## INNOVATION AND PRODUCTIVITY, THE CONTINUOUS SEARCH FOR IMPROVEMENT

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## FOREWORD

Innovation is core to productivity and plays a wide role in society. Human nature is to seek a better way of doing things and innovation allows us to create new jobs, build teams and learn new skills.

The speed of innovation has accelerated over the last few years and businesses need to implement well designed and executed strategies to keep up with the pace of change.

In New Zealand our growth has largely been built on the back of hard working people but that's not enough anymore.

We still need to work hard but we need to be smarter and we need to innovate to succeed.

Our competitors are investing in technology and the global economy has been digitally disrupted so we can no longer rely on keeping costs down to drive future growth.

On top of that compliance costs and wages are going up and the constraints in labour supply mean we need to think differently about how we drive productivity.

At ANZ we believe there is a better way.

There are some great examples of New Zealand businesses that have invested in innovation – which could be a new product, a new service, new data systems or technology, or a change in the way they run their business – and as a result are recognising significant productivity gains over those that haven't.

We hope this report will help challenge existing business practises and stimulate thought on how to lift productivity levels in your business.



Penny Ford General Manager Auckland & Northland, Commercial & Agri, ANZ



### INTRODUCTION

It's been well publicised that New Zealand's productivity growth has been low alongside other comparable OECD economies<sup>1</sup>. We love to invest in property, we have a low rate of capital investment and our labour productivity lags behind our peers. However, there are many examples of great New Zealand businesses that challenge the norm by embracing change, innovating and as a result have created highly successful business models.

#### PURPOSE OF THIS REPORT

This report has been written to highlight the underinvestment in productivity performance by New Zealand businesses.

New Zealand's under-investment is reflected in our low output per hours worked compared to other OECD countries. A key driver to lift productivity is to embrace technological change and invest in processes, research and development and technologies.

By doing nothing, New Zealand will continue to slide down the OECD productivity ratings, but moreover, New Zealand businesses will find it harder to compete and ultimately survive.

In this report we aim to capture the spirit of innovation and its impact upon New Zealand business.

We aim to quantify the impact of innovation on a group of 49 known innovators<sup>2</sup> by comparing some of the key financial metrics to 504 similar businesses. This is to identify potential themes and trends which innovators typically exhibit. We also provide case studies of four great New Zealand businesses who have thought outside the box to create new products, services and more efficient ways of working. The report is broken into the following sections:

- 1) New Zealand's productivity where are we at?
- 2) A deeper look at New Zealand innovation attempting to benchmark innovation
- 3) Data, digital and the innovation journey why is it so important?
- 4) The future of New Zealand innovation areas of innovation and potential resources required
- 5) Innovation case studies stories from four great New Zealand businesses
- 6) Conclusion

The information which follows is intended as an overview and should be accompanied by conversations with your professional advisor.

2 Callaghan Innovation grant recipients (ANZ banked only)

## **NEW ZEALAND'S PRODUCTIVITY**

#### WHERE IS OUR PERFORMANCE CURRENTLY AT?

On the whole, New Zealand has enjoyed a high standard of living and solid economic growth in recent years. However, during this period New Zealand has also exhibited a comparatively low level of productivity growth relative to our OECD peers.

Broad-based evidence of this can be seen in New Zealand's Gross Domestic Product ("GDP") per capita. This metric measures output per New Zealander and is standardised into US Dollars for all countries.

On this metric, New Zealand has consistently trailed the United States, Australia, Canada, Great Britain, France, Japan and the OECD average.

In 2017, New Zealand was ranked 22 of 48 countries surveyed by the OECD, compared with 9th place in 1970 and 20th in 1999<sup>3</sup>. Over the last 50 years the world has seen much stronger growth in exports of manufactured products and slower growth in exports of primary products. And New Zealand's competitive advantage is still in primary products<sup>4</sup>. We are now on the brink of a technological revolution that will alter the way we live and work. The fourth industrial revolution is all about embracing the digital revolution.

Our low productivity levels are a bit of a conundrum and the reasons for this are varied and subjective. Against the background of a technology-driven world, there are a number of ways to improve our productivity, including operating in new markets and encouraging capital investment.

