Manufacturing-engineering sector impact study

Kānoa - Regional Economic Development & Investment Unit

May 2023

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Making sense of the numbers

Kānoa - Regional Economic Development & Investment Unit (Kānoa) has funded 47 projects in the manufacturing-engineering sector totalling $79.1 million in direct expenditure. This expenditure complemented $29.3 million in direct private funding from business recipients.

The total combined investment of the programme was $108.4 million.

This investment created total economic activity of $229.5 million, supported 1,979 full-time equivalent employees (FTEs), and contributed $99 million to New Zealand's Gross Domestic Product (GDP). This is additional contribution that, if not for Kānoa funding, would not have happened, or would have happened only after delays or over a longer period.

We developed an outcomes framework to guide the assessment of the impact of Kānoa funding and to consider wider goals beyond economic outcomes. We assessed Kānoa funding against these stated objectives using an Economic Impact Assessment (EIA) and a targeted survey. The outcomes are categorised according to financial and physical capital, human capability, social cohesion, and natural environment.

Kānoa funding was distributed to 44 businesses (47 projects in total). Over half (25) completed a targeted survey. Of these, 84 percent were small businesses (up to 30 employees), 13 percent were medium businesses (31 to 100 employees), and 4 percent were large businesses (over 100 employees).

The survey results showed:

- A significant increase in capacity, employment, and capability for businesses
    - Ninety two percent of respondents indicated that their business had increased their capacity. The majority (74 percent) experienced an increase in revenue of up to 25 percent resulting from this increased capacity. Also, 88 percent of businesses increased the number of permanent employees. Most of the new employment generated by Kānoa funded projects was local. Out of the 22 businesses that increased employment, 15 did not hire anyone from outside of their business's region. Likewise, 68 percent of businesses trained or upskilled their employees. Similarly, 88 percent of businesses increased their capability. This increased capability enabled 96 percent of businesses to source new clients and projects.
- Increased innovation, and more environmentally friendly businesses
    - Eighty four percent of businesses increased their innovation capacity. Kānoa funding enabled innovation in most businesses, and this enabled many businesses to gain access to new markets. Over half of respondents (56 percent) agreed that Kānoa funding had allowed their business to be more environmentally friendly. In terms of greenhouse gas emissions 44 percent noted that Kānoa funding enabled them to slightly reduce these. Fifty two percent mentioned that their business slightly reduced its amount of waste generated due to receiving funding from Kānoa.

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1 Introduction

Business and Economic Research Limited (BERL) was commissioned by the Ministry of Business, Innovation and Employment (MBIE) to conduct an independent study on the economic impacts of investments in the manufacturing-engineering sector by Kānoa - Regional Economic Development & Investment Unit (Kānoa) through the Provincial Growth Fund (PGF).

In this report, we detail our estimate of the economic impact of the Kānoa funding. We begin with a general overview of our methodology, followed by a description of the investment framework that guides Kānoa's decisions. We then summarise the data collected in our survey, and our estimate of the impact of Kānoa on the New Zealand economy. This is followed by a section covering our conclusions from this research and our observations.

1.1 Kānoa - Regional Economic Development & Investment Unit

Kānoa was established in 2018 within MBIE to facilitate the delivery of government funding to enhance economic development opportunities in regional New Zealand. The overall objectives of the programme are to promote economic well-being in regional New Zealand. Although Kānoa administers multiple funds, we limit our scope to the PGF for this report.

The PGF aims to lift productivity in regional New Zealand. The priorities of the PGF are to enhance economic development opportunities, create sustainable jobs, enable Māori to reach full potential, boost social inclusion and participation, build resilient communities, and help meet New Zealand's climate change targets.

2 Methodology

To assess the impacts of Kānoa investments we have developed an overall well-being framework for the regional economic development projects that were funded by Kānoa. This framework contains a series of outcomes, and direct and indirect indicators which inform the outcomes.

