the twenty-first century. Directors must balance the demands of innovation, capability development, stakeholder well-being and the global environment. A stewardship programme can help bring together CEOs, founders, scholars and directors to inform future selection, training and succession planning for New Zealand boards. In the spirit of practical experimentation, we suggest a pilot project to select boards in a willing strategic sector (high concentration of frontier firms, already exporting) to undergo a capabilities diagnostic tailored for boards of directors and based on these findings develop targeted interventions to fill gaps.

Further research is also required into the current available pipeline of talent to fill functional and international expertise diversity gaps on New Zealand boards.

The programme can also consider experiments with board structures and procedures to ensure that enough time is allowed for a subset of directors to focus on assessing management's plans for long-run strategy, capability development and innovation. Management communications with the board should be enhanced where needed. This may take the form of more senior managers attending board meetings (which may have the long-term benefit of expanding the pipeline for future directors). Larger firms should consider supporting a bigger role for the office of the chairperson, ensuring it has resources to perform analysis and generate insights, challenge management assumptions and avoid strategic malfeasance, short-termism and favour the future. A cross-sector group of government agencies and leading industry bodies should establish this programme jointly with a leading business school and with close involvement by existing (and high-potential) directors in private firms and by legal and strategy experts.

About the Authors

David Teece

David Teece is Executive Director of the BRG Institute and Chairman and Principal Executive Officer of Berkeley Research Group, LLC. He is a renowned economist, a leading scholar on innovation and an academic entrepreneur. He has twice founded and grown companies to NZ$750 million in revenues. He is also an active investor and cofounder of Pilatus Capital.

Dr. Teece is the director of the Tusher Center on Intellectual Capital at the Haas School of Business at the University of California, Berkeley, and a former member of the board of overseers for the School of Arts and Sciences at the University of Pennsylvania. He has a PhD in economics from the University of Pennsylvania and has held teaching and research positions at Stanford University and Oxford University. He has received eight honorary doctorates. He received a BA, MA and MComm (Honours I) from the University of Canterbury, Christchurch, New Zealand.

Dr. Teece has over thirty years of experience as an active consultant performing economic, business and financial consulting services to businesses and governments around the world. According to *Science Watch* (November/December 2005), he is the lead author on the most cited article in economics and business worldwide from 1995 to 2005. He is also one of the top-ten cited scholars for the last decade and was recognised by Accenture as one of the world's top-fifty business intellectuals. In addition, he was among the "A-List of Management Academics 2011", an honorary group of thirty accomplished and distinguished US business professors.

Kieran Brown

Kieran Brown is a Fellow with the BRG Institute working across innovation, industrial and economic research topics. He is also a Senior Manager with Berkeley Research Group, LLC based in London. He serves government and Fortune 500 clients globally as a trusted advisor. He has served clients in automotive, manufacturing, technology and financial sectors across the US, UK, North Asia, Middle East, New Zealand and Australia. Mr. Brown has led complex long-term strategy and scenario-planning projects with Fortune 500 firms working closely with the C-suite and boards. He also has led research-intensive projects in policy related to the development, diffusion and adoption of emerging and disruptive technologies supporting senior policymakers and cabinet decision making.

Mr. Brown previously was a Fellow in the Public Sector practice at McKinsey & Company, and his early career was in digital and corporate strategy in the financial sector. He is a visiting scholar at the University of California, Berkeley, Haas School of Business and has been a visiting lecturer at GIBS Business School, University of Pretoria. He holds a Master of Public Policy degree from the University of Oxford and a Bachelor of Commerce with first class honours degree from Victoria University of Wellington.

Acknowledgements: Special thanks to Dr Greg Linden (UC Berkeley) and Phil Alves (Berkeley Research Group) for their contribution to the development of this report.

About BRG Institute

The BRG Institute was founded by Berkeley Research Group, LLC as an independent non-profit corporation to advance knowledge on the global economy, the corporation, technological innovation, financial institutions and elements of law and policy through research, open publication and public engagement. *https://www.brginstitute.org/*