

“Frontier Firms and Effecting Change”

Submission to the NZ Productivity Commission

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1. Background

The comments made in this paper reflect insights gained from over 30 years working in policy and performance management in the public and private sectors. This began in the early 1990s with manufacturing best practice and firm capability policy in the then Ministry of Commerce and most recently in the conducting of case studies of exemplar firms in the Canterbury food and fibre sector. Most of the comments offered here relate to considerations of the Canterbury exercise. It's about sharing and learning. The aim is to highlight the issues raised and the implications there of, rather than provide an in-depth treatise of every aspect. Suffice to say at this point the thinking behind the issues raised here embodies systems concepts, complexity theory and change management considerations, integrated in a way that hopefully can start to reframe how one thinks about and manages the challenges.

2. The aims of the Canterbury Exercise mirror the Commission’s objectives

The underlying intent of the case studies was to explore and discuss current practice within a firm level business growth methodology (McKinsey’s “The Alchemy of Growth”), identifying the key opportunities or impediments to growth for each of the chosen agribusiness companies. The aim was to develop a set of actions for the Mayors independently or the Mayoral Forum collectively to lead, enable or support changes that add to a thriving Canterbury economy. This involved consideration of replicating success, learning from change and managing big change. These considerations mirrored many of the aspects raised in the background material to the Productivity Commission’s inquiry. We considered we had a good feel for what constituted success. The challenge became how one utilises this knowledge to effect change? This submission is accordingly more focused on aspects of implementation which the Commission will have to address in due course. This submission is made to share the thinking on common issues of interest and puts forward a starter of initiatives that would support a partnership between Government and a regional Economic Development Agency as a proof of concept initiative relating to implementation.

3. Areas to be discussed

Many of the considerations below are the result of reflecting back on the Canterbury exercise and lifting those reflections to a national level. The assumption being that what was evident in the Canterbury exercise would most likely be evident in other regions of New Zealand.

My contention is that we have a workable knowledge of the attributes of frontier and emerging frontier firms in New Zealand. However much of that knowledge is tacit and fragmented and needs to be codified to more

effectively inform the enterprise policy development process. The challenge then, as the Productivity Commission states, is how do we leverage off this knowledge and scale up these firms in a way that makes a collective and sustainable impact on enhancing standards of living? This puts the focus on implementation and transformation. In my view this reflects the short comings of the inquiry and can be considered a response to question 28. This ultimately comes back to the scope as determined by the terms of reference in the first place, which while referring to the diffusion of knowledge and technology does not provide guidance in relation to institutional considerations.

In my view the focus in the first instance is developing an appropriate micro- level framework to inform macro- level enterprise policy formulation and then to address the issues bridging policy formulation and implementation, which as recent Covid-19 border problems have illustrated, that bridge can be rickety.

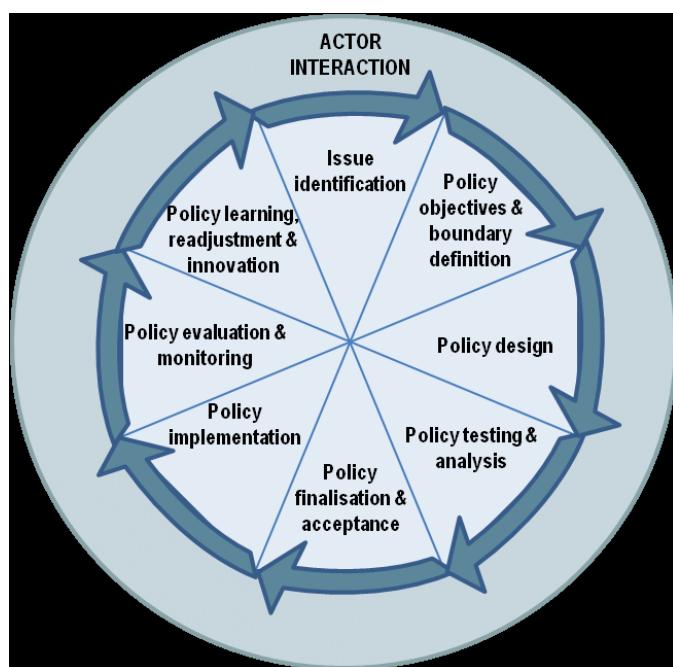
With that in mind, the following aspects are to be considered.