2.1 Scope

2.1.1 Project types – industry

For this report, we focused only on projects in the manufacturing-engineering sector. Since 2019, Kānoa has distributed nearly $80 million of funding, through loans, grants, and equity, for 44 businesses in the Manufacture/Engineering industry.

2.1.2 Timeframe

Kānoa was originally established in 2018, under the name of "Provincial Development Unit". The timeframe of our economic and well-being analysis is from 2019 until the present.

2.1.3 Region

Kānoa supports projects all over regional New Zealand. We have elected to simplify the analysis (to ensure it is useful) by looking at the economic impact of all manufacturing-engineering sector projects supported by Kānoa. This economic impact is calculated from the perspective of New Zealand in total.

Among the businesses included in our analysis, 76 percent are from the Otago or Southland regions, with 24 percent being from all the other regions.

2.2 Economic Impact Assessment

Our chosen methodology is an Economic Impact Assessment (EIA) of the funding from Kānoa and private businesses towards manufacturing-engineering sector projects.

2.2.1 Measures of economic impact

The three measures we use to describe economic impact are:

Output (Expenditure): The value of production, which is built up through the national accounts as a measure of gross sales or turnover. This is expressed in $million at constant prices (i.e. removing the effect of inflation) and includes GST.

Real GDP: The increase in output generated along the production chain which, when aggregated, totals Gross Domestic Product (GDP). This is the sum of:

- Compensation of employees (i.e. salaries and wages)
- Income from self-employment
- Depreciation

- Profits
- Indirect taxes less subsidies.

Note that the Expenditure measure is made up of the above (value added) plus:

- Intermediate purchases of goods (other than stock in trade)
- Intermediate purchases of services.

Employment: The volume of employment is usually expressed as full-time equivalents (FTEs). These are estimated as the number of full-time employees, working proprietors, and one-third of the number of part-time employees, converted to an annual basis.

FTEs provide a measure of total labour demand associated with expenditure - e.g., four full-time jobs running for three months or three part-time jobs running for a year would be shown as a single FTE.

2.2.2 Understanding impact types

We calculate the total economic impact in terms of direct, indirect, and induced impacts:

- **Direct** refers to the direct economic activity generated by the investment, for instance money spent on capital costs and operations
- **Indirect** refers to economic activity generated by industries associated downstream and upstream to the project, for instance farms, transport haulage, and building construction
- **Induced** refers to economic activity generated by industries not associated with the project in the value chain, but that would still be affected by the additional economic activity. For instance, retailers in regional New Zealand would see increased clientele if there were additional workers in the town.

The data used in the EIA was sourced from MBIE and directly from the surveyed businesses. Some values were converted into ranges for confidentiality.

2.3 Data

2.3.1 Survey

To understand the impacts of Kānoa funding on the manufacturing-engineering sector, we undertook a survey of 44 businesses in the manufacturing-engineering sector that received funds from Kānoa. The survey questions were designed with the goal of reporting on the indicators from the well-being framework where possible. We also conducted an EIA of the combined Kānoa funding and private businesses expenditure.

The survey was conducted through SurveyMonkey, included a total of 48 questions, and was delivered to the contacts of the 44 relevant businesses. We received a total of 30 responses, with 25 having sufficient information to be considered for the analysis.

The survey questions can be divided into three themes that inform the indicators from the framework:

1. Business data: General information on the businesses that received funding from Kānoa
2. Capacity, capability, and their benefits: How Kānoa has changed the businesses' overall capacity and capability to produce output, and how this benefited the business
3. Secondary benefits: How Kānoa has benefited businesses in other ways.

In some instances, we have divided the survey responses into two groups: small-investment and large-investment. The small-investment group refers to the businesses that received up to $750,000 in funding from Kānoa, and the large-investment group refers to those that received over $750,000 in funding from Kānoa. We have taken this approach to analyse questions to which answers were mostly divergent between the two groups.