These figures challenge our long-held perception of "kiwi ingenuity". However, putting this aside it provides a huge opportunity to take stock of where we are at today and design, innovate and execute to become better businesses.

#### OECD GDP PER CAPITA (2017)

Source: Organisation for Economic Co-operation and Development ("OECD")



3 NZ Parliamentary Library: GDP per capita in OECD countries (April 2001)
Note: From 1970 to 1985 there are rankings for 26 OECD countries and 29 for 1999.
4 NZIER: Looking at the numbers (2007)

## A DEEPER LOOK AT NEW ZEALAND INNOVATION

#### QUANTIFYING INNOVATION

Quantifying the impact of innovation is difficult.

We have sought to identify a group of businesses that have invested in innovation. Specifically, we have identified 49 New Zealand manufacturers who have been formally acknowledged as receiving grants under the Government's Callaghan Innovation grant scheme (the "innovators").

We have benchmarked this group of 49 innovators against a control group (comprising 504 businesses within the same manufacturing sectors as the innovators). By benchmarking the control group with the innovators, we sought to identify the benefits (if any) that can be gleaned from investment in innovation. The analysis aims to better understand what businesses might expect when embarking on their innovation journey.

We acknowledge innovation in business occurs in many forms. However, by identifying those businesses who have invested in innovation, through the targeted use of the Callaghan Innovation grant scheme, it provides a high level measurement of benefits arising from innovation.

The case studies provided further on in this report are from both recipients and non-recipients of Callaghan Innovation grants. We recognise that innovation also occurs outside of our innovators sample group.

#### **RETURN ON INVESTED CAPITAL ("ROIC")**

ROIC<sup>5</sup> is a good measure of productivity. It represents the return generated from every dollar invested in the operational assets of a business.

The result shows our innovators sample group generated a higher median ROIC across the four-year period at 14.1% relative to the control group of 10.9%.

When considering these results we also need to acknowledge that the capital weighting across the innovators and the control group may vary between debt and equity.

#### MEDIAN RETURN ON INVESTED CAPITAL (2014-17)



Source: Callaghan Innovation, ANZ Analysis

Return on Invested Capital % p.a.

#### MEDIAN SALES REVENUE GROWTH (2014-17)

Source: Callaghan Innovation, ANZ Analysis



Sales Revenue Growth % p.a.

Results indicate that through investment in innovation, the innovators sample group grew sales revenues faster, achieving a median result of +9.3% per annum relative to the control group at +6.4%.

These results could indicate an increased ability for the innovators to grow sales through the launch of new products and new services brought about by innovation.

Through a separate study undertaken by ANZ Australia, sales growth is positively influenced through innovation in digital sales channels (as discussed in the next section).

#### **MEDIAN EBITDA MARGIN (2014-17)**

Source: Callaghan Innovation, ANZ Analysis



EBITDA / Sales Revenue

From an earnings perspective there was no material difference in EBITDA margin between the innovators and the control group. While sales growth has come faster for the innovators, this indicates that there has also been a cost associated with growth.

#### MEDIAN ADJUSTED WORKING CAPITAL (2014-17)

Source: Callaghan Innovation, ANZ Analysis



Adjusted Working Capital / Sales Revenue

One of the more interesting results was in the working capital cycle, with the innovators having a significantly higher adjusted working capital requirement<sup>6</sup> at 16.2% versus the control group 10.7%. Adjusted working capital is designed to provide a view into the pure operational components of working capital.

On looking further into these numbers the result was primarily driven by a higher inventory requirement for the innovators at 92 days versus 57 days for the control group.

This reinforces the need to remain cognisant of how new products and processes impact the working capital requirement. Businesses entering new markets need to be particularly mindful of how liquidity and inventory can be best structured to support new growth initiatives.

## DATA, DIGITAL AND THE INNOVATION JOURNEY

## WHY IS DATA AND DIGITAL STRATEGY CORE TO INNOVATION?

Central to all transformation strategy is the use of data and technology to drive better decisions. However, despite recognising the benefits many companies are still dismissive, tentative or overwhelmed about where to start.