- Policy aspects – granularity and implementation
- Effecting change – understanding the system leverage points, systems learning and shared mental models
- Transformation (the path from the industrial age the innovation age business model)
- Institutional capability and capacity
- Raising the profile of absorptive capacity
- Provision of baseline information and some other practical considerations

4. Policy and Granularity

4.1 The Policy Process

Policy is viewed as a process, in its simplest form comprising formulation, implementation and monitoring. (A more disaggregated representation is shown below). In focussing on process one is guided by Edwards Deming's observations that 85% of organisational underperformance is process related and only 15% people related.



4.1.1 Formulation

(i) One size does not fit all. Lack of granularity. The language and models of macro policy do not reflect the language and models of how businesses operate. This is flagged by Jane Bryson and others. One is economics, the other is strategic management.

https://www.wgtn.ac.nz/som_projects/buildingourproductivity/files/BRYSON_ET_AL_LEW_13_PAPER.pdf
[/research/research-](#)

The response to many of the issues raised by Bryson et al is covered off in David Teece's 2019 paper where he brings strategic management to the fore in the articulation of a "dynamic capabilities" model of the firm. In the abstract of this paper he notes, "The application of capability theory allows intellectual blinders to be removed and an understanding of differential firm-level resource allocation and performance to emerge. This brings a richer conceptual understanding of the nature of the business enterprise and its management consistent with evolutionary and behavioural economics. Policy insights into governance, inequality, economic development and the wealth of nations follow".

Teece, David J. (2019). A capability theory of the firm: an economics and (Strategic) management perspective. **New Zealand Economic Papers**. Vol.53, No 1, pp.1-43.

<https://www.tandfonline.com/doi/full/10.1080/00779954.2017.1371208>

This reinforces why the McKinsey framework was chosen for the Canterbury case studies. This is presented in more detail in section 5 below.

It is also noted that David Skilling also refers to the issue of granularity in relation to transformation in his background paper to this inquiry (see page 2) but does not articulate in the manner of Teece.

https://www.productivity.govt.nz/assets/Documents/frontier-firms/2580acf490/Frontier-firms_David-Skilling.pdf

(ii) Time Frames

Reinforces the point made by the Productivity Commission.(See page 3 below). There are no quick fixes and requires consistent and focused effort on many fronts over and over many years. The time frames extending beyond the three year political cycle.

<https://www.productivity.govt.nz/assets/Documents/productivity-by-the-numbers-2019/42ead8d24d/Productivity-by-the-Numbers-2019.pdf>

This point is further reinforced by David Wilson, (see slides 12-14 in link below) when discussing regional economic development (RED). He notes:

- Three years is a short time in RED
- Political cycles do not match development cycles and project timelines
- Constant political and policy changes undermine RED efforts
- Constant reviews and re-inventions of institutional arrangements undermines efforts
- Consistency and building trust with the private sector, Maori communities and NGOs takes time.

4.1.2 Implementation

Given the lack of granularity in the policy formulation process, it is not surprising that those agencies charged with implementing business growth initiatives appear fragmented in approach.

David Wilson in relation to regional economic development (RED) notes:

- Delivery mechanisms are centrally driven and siloed
- Lack of role clarity
- Virtually no subsidiarity in funding or decision making
- Governance is confused and complicated

4.1.3 Monitoring/Evaluation/Policy fine-tuning

My working assumption is that this capability is not well developed and as a consequence the policy system lacks the capacity to learn. I consider this to be an aspect that this inquiry should explore further.

There is limited understanding of what is happening at a granular level. The policy feedback mechanism from grass roots to Government is weak/broken and is in part the unintended consequence of policy actions in the 1980's. Government policy by its nature is high level. Policy makers do not have visibility of the high levels of complexity facing individual businesses, i.e. the lowest level of granularity. The separation of policy making from delivery (formation of Crown Entities such as NZTE and Callaghan) and the move to user pays such as the sale of MAF's publicly funded Farm Advisory Services Division significantly contributed to a weakening of that feedback mechanism.