The median value received by businesses in the small-investment group was $156,000. For businesses in the large-investment group, the median value received was $4,900,000. Moreover, it should be noted that the differentiation between the small and large-investment groups refers to the size of the funding that the businesses received from Kānoa. The differentiation does not refer to the size of the businesses, nor to the total funding put into the projects.

2.3.2 Input-Output table

To calculate the economic impact of Kānoa funding we use a method that derives a set of numbers from an Input-Output table. We sourced a national-level Input-Output table, describing the New Zealand economy as of 2020, from Statistics New Zealand. We consider that it is unlikely that Covid-19 has changed the Input-Output relationships, as goods and services still require the same inputs to be produced.

2.4 Data limitations

2.4.1 Survey

A limitation to the data we used for this report is the number of complete responses to our survey (25), which represents 57 percent of the total number of businesses in the manufacturing-engineering sector that received funding from Kānoa. It is not possible to know if the 25 businesses that completed the survey have similar characteristics to the 19 that did not complete it. Another limitation is that it may have been difficult for some businesses to accurately isolate and assess the impacts of Kānoa, as in some instances, there were a significant number of factors impacting the business.

2.4.2 Additionality

It is assumed that when an investment is made into an area it creates positive economic impacts. However, what positive economic impacts would have occurred even if the investment was not undertaken? In other words, what proportion of the total economic impact created is new or *additional* over what would have occurred anyway?

We have augmented our methodology to account for this by asking our survey respondents for information allowing us to estimate the *additionality.* We detail this in section 4

2.4.3 Direct employment

Multiplier Analysis is concerned with the *economic activity* associated with an investment or a programme. Consistent with best practice, we report the direct employment created by this economic activity. However, this direct employment is not the same as the number of staff supported by Kānoa. Instead, it is a measure of how many jobs can be sustained by the *economic activity.*

3 Kānoa investments outcomes framework

In this section, we describe an overall framework guiding the evaluation of Kānoa investments.

The outcomes framework of Kānoa has been informed by:

- The PRISM Regional Economies Framework tool[1]
- Treasury well-being frameworks, including the Living Standards Framework[2]
- He Ara Waiora[3]
- Objectives from the six fund types under consideration in the impact studies.

The following is a description of the outcomes framework structure. He Ara Waiora sits at the base of the framework, grounding the regional outcomes, as well as the Living Standards Framework indicators, in Wairua (spirit), Te Taiao (the natural world), and Te Ira Tangata (the human domain).

Above the outcome domains of He Ara Waiora are the regional outcomes. The fund type objectives, and early work on outcomes by the Kānoa team, have contributed to these regional outcomes.

Direct and indirect indicators have been categorised according to the four capitals of the Living Standards Framework – physical and financial, human, social, and natural. These capitals have a reciprocal relationship with the regional outcomes.

The five elements of the PRISM Regional Economies Framework (productive, resilient, inclusive, sustainable, and Māori enabling) support regions to prioritise factors that support their economic development. The Regional Strategic Partnership Fund (RSPF), which the PRISM Framework is used for, is out of scope for the impact studies. Therefore, outcomes based on the PRISM elements will not be evaluated for the manufacturing-engineering sector. However, including PRISM within the outcomes framework will ensure there is continuity in measuring the outcomes of future Kānoa investments.

The key questions the framework, and therefore the impact studies, will aim to answer are:

1. What have the impacts (intended and unintended) been?
2. How are the investments helping the region/sector?
3. What longer-term impacts are the investment outcomes likely to have?

[1] https://www.growregions.govt.nz/assets/content/prism-pillars-information.pdf

[2] https://www.treasury.govt.nz/information-and-services/nz-economy/higher-living-standards/our-living-standards-framework

[3] https://www.treasury.govt.nz/information-and-services/nz-economy/higher-living-standards/he-ara-waiora


Kānoa investments outcomes framework
PRISM
Productive: People and businesses in productive regional economies can make the most of high-quality economic opportunities
Resilient: People and businesses in resilient regional economies can respond effectively to external forces
Inclusive: People and businesses' participation in inclusive regional economies is not limited by their location
Sustainable: People and businesses in sustainable regional economies use all type of resources sustainably, including financial, physical, human, social, and natural
Māori-enabling: People and businesses pursue Māori regional economic development as a pillar for the vitality of the region's economy, as well as for the wellbeing of Māori who whakapapa there
Living Standards Framework
Direct Indicators
Indirect Indicators
Financial and physical capital
•Economic impact (GDP, employment, expenditure)
•Innovation, research and development investment
•Infrastructure investment
•Earnings
•Consumer spending
•Visitor numbers and spending
•Investment by private sector
•Business confidence
•Economic development pathways for Māori
Human capability
•Employee skills and capability
•Educational attainment
•Equitable employment opportunities
•Higher skilled jobs
•STEMM employment
•Use of technology
•Digital equity
•Employment rates
Social cohesion
•Maintenance of cultural sites
•Support for local cultural activities and community groups
•Community resilience
•Population increases
•Sense of community
•Social outcomes
•Cultural outcomes
•Tāngata Whenua return/remain in region
Natural environment
•Emissions per GDP or per capita decrease
•Recycling
•Offsets/removals
•Climate resilience
•Air quality
•Water quality
•Land and soil quality
•Participation and support of local environmental initiatives
•Waste to landfill
Regional outcomes
Thriving and diverse regional economies
• Economy continues to grow, diversify, and encourage future industry
• Business areas are bustling with people, activities, and culture
• Māori determine their own economic development pathways
• Business/industry can access tools and support to prosper
• Development of innovative products and processes
• Improved business confidence
• Visitors are drawn to regional destinations
High-quality employment opportunities in the regions
• More people are upskilled, educated, trained, and experienced
• People can find high-skilled, well-paid employment in the regions
• Digital hubs support digital connectivity
Stronger, more resilient regional communities
• Inclusive, connected, and resilient communities
• Culture is embraced and strengthened through community projects
• Māori culture and identity are revitalised
• Empowered communities have the right tools to deliver the best outcomes
Productive and sustainable use of land and natural resources
• Kaitiakitanga for future generations
• Healthy and active residents utilise space, including green space
• Waterways are enhanced and restored meeting cultural standards
• Sustainability practices are normalised across all business and industry activity
He Ara Waiora: Wairua (spirit)
He Ara Waiora: Te Taiao (the natural world
He Ara Waiora:Te Ira Tangata (the human domain)

4 Financial and physical capital

An Economic Impact Assessment (EIA) was completed to assess the contribution of the investments to financial and physical capital.

4.1 Economic Impact Assessment

We conducted an EIA of the realisation of manufacturing-engineering sector projects that received funding from Kānoa to illustrate the impact on the New Zealand economy. This analysis was broken down into four parts:

1. The economic impacts of the combined funding from Kānoa and private businesses as a one-off event
2. The isolated economic impacts of the expenditure from Kānoa funding.
3. The annual average economic impacts the projects have had across the 2019-2022 time period
4. The future ongoing annual economic impacts based on the additional revenue.

Economic impacts are expressed in terms of the funding's contribution to GDP, employment, and expenditure generated. The total direct expenditure generated from the funding was $108.4 million. From this, the total impact of the funding on the national economy is greater than the amount of direct expenditure. This is because the money invested travels upstream and downstream of the investment. This creates multiple rounds of activity. Our methodology accounts for this complexity and estimates a final total impact. We also account for that portion of activity which represents imports and savings.

Due to the limitations of the input-output multiplier analysis, the direct, indirect, induced and total economic impacts estimated in Table 4.1, Table 4.2, Table 4.3, and Table 4.4 in this report are solely based on the initial investment funding by Kānoa and the businesses. Input-output multiplier analysis does not include the ongoing economic impacts that may arise from the original investment, and therefore these tables do not include estimates of any ongoing economic impact effects that the original investment may generate.

Estimating the ongoing economic impacts arising from this investment must be done separately. We have attempted to estimate the ongoing annual economic impact that will be generated by the addition of assets to each company. This has been done by using the results from one of our survey questions, that asked: "How much has your annual revenue changed, or is expected to change, as a result of the Kānoa project?". We have assumed that this change in annual revenue will be a permanent increase in revenue due to the capital investment of Kānoa funding, rather than a temporary increase over a set time period. The results of this analysis are shown in Table 4.5.

4.1.1 Determining additionality

An important consideration when conducting and EIA is the *additionality* of projects that received funding from Kānoa. Additionality, as described above, is about determining the marginal impact the extra funding had on the economy, given that some activity would have occurred anyway. Almost all respondents (24) claimed that their project(s) would not have gone ahead at the time they did without funding from Kānoa. Out of those, two mentioned that their project was brought forward by one or two years, and the others mentioned that their project would not have gone ahead at all without funding from Kānoa.

On the other hand, one respondent mentioned that their project would have gone ahead at that time regardless of funding from Kānoa. The respondents also commented on what was stopping them from moving forward with their project. An inability to access sufficient investment funding was mentioned by 41 percent of respondents, while 14 percent mentioned that the project was not a priority, and 64 percent stated that the project would not have been financially feasible without Kānoa funding.

In the analysis contained in this section, we have adjusted the investment amounts in the model to account for the additionality information collected from the survey. It should be noted, however, that not all of the 44 Kānoa funding recipients completed our survey. This means that we needed to estimate the additionality of the funding, based on the results from the 25 completed survey responses. In Appendix A we have determined the 95 percent confidence interval range around the total economic impact, as noted in Table 4.1 and Table 4.2.

4.1.2 Total economic impacts as a one-off event

The direct investment from the combined Kānoa and private funding of manufacturing-engineering sector projects was $108.4 million.

This total investment of $108.4 million directly generated value-add (GDP) of $41.8 million. This was sufficient to support 684 direct full time equivalent employees (FTEs). Accounting for the upstream and downstream effects, we calculated that the direct investment of $108.4 million created about $87 million indirect activity upstream and downstream from the investment. This created a value-add (GDP) of $38.7 million, sufficient to support employment of 1,000 FTEs.

Finally, when we account for the activity that the investment induces through the spend of employees, we calculated that this activity is around $34 million, which generates $18.4 million GDP, sufficient to support employment of 295 FTEs.

In total, the direct investment of $108.4 million created economic activity of $229.5 million (Table 4.1). This generated around $99 million GDP, which is sufficient to support total employment of 1,979 FTEs in New Zealand.

Table 4.1 Total economic impacts as a one-off event

	Direct	Indirect	Induced	Total
Expenditure ($m)	108.4	87.0	34.0	229.5
GDP ($m)	41.8	38.7	18.4	99.0
Employment (FTEs)	684	1,000	295	1,979

Source: BERL analysis

This analysis shows that for every $158,580 directly invested by Kānoa (government and private jointly) it created activity to directly support one FTE. This is much lower than comparable work we completed in April 2022, targeting all projects funded by the PGF in Gisborne, that showed that each direct FTE supported cost around $300,247 in direct investment.[4] The reason for the difference is due to the nature of the investment and the chosen industries.

4.1.3 The isolated economic impacts of Kānoa funding

We calculate that Kānoa funding (excluding private funding) of the projects in scope totalled around $79.1 million. This investment directly created GDP of $30.5 million, which was sufficient to support the employment of 461 FTEs.

This investment created activity upstream and downstream within the economy. This activity totalled around $61.8 million, generating $27.7 million GDP, sufficient to support 722 FTEs. The people employed by this activity also generated their own activity (induced). This totalled around $24.7 million which generated $13.4 million GDP. This was sufficient to employ 207 FTEs.

In total, accounting for all upstream and downstream and induced impacts, the $79.1 million investment created total activity of $165.5 million (Table 4.2). This generated GDP of $71.5 million, sufficient to support the employment of 1,390 FTEs.

Table 4.2 The isolated economic impacts of Kānoa funding

	Direct	Indirect	Induced	Total
Expenditure ($m)	79.1	61.8	24.7	165.5
GDP ($m)	30.5	27.7	13.4	71.5
Employment (FTEs)	461	722	207	1,390

Source: BERL analysis

[4] This result was calculated using data contained in https://www.gdc.govt.nz/__data/assets/pdf_file/0028/39943/BERL-Report.pdf

4.1.4 Annual average economic impacts

Economic impacts from the combined funding (2019-2022)

Based on the data provided by Kānoa, project funding commenced in 2019 and continued through to 2022. We decided to undertake this analysis as an average across the four years as the funding was relatively well spread across this period. On average across the four years, direct expenditure was $27.1 million, and directly created on average GDP of $10.5 million, which was sufficient to support the annual employment of 171 FTEs.

This investment created activity upstream and downstream within the economy. This activity totalled $21.8 million expenditure on average annually, generating $9.7 million GDP, sufficient to support 250 FTEs. The people employed by this activity also generated their own activity (induced). This totalled $8.5 million which generated $4.6 million GDP. This was sufficient to support 74 FTEs.

In total, accounting for all upstream, downstream, and induced impacts, the annual average $27.1 million investment created total activity of $57.4 million (Table 4.3). This generated total annual GDP of $24.7 million, sufficient to support the employment of 495 FTEs annually.

Table 4.3 Annual average total economic impacts, 2019-2022

	Direct	Indirect	Induced	Total
Expenditure ($m)	27.1	21.8	8.5	57.4
GDP ($m)	10.5	9.7	4.6	24.7
Employment (FTEs)	171	250	74	495

Source: BERL analysis

Isolated Kānoa funding economic impacts (2019-2022)

When considering only the economic impacts of Kānoa funding, on average across the four years, direct expenditure of $19.8 million directly created on average GDP of $7.6 million, which was sufficient to support the annual employment of 115 FTEs (Table 4.4).

This investment created indirect impacts within the economy. This activity totalled $15.4 million expenditure on average annually, generating $6.9 million GDP, sufficient to support 180 FTEs. The people employed by this activity also generated their own activity (induced). This totalled $6.2 million which generated $3.3 million GDP. This was sufficient to support 52 FTEs.

In total, the annual average $19.8 million investment created total activity of $41.4 million. This generated total annual GDP of $17.9 million, sufficient to support the employment of 348 FTEs annually.

Table 4.4 Annual average isolated Kānoa funding economic impacts, 2019-2022

	Direct	Indirect	Induced	Total
Expenditure ($m)	19.8	15.4	6.2	41.4
GDP ($m)	7.6	6.9	3.3	17.9
Employment (FTEs)	115	180	52	348

Source: BERL analysis

4.1.5 Future ongoing annual economic impacts

Most projects that received Kānoa funding were related to capital investments in the businesses that will provide permanent increases in ongoing revenue. We have therefore assumed that the increases in revenue generated by these capital investments will be permanent increases for the businesses, rather than a temporary increase across a defined time period. Using data collected in our survey on increased revenue from the investments, we have estimated the future annual ongoing economic impacts resulting from this increase in revenue.

The future ongoing annual direct expenditure resulting from the increased revenue is $29.1 million in 2022 dollars, and will directly create annually GDP of $11.4 million in 2022 dollars, which will be sufficient to support annual employment of 107 FTEs (Table 4.5). This investment will create indirect impacts within the economy. This activity will total $24.4 million expenditure annually, which will generate $10.7 million GDP, sufficient to support 180 FTEs. The people employed by this