ANZ recently conducted a survey of over 1000 small and medium-sized businesses in Australia, called "The Digital Economy: Transforming Australian Businesses"<sup>7</sup>.

The results showed that companies who use digital tools and data were saving around 10 hours per week and generated 27% more revenue per year by using social media and websites to reach more customers in new markets.

The case studies provided later in this report for Civic Contractors and Doyle Sails are great examples of this strategy in action.

The analysis also highlighted that a business's mindset is key to realising value from its digital strategy. These mindsets are broken into four categories below, providing a template to assess where a business might be on its digital journey. The analysis shows that the more advanced the business mindset, the more value derived.

While success is never guaranteed, there is no doubt that companies who are able to embrace digital strategy, learn quickly and implement new technologies are better placed to achieve productivity gains.

## SMALL AND MEDIUM ENTERPRISES DIGITAL MINDSET RESULTS – WHICH ONE IS YOUR BUSINESS?

Source: ANZ "The Digital Economy: Transforming Australian Businesses"



## THE FUTURE OF NEW ZEALAND INNOVATION

#### WHAT DOES THE FUTURE HOLD?

A recent report from the Artificial Intelligence Forum of New Zealand ("AIFNZ") predicts that Artificial Intelligence ("AI") has the potential to increase New Zealand's GDP by \$54 billion by 2035<sup>8</sup>. This represents a 26% increase on New Zealand's current GDP.

While New Zealand businesses may be able to acknowledge the broader themes at play (i.e. automation), many are just beginning to understand how they best respond to the changing macro environment.

Central to the response must be constant, incremental change. Innovation does not always need to originate from a big digital or technological break-through. Innovation can be as subtle as a reallocation of existing resources to create operational efficiencies, or obtaining a new skill-set within businesses to challenge existing processes. When used in combination, these various approaches can complement the effectiveness of a given strategy.

Either way, the first step in the journey needs to be an assessment of where the business is currently at and then the formation of a clear vision and strategy for the future.

Our case studies which follow are already successfully innovating. Doyle Sails, Goodnature and Douglas Pharmaceuticals have created demand through products and service innovation and opened up new markets globally. In the case of Civic Contractors, innovation centres around using data and digital resources to create operational and organisational efficiency.

The approach for each business will be different, but some areas for consideration are outlined below.

#### SOURCES AND AREAS OF INNOVATION

Source: New Zealand Productivity Commission, ANZ Analysis





## INNOVATION CASE STUDIES

#### INTRODUCTION

This section covers stories from a handful of New Zealand businesses who have broken the mould and innovated to become better and more productive.

The common theme running through all these examples is the constant search to find a better way of doing business.

The purpose of including these examples is to challenge New Zealand businesses to step outside their comfort zone, embrace design thinking and evolve existing processes. There are many examples of other great New Zealand businesses which we unfortunately could not include in this section. However, we hope these case studies spark ideas and concepts for how other businesses can innovate and pursue their next phase of growth.

## CASE STUDY #1: GOODNATURE LIMITED



## "We know we need to be continuously innovating or we will very quickly be overtaken by our competitors."

It's an idea as simple as it is brilliant, which could solve one of our biggest environmental problems.

Like so many successful businesses "this has been a 10-year overnight success story," says Goodnature Chief Operating Operator Jason Crowe.

"All of a sudden it seems like things are going our way, but it's been more difficult than you'd think."

Founded in 2005, Goodnature set out with a vision, to create a pest-free New Zealand, and began developing practical trapping solutions to achieve it.

To the uninitiated, the trapping solutions they have created seem like a no brainer, but bringing innovation to the pest control sector hasn't come without its challenges.

"Innovation to this sector has been comparatively slow; how we have approached it has been remarkably different.

"In saying that, our product is so different and so out of the box that it's sometimes difficult for people to comprehend how they should use it, and why they should use it versus the traditional methods."

Goodnature has developed several different automatic traps that humanely kill pest animals. Attracted by a toxin-free lure, so there is nothing nasty left in the environment for dogs or other animals to eat, the traps kill pests instantly using CO2 to power a striker at high speed, and then immediately reset themselves.

The resetting traps only need to be checked once every six months, meaning they are a great solution, no matter how big your backyard is.

Co-founder and Design Director Robbie van Dam says the Department of Conservation (DOC) and local regional councils quickly realised the value of the traps in helping achieve New Zealand's ambitious 'Predator Free 2050' target.

"People saw what we were doing, saw that our traps could make a difference, and saw the economic benefits.

"There has been a global awakening towards a reduction in chemical use and we perfected our product just in time to meet new European Union standards around pest control which meant you couldn't use toxicants anymore.

"So that is good timing, but it's also being insightful on our part."



Exports now make up 50% of the business, and it's growing.

"The rest of the world is now taking more notice of what we are doing than the local New Zealand market. What started with a small research and development grant and some great thinking in-house is now a big global opportunity," van Dam says.

It was in a part-time role with DOC while studying that van Dam first applied design thinking and innovation to trapping and came up with an idea for a trap that could reset itself.

DOC gave them a \$20,000 innovation grant in 2007 to develop a prototype, which led to a further \$250,000 to commercialise the product and then \$300,000 to develop the possum trap.

At each stage Goodnature also invested significant amounts of their own money.

"I think grants really help accelerate innovation," says Crowe. "We know we need to be continuously innovating or we will very quickly be overtaken by our competitors."

Goodnature have also received several smaller grants from Callaghan Innovation, including a Growth Grant and \$20,000 to support their LEAN<sup>9</sup> journey.

"While we know we'd be doing this anyway it is really great to have support from people like Callaghan, DOC, as well as non-governmental organisations to help accelerate what we are doing."

Applying LEAN and agile<sup>10</sup> principles to the way they run the business has helped them be more efficient.

All their traps are designed and made in New Zealand and assembled in Wellington where, via LEAN manufacturing principles, they've reduced the time it takes to make a trap from eight minutes down to three.

9 LEAN = the process of creating more value for customers with fewer resources

10 Agile = the iterative, incremental method for managing the design and build activities of new products and services

## CASE STUDY #2: CIVIC CONTRACTORS



"Leaving behind the old way of doing things, embracing something new, finding the right technology and then putting it into practice is a big leap for a business. We've made a significant investment and we don't know yet whether all of it will pay off."

Continuous research and development combined with a passion for technology and trying new things are core to the business strategy and company vision for Civic Contractors.

Founded in 1987, Civic is a New Zealand-owned business which specialises in keeping our cities clean and green.

In Auckland alone, the Civic team service around 5000 rubbish bins and clean 600 public toilets every day. They take care of illegal dumping, remove graffiti and clean and maintain city streets. All with a focus on sustainability through the use of electric and hybrid vehicles, smart bins, sensors, recycled water and GPS technology.

Owner and Managing Director Bjorn Revfeim says they constantly ask themselves, "How can we be more sustainable as a business, while helping our clients be more sustainable, and how can we offer that at the same cost as our competitors."

In a highly competitive industry this is a constant challenge. Investment in vehicles, machinery and technology is a big capital outlay (a normal diesel rubbish truck costs around \$180,000, an electric truck upwards of \$300,000).

But improvements in technology, in combination with bin sensors and data analysis, is helping Civic improve its productivity.

An electric truck saves around \$10,000 a year in fuel and road user charges from these kinds of efficiencies. Using bin sensors lets the company know when the bins need emptying, so a 165 kilometre round trip to a South Auckland peninsular that was previously done six days a week (during nine months of the year), can now be done just twice a week.

"By using the bin sensors we've saved four days of running the truck on that route; we've saved labour, reduced time on the road and electric vehicles and trucks reduce emissions, says Revfeim. We're delivering a better service for the council and the public as we know when the bins are full. So there's a real benefit to both us and the community." Civic is now trialling sensors in public toilets to show how frequently they are used, to help improve cleaning services.

GPS in vehicles helps the company better understand driver behaviour and fuel consumption, as well as how traffic congestion impacts travel time.

A new job management system will incorporate all this data and help optimise runs, which the company hopes will make them even more productive.

"Each morning, individual runs will be calculated based on all the data from the sensors and it'll be linked to Google Maps to calculate the fastest route, which drivers will have on their phones. We think this is going to help us really boost productivity," says Revfeim.

Finding a technology partner to deliver a system that fitted their needs wasn't easy, so after 18 months of research they decided to build their own. Business Service Manager Liz Devine says this has been a big decision for the company.

"Leaving behind the old way of doing things, embracing something new, finding the right technology and then putting it into practice is a big leap for a business. We've made a significant investment and we don't know yet whether all of it will pay off."

Revfeim says even the best technology can't replace people, so it's really important staff are on the journey with them.

"While machines and technology will automate and make things more efficient, that just means the role of people will change.

"We have lots of data now, and we need to start analysing it, so our managers will also be analysts. We need to bring people with us, upskill our staff, get people more confident so they can adapt quickly to a changing workforce."

For Civic Contractors, continuous research and development has set them apart as innovators, and while they are seeing productivity gains now, a lot is still to be realised. They hope that part of the value will come when clients award them contracts based on the value that such efficient, sustainable services deliver.

## CASE STUDY #3: DOYLE SAILS



## "By joining the brand, with the product innovation we are able to go head-to-head with our competition on a global scale."

Doyle Sails are global leaders in high performance sails, with a reputation for innovation with new technology. But driving the business forward required a bold move from the leadership team.

"We're going through a massive transition," Group CFO Terry Nicholas says.

"We've gone from a little company in New Zealand to basically taking on the global market."

One of Doyle Sails' biggest innovations was back in 2001 when they developed a new generation of sails using their Stratis membrane technology.

"The New Zealand team are the best in the world at making sails this way. By joining the brand, with the product innovation we are able to go head-to-head with our competition on a global scale."

Over the past five years as CFO, Nicholas has been part of a leadership team that has transitioned the business from Doyle Sails New Zealand to a more unified global one-brand approach.

They now own Doyle International and have taken a controlling interest in the Doyle Salem loft in the USA as well as Doyle Sails UK and Doyle Sails Palma in Spain.

Nicholas says while the business success requires global efficiency their success is very much grounded in the Kiwi innovation style.

"In the yachting world Kiwis have always been well respected as very practical people. The classic 'number 8 wire' thinking we are famous for is really reflected in the sailing environment."

Nicholas credits much of their innovation to the structure of the team.

A number of the team race competitively on the global stage. CEO Mike Sanderson is a World Sailor of the Year, two-time Volvo Ocean Race winner and veteran of three America's Cup campaigns.

The constant search for speed while they are out racing means they relentlessly innovate and evolve back on shore.

"It's a classic illustration of continuous learning. We take the pressure of a competitive environment, identify where there are opportunities to innovate and then work with a



Doyle Sails CEO, Mike Sanderson

group of the best people in the business to turn that into products that makes our customers' boats go faster.

"We are faster than our competitors to develop new technologies and take them to market."

Doyle Sails are now executing that successful model internationally.

"That's where some New Zealand businesses have struggled," Nicholas says. "The challenge for the management team has been to look at the business and say okay we have got all this good development going on here in New Zealand but we need to be able to keep doing that and take it to the world market at the same time.

"That is why we invested in the global brand. We needed to secure long-term supply through our distribution network and lock it down."

Innovation isn't confined to sail making – off the water they're using technology to help close the gap between them and their global rivals.

"One of the big bits of innovation for us has been our online ordering tool. It can be complicated working out how to price a sail accurately, so we've built an online portal which sits in the cloud and all of the lofts around the world can use it to price up their sails. From that they can order it from us, build it themselves, or they can order it from another loft in the Doyle network.

"What that does is it makes us closer to them. Distance is an issue for us, but investing in technology means the perceived distance between ourselves and the market is reduced."

## CASE STUDY #4: DOUGLAS PHARMACEUTICALS



# Innovation is at the heart of the business and this has kept Douglas at the forefront of the way medicines are manufactured.

Douglas Pharmaceuticals is New Zealand's largest drug developer and manufacturer, supplying prescription consumer medicines and health and beauty products to a number of international markets.

It's also West Auckland's largest employer with 580 workers based at their Henderson manufacturing site, a further 120 in Fiji and 20 in the USA.

Innovation is at the heart of the business and has kept them at the forefront of the way medicines are manufactured. To support this, over the past five years Douglas Pharmaceuticals has received a series of grants from Callaghan Innovation.

"Research and development is vital in the pharmaceutical industry," says Chief Financial Officer Kent Durbin.

"The grants from Callaghan and in particular the Growth Grant have enabled us to take on more risk in our New Product Development.

"This year our research and development spend will be around \$30 million, up from \$12 million in FY13, the year immediately prior to the Callaghan Growth Grant commencing."

R&D, boosted by the grant and funding for up to 10 graduate positions every year, helps create opportunities to chase the lucrative development of novel drugs which are patentable.

"The stakes are higher than in generic development. But a successful clinical programme for a new drug and approval from the American Federal Drug Association would be transformational for a company the size of Douglas," Durbin says.

A large part of the company's revenue is generated by export earnings from generic prescription medicines developed in their West Auckland facility by the R&D team. Over the last three years international revenue has grown by 78%.

With support from Callaghan, Douglas enhanced their capability in the development and commercial supply of the hugely popular soft gelatine capsule products for the European and American markets.

In the five years since the soft gelatine line was established they've commercialised three brands of capsules.

"Without support from Callaghan Innovation we would have been more cautious about growing our R&D and I doubt we would have achieved the same results," Durbin says.

"Investing in innovation and R&D actually has a detrimental impact on profit in the short term. Pharmaceutical developments typically take four to five years. But with projected internal rate returns of 20-40%, long-term profits are possible."

"THE STAKES ARE HIGHER THAN IN GENERIC DEVELOPMENT. BUT A SUCCESSFUL CLINICAL PROGRAMME FOR A NEW DRUG AND APPROVAL FROM THE AMERICAN FEDERAL DRUG ASSOCIATION WOULD BE TRANSFORMATIONAL FOR A COMPANY THE SIZE OF DOUGLAS."



# CONCLUSION

The speed of innovation is accelerating. As such, New Zealand businesses need to challenge their existing processes in order to keep pace with the global market. Central to this process is understanding where a business is currently at and bringing together the right people and skill-sets to effectively execute change.

Innovation can be achieved through many avenues; research and development, new machinery, embarking on a data and digital journey or introducing new skill-sets into the business to organically improve existing processes.

As outlined in the report, innovation can lead to gains in productivity. However, this process does not happen overnight, nor is success guaranteed. We hope this report has stimulated thought for New Zealand businesses embarking on their innovation journey and we encourage you to talk to us about how we can support you as you look to drive productivity gains in your business.

ANZ can assist with the investment in productivity, either directly or through our connections across New Zealand into government agencies such as Callaghan Innovation, New Zealand Trade and Enterprise, and the Provincial Growth Fund, who not only offer grants but also offer business innovation workshops and coaching.

We would like to thank those businesses who dedicated their time and resources to share their innovation story as part of this report. We are proud to include these examples in order to challenge other great New Zealand businesses to evolve their business models.

## **APPENDIX: BENCHMARKING INNOVATION**

#### SAMPLE SET DECISION TREE

Source: ANZ Analysis (2014-17)



#### INNOVATORS — HISTOGRAM OF GRANTS RECEIVED AS A PERCENTAGE OF AVERAGE ANNUAL SALES REVENUE

Source: Callaghan Innovation, ANZ Analysis (2014-17)



#### SAMPLE INDUSTRY BREAKDOWN - INNOVATORS

Source: Callaghan Innovation, ANZ Analysis (2014-17)



#### SAMPLE INDUSTRY BREAKDOWN - CONTROL GROUP

Source: ANZ Analysis (2014-17)



- Agriculture
- Basic Material Wholesaling
- Food, Beverage & Tobacco Manufacturing
- Machinery & Equipment Manufacturing
- Metal Product Manufacturing
- Non-Metallic Mineral Product Manufacturing
- Other Manufacturing
- Petroleum, Coal, Chemical & Associated Product Manufacturing

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