4.2 Overall assessment of the Policy Process

I concur with Wilson (op cit) in that currently not a systemic approach. Wilson (notes):

- Piece meal
- Centralised, top down, top heavy and siloed
- Lots of advice and new officials but parsimonious support for local agencies
- Lacking role clarity(who's in charge, who does what and at what level)
- Complex to navigate for some proponents but open to gaming the system by others
- Stark imbalance in funding and resources between central and regional agencies
- Project led not part of integrated strategic regional plans/operations
- Good projects rather than the right projects
- Lack of addressing productivity growth head on

In acknowledging the systemic failures, we need a structured and all inclusive approach to addressing the issues flagged. The following table developed as part of the "Peer Review of the Danish R&I System" (see page 53 of Final Report) fits the bill perfectly in my view. **I consider this as the centre piece in discussing initiatives to bring a whole of systems approach to enterprise policy.**

Table 2: Strategic shift in innovation policy rationales

Market failures (Neoclassical Perspective)	Structural System Failures (Innovation System Perspective)	Transformative System Failures (System Innovation Perspective)
1) Limited experimental economy Weak incentives, information asymmetries and capability deficiencies limit ideation and experimentation	1) Infrastructural failures Underinvestment in infrastructure due to large uncertainties, high risk, big scale and long-time horizons	1) Directionality Failures Weak incentives, lack of common visions and weak actor mobilization stop system transformation
2) Underinvestment in R&D and innovation Genuine uncertainty about results and appropriability make cost-benefit calculus impossible	2) Institutional failures Laws, property rights, regulations, trust, values, norms and attitudes could generate negative incentives	2) Demand articulation failures Weakly articulated user and societal needs and weak demand articulation capabilities limit system renewal
3) Negative externalities Societally negative effects if private actors do not have incentives to include such costs in their calculations	3) Network failures Weak cooperation limit knowledge exchanges, learning and empowerment – too strong clusters could lead to lock ins.	3) Policy coordination failures Under-developed processes for multi-level and horizontal policy coordination limit system renewal
4) Overexploitation of societal commons Societal commons – land, water, environment tend to be overexploited (if they are not priced)	4) Capability failures Lack of key competences, leadership and organizational capabilities limit absorption of new knowledge and innovation	4) Reflexivity failures Under-developed systems and renewal perspectives in policy evaluation and policy learning limit system renewal

Source: Based on Weber, RM and Rohracher H.: Legitimizing research, technology and innovation policies for transformative change, in Research Policy 41, 2012, p. 1037-1047.

4.3 Conclusions

Treating policy as an integrated process has highlighted a number of systemic issues. For me the fundamental issue is who has the responsibility for managing the overall system, i.e. working **on** the system, as opposed to working in it. Most of the activity one see around programmes is focused on working in the system with the

likelihood of suboptimal system outcomes. Ultimately I will judge the value of the Commission's inquiry by how it addresses the issues around transformative systems failures.

5. Micro Solution to the Macro Problem – The firm and the business case as the foundation units of analysis

This section sets out to address the issue of the “one size fits all” approach to enterprise policy. We start by acknowledging the diversity of firm level practices and performance across a given sector and make the firm the foundation unit of analysis. Following this the use of the business case becomes an important research instrument.

This is highlighted by Bryson et al, (op cit). To quote “For researchers working within strategic management and organisational behaviour frameworks, productivity research is often more exploratory in nature.

Questions seeking to explain the heterogeneous nature of productivity within a given industry, drivers of high performance management systems in improving organisational productivity are questions requiring methodologies that supply a rich texture of detailed information. Methodologies used in answering these questions include case studies and in-depth interviews, while survey methodologies are often also employed to improve generalisability”.

In undertaking the business cases for the Canterbury exercise we sought to establish a firm level model of best practice business growth to use as a lens to assess the chosen firms against.

The model had to meet two basic tests.

- It had to meet the tenants of the comparative systems approach to policy development, especially the efficiency criteria, these being the interplay between information, incentives, capability development, adaptation and the scope for devolved decision making
- Secondly it had to make explicit the manner in which the business concurrently managed the tensions between extractive (technical and allocative efficiency) and explorative business strategy (dynamic efficiency). What Beinhocker refers to as strategy at the edge of chaos. (Beinhocker, Eric D, (1997), “Strategy at the edge of chaos”, *The McKinsey Quarterly*, Number 1, pp.24-39

The “Alchemy of Growth” model as formulated by McKinsey Consulting* ticked all the boxes and the case studies undertaken, in my view validated the approach. As such, I consider this framework to be a useful a starting position to address the granular issue of policy development. (The work of MOTU and the Productivity Commission around absorptive capacity further reinforces the approach.)

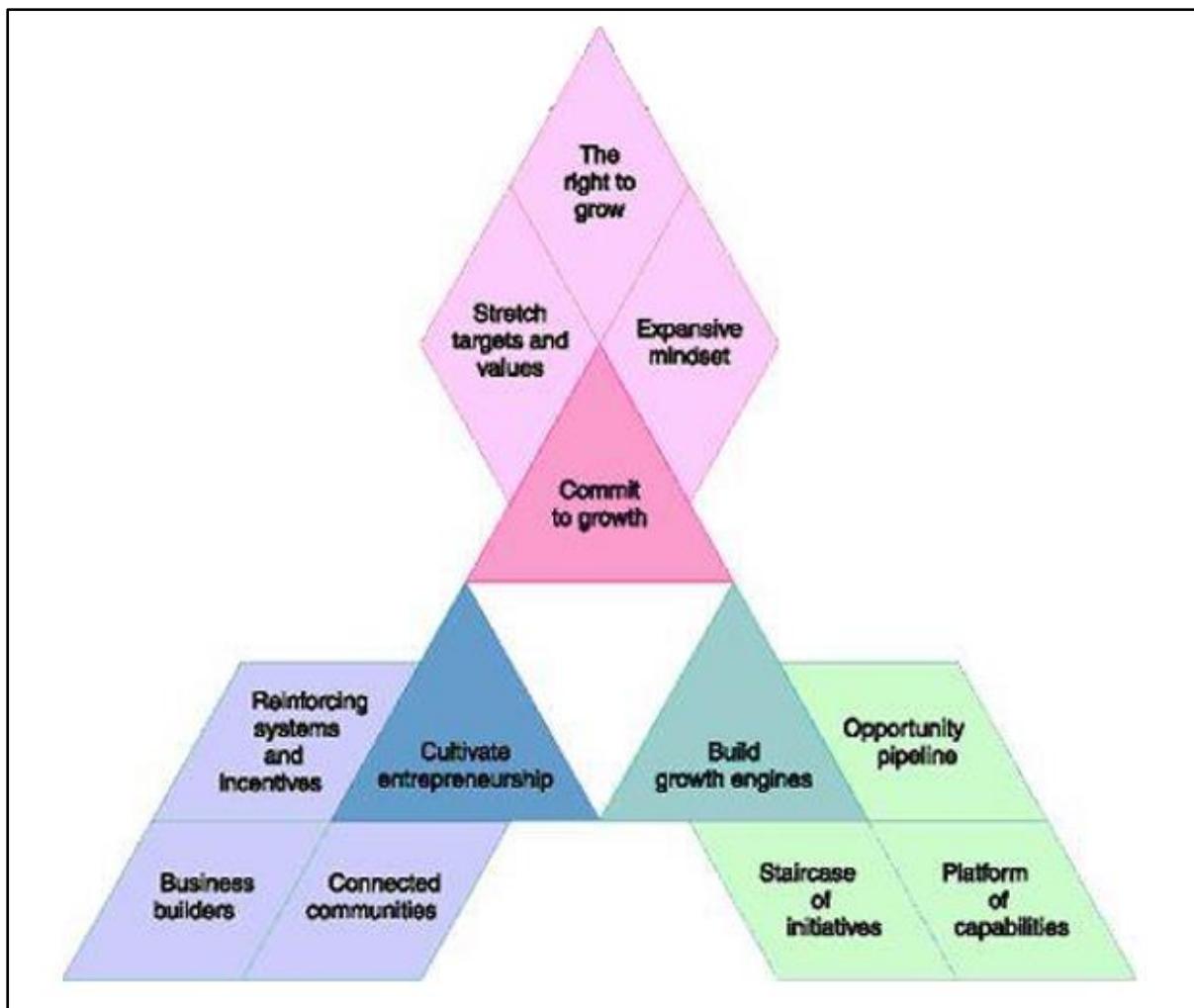
* (Baghai, M, Coley, S and D. White, *The Alchemy of Growth*. (1999). Orion Business Books).

Teece’s 2019 paper (op cit) responds to the challenge set by Bryson et al in 2008. The granularity comes through the application of a strategic management perspective of the firm. (The “Alchemy of Growth” model used in the case studies ticks both the strategic management aspects as well as the dynamic capabilities of Teece through the concurrent managing of the three horizons).

Recognise that a sector is the aggregation of all firms in the sector. Accordingly there will be a wide dispersion in underlying capabilities and subsequent business performance. Understanding this diversity matters. There are significant differences between leaders and laggards and over time one wants to shift the capability distribution curve to the right.

This point is reinforced in the Productivity Hub paper, prepared by MBIE, entitled, “Getting under the hood – Insights from Recent Firm-Level Productivity Research in New Zealand” – page 5.

<https://www.mbie.govt.nz/dmsdocument/2981-getting-under-the-hood-insights-from-recent-firm-level-productivity-research-in-new-zealand>



5. Systems Leverage Points

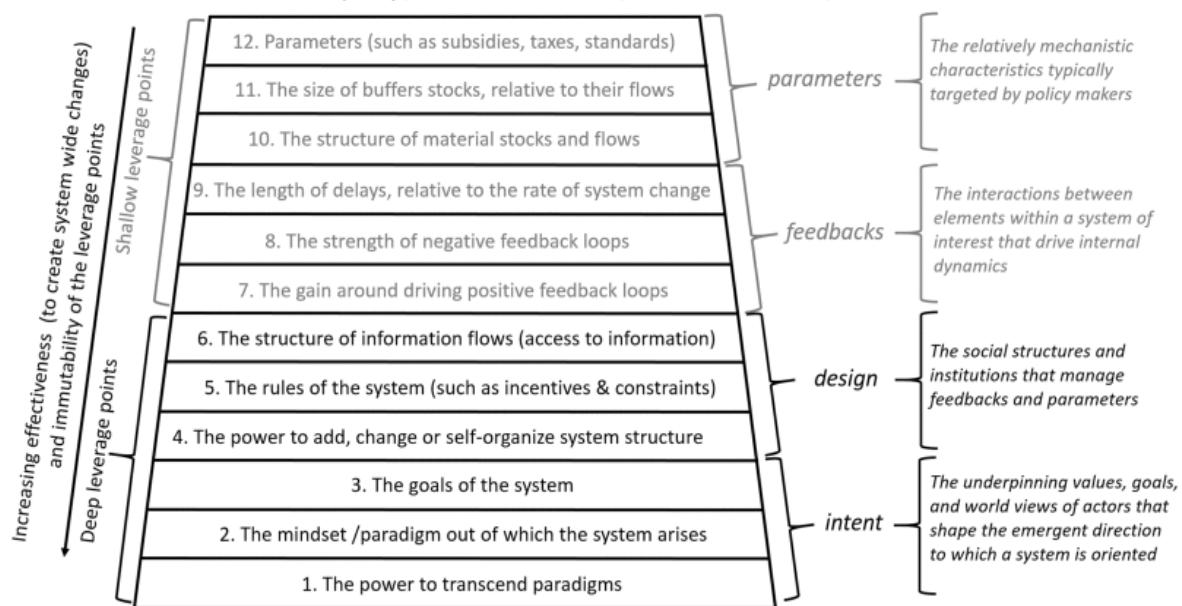
In terms of leverage points, Donella Meadows¹, a world authority on systems dynamics modeling, has developed a hierarchy of system leverage points and their effectiveness. The biggest impact is in the power to transcend paradigms. This is shown in Box 1 below.

¹ Meadows, D. 1999. Leverage Points: Places to Intervene in a System. Hartland, VT: Sustainability Institute

Box 1: From twelve leverage points to four system characteristics

Meadows' (1999) place to intervene in a system

System characteristics



The four system characteristics represent a nested hierarchy of, tightly interacting, realms of leverage within which interventions in a given system of interest may be made. On the basis of the above, the majority of industry assistance programmes operating in New Zealand are at the have shallow leverage points of the spectrum.

In terms of the mindset required to understand innovation, the work cited by Eric Beinhocker² on the emerging use of complexity theory and economics reflects the mind shift at a high level. This is highlighted in the following table.

	Traditional Economics	Complexity Economics
Dynamics	Economies are closed, static, linear systems in equilibrium	Economies are open, dynamic non-linear systems far from equilibrium
Agents	Homogenous agents Only use rational deduction Make no mistakes and have no biases Are already perfect so why learn	Heterogeneous agents Mix deductive/inductive decision-making Subject to errors and biases Learn and adapt over time
Networks	Assume agents only interact indirectly through market mechanisms	Explicitly account for agent-to-agent interactions and relationships
Emergence	Treats micro and macroeconomics as separate disciplines	No distinction between micro- and macroeconomics; macro patterns emerge from micro behaviors and

² http://www.neweconomicthinking.org/downloads/HEEDnet%20Seminars_Eric_Beinhocker.pdf

		interactions
Evolution	Contains no endogenous mechanism for creating novelty or growth in order and complexity	Evolutionary process creates novelty and growing order and complexity over time.

From the case study perspective an important take is that macro patterns emerge from micro foundations. The firm is the basic unit of micro analysis and as such having a rich body of case study insights to draw on will become increasingly important in identifying emerging patterns of regional economic behaviour.

My contention is that there is no collective well articulated story of what complexity economics means in terms of the development of enterprise policy. David Skilling's paper implies it. There needs to be a shared understanding across both policy makers and practitioners. I could be proved wrong but I don't think there is. In my view this is a fundamental cornerstone to addressing the transformation system failures referred to earlier.

6. Transformation and Managing Change

Donella Meadows's power to transcend paradigms has the greatest system's leverage. In the Canterbury exercise this shift was deemed to be the movement from the industrial age to the innovation age business model. The implications for management are shown in the table below.

Figure 5 - Toward the Innovation Age Management Model		
	Industrial Age Beliefs	Innovation Age Beliefs
LEADERSHIP MODEL		
Leadership and Governance	Success is meeting short-term targets	Success is sustainable relative improvement
	Shareholder value is a paramount	Being the best is paramount
	Leaders pander to analysts	Leaders build relationships with analysts
	Rewards based on short-term results	Rewards based on long-term results
	Control is compliance with a plan	Control is knowledge of today & tomorrow
	Leaders plan and control	Leaders inspire and challenge
Organization and management	Planning and decisions are centralized	Planning and decisions are decentralized
	Functions are key value creators	Self-managed teams are key value creators
	Mission and vision statements empower	Purpose and values empower
	Rewards are based on individuals	Rewards are based on teams
	Appraisals are annual & control-oriented	Appraisals are continuous and adaptive
PERFORMANCE MANAGEMENT MODEL		
Strategy	Strategy is a destination	Strategy is a direction
	Strategy tools and maps are focus	Learning, adaptation and renewal are focus
	KPIs support strategic control	KPIs support rapid response
	Financial capital is management focus	Intellectual capital is management focus
	Knowledge sharing is IT driven	Knowledge sharing is relationship driven
	Outsourcing is about cost reduction	Outsourcing is about flexibility
Planning and information management	Tighten compliance and control is aim	Cut detail and complexity is primary aim
	Planning is annual and fixed	Planning is continuous and adaptive
	Budgets are central to management	Rolling forecasts are central to management
	Resources are allocated annually	Resources are prioritized dynamically
	IT systems reinforce control	IT systems empower and inform
OPERATIONS MODEL		
Marketing & customer service	Product knowledge is paramount	Customer knowledge is paramount
	CRM systems drive sales	Relationships and service drive sales
	Maximizing sales is focus	Strategic and profitable customers is focus
	Customer satisfaction scores are focus	Customer loyalty is focus
	Customer service is a cost center	Customer service is a value-driven system
Operations & process improvement	Process improvement is based on tools	Process improvement is built in to the work
	Lean thinking is a toolkit	Systems thinking is a philosophy
	Information is separated from the work	Information is integrated in the work
	Managing people and budgets is focus	Managing flow and variation is focus
	Managing standard (unit) costs is aim	Managing value stream (total) costs is aim

The Canterbury exercise showed that the case study firms were making the transition towards the innovation age model but all had a way to go. As these were deemed to be local exemplars, one might assume that most firms are locked into an industrial age operating model. Furthermore the table clearly shows the diversity in the range of levers businesses have to manipulate. At any point in time it would be highly unlikely that any two firms would rate equally across a set of performance metrics covering the aspects listed.

This raises the issue of the depth of managerialism and leadership across the business sector and one on which I am sure the business schools have well developed perspectives. Hopefully they will be feeding into this inquiry.

In considering why business transformation (and sector wide initiatives for that matter) fail, I consider John Kotter's work on leading change and why organisational transformation efforts fail has stood the test of time. (See Kotter, John P (1995), "Leading Change: Why Transformational Efforts Fail", **Harvard Business Review**, March-April, pp. 59-61.)

How industry transformation plans address the Kotter concerns, when Government can only indirectly influence decision making within firms remains to be seen. In many ways this leads one back to the transformation system failures referred to earlier.

7. Institutional Considerations – The role of Economic Development Agencies (EDAs)

Nationally and regionally EDAs have important roles in facilitating growth. Given the one size does not fit all stance, the capabilities and capacities of regional EDAs becomes increasingly more important in addressing the unique variety/diversity of their local environments. The transition EDAs need to make is outlined in the table below taken from a paper by Ifor Ffowcs-Williams. While this relates to cluster growth, it is consistent with the overall themes raised in this paper.

(Ffowcs-Williams, Ifor, (2019), 'Clustering for Growth – An Australian Perspective", **Economic Development Quarterly**, Vol.12, No 2, pp. 23-28.)

From National and macro <ul style="list-style-type: none"> • From a centralised approach, often targeting high growth markets, new technologies • Remote implementation by national agencies, centred on political regions • Implementation 'in regions' 	To regional and micro <ul style="list-style-type: none"> • Regions are the unit for addressing competitiveness, assuming roles that were undertaken by national/state governments • Decentralisation , capacity to coordinate around regional priorities and niches, to fine tune delivery, a place -based approach • Implementation 'for regions'
From immediate job creation <ul style="list-style-type: none"> • Driven by short-term and isolated project grants and subsidies, often one-offs. 	To longer-term business development <ul style="list-style-type: none"> • Profitability, innovation, competitiveness and productivity focus • Engagement extending beyond political cycles
From hard infrastructure <ul style="list-style-type: none"> • Precincts, science parks, incubators ... all near 	To soft infrastructure <ul style="list-style-type: none"> • More complex knowledge infrastructure and

examples of clustering	the social infrastructure, the regional ecosystem
From attracting one or two ocean liners <ul style="list-style-type: none"> Economic hunting, support for FDI attraction and large firms 	To building a thousand small speedboats <ul style="list-style-type: none"> Addressing conditions underpinning groups of firms, especially SMEs, start-ups, talent attraction, regional networks of linked firms, value chains
From exogenous growth <ul style="list-style-type: none"> Driven by external factors, especially investment attraction Reactive, ad-hoc prospecting 	To endogenous growth <ul style="list-style-type: none"> Capability driven by local/internal factors More sustainable growth, path dependent Concentrating on a few priorities
From financial inducements <ul style="list-style-type: none"> Resourcing investment attraction through tax breaks, subsidies and soft loans 	To knowledge ecosystems <ul style="list-style-type: none"> Resourcing workforce training, research institutions, institutions for collaboration ... building the regional ecosystem
From isolated interventions <ul style="list-style-type: none"> Ad hoc support drip-fed by a multiplicity of agencies 	To multi-agency integration <ul style="list-style-type: none"> Joined-up support within a region of policy areas, aligning of multi-level agencies.
From an industry/sector approach <ul style="list-style-type: none"> Narrow engagement 	To cluster engagement <ul style="list-style-type: none"> Broader and less distortive, linking related industries
From Top-Down generic support <ul style="list-style-type: none"> E.g. Export development, start-ups, investment attraction, sister city engagements...all relatively easy... and all offering marginal returns 	To Bottom-Up tailored support <ul style="list-style-type: none"> Concentrating public resources on distinctive regional strengths ... the traded clusters Differentiating the region's economic development strategy

EDAs must also continually strive to improve their effectiveness. They need to know what a world class EDA looks like. The Singaporean agency is a recognised exemplar and could be used as a benchmark for NZ agencies. A number of EDAs put a lot of emphasis on “destination marketing”. Covid-19 has changed the game and the longer term agenda of capability build will potentially be challenging.

Having a sense of the future state is a start, getting there in terms of the roles and responsibilities of the respective partners become another matter. Again I would like to see consideration of these aspects come out of the inquiry.

8. The Importance of Absorptive Capacity

In my view the most valuable piece of business growth research in recent years has been the work on absorptive capacity of New Zealand firms by MOTU.

<https://motu.nz/assets/Documents/our-work/productivity-and-innovation/firm-productivity-and-performance/Absorptive-Capacity-Executive-Summary.pdf>

This puts learning into perspective, reflects the attributes of the innovation age business model and provides strong direction for policy. In the Canterbury case studies the exemplars exhibited all the characteristic of learning organisations and we referred to them as such. While the businesses had not thought of themselves in that way, they were considered to have highly developed absorptive capacity. As Skilling notes (page 22), frontier firms are generally heavily knowledge based

Understanding firms as organisational learning systems and facilitating the enhancement of their absorptive capacity must become a core policy platform.

9. Clusters Matter

No frontier firm is an island. Skilling notes (page11) that a “healthy ecosystem of firms is required” and that “dense clusters are the core of dynamic, resilient economies that operate at the global productivity frontier, such as Switzerland and Denmark”. I concur with both these statements and support initiatives to facilitate cluster deepening. Cluster development was high on the agenda in New Zealand in the 1990’s following the Porter report. These initiatives lost traction over time. I consider it important that the reasons for this be covered in this inquiry. If not, we run the risk of history repeating itself and opportunities lost again. (I suggest the Commission talk to Ifor Ffowcs-Williams about this).

10. A Synthesis

There is no magic wand. In my view it is a multifaceted approach embodying all the factors listed below.

- Systems matter (the interplay between incentives, information, capability and dynamic adaptability)
- Change facilitation. Want to move to a better state. (Do we have a compelling vision that captures the hearts and minds and makes the “what’s in it for me” connection amongst stakeholders? I don’t think so – more often bland statements of intent.)
- Path dependence matters. (Need to understand the current situation – we don’t have the necessary regional capability profiles to establish a sound basis for planning).
- Understand systems leverage points. (Donella Meadows’s work)
- Mindset shifts required. New economics, innovation age business model and EDA functions)
- An agreed strategic management business growth facilitation framework mapped to higher level policy levers. (Addresses leadership, incentivisation, coordination)
- Making this a learning system – dynamic adaptability. (Using Arie de Geus’s “planning as learning” and Peter Senge’s “The Fifth Discipline” as guide to some of the background thinking)

11. The three things one would like to see come out of the exercise. (Question 30)

1. Strong emphasis on the risks of implementation failure. Recognition of the importance of the whole of systems approach and a shared “mental model ” of both systemic failure and an underpinning strategic management framework in the first instance then establishing governance recommendations for working **on** the system in a manner that has the flexibility to allow the necessary strategic partnerships to **co-evolve**.
2. A focus on the role of institutions in effecting change with consideration to greater devolution of decision making to regional EDA’s and the building of the requisite capabilities . (Addressing the one size does not fit all issue). As an exercise in learning by doing, set up a partnership with a willing regional EDA, (suggest Venture Taranaki). Use the Singaporean model as a benchmark and determine what needs to be done in terms of extra information and institutional capability build to support a more targeted and devolved model at the regional level. (As Covid-19 has shown, it is only when one starts to do stuff that many of the problems in relation to implementation start to reveal themselves).
3. Active promotion of the capability absorption agenda and ensuring Statistics NZ is adequately resourced to generate regional profiles (i.e. well informed of the current situation) to underpin targeted “interventions”

based on benchmarking using capability development maturity analysis (CDMA) and planning more generally by regional EDA's.(recognition that change is path dependant).

In particular, revisit the NZ Business Operations Survey. Test the linkages between leadership, practices and outcomes. (As per "Gearing Up – A Study of Best Manufacturing Practice in New Zealand", undertaken by the then Ministry of Commerce in 1999. This could be further augmented to look more closely at management practices, following the work of Bloom et al in the US.

<https://pubs.aeaweb.org/doi/pdfplus/10.1257/aer.20170491>)

One needs to understand the dispersion of capability and performance, the differences between leaders and laggards, get a feel for those who won't go the distance, what are the cohorts of rising stars etc. This is following the analysis undertaken by Chris Voss* at London Business School in the early 1990's which was picked up by the then Australian Manufacturing Council and with input from the Boston Consulting Group, leading to the trans-Tasman initiative in 1994 "Leading the Way – A Study of Best Manufacturing Practices in Australia and New Zealand and its subsequent NZ focused piece of work in 1999 "Changing Gears- A Study of Manufacturing Best Practice in New Zealand.

In my view the foundations of that work remain valid today and should be revisited to enhance the application of absorptive capacity analysis.

* Voss C A and P Hanson, (1993), "Made in Britain: The True State of Britain's Manufacturing Industry", IBM Consulting and London Business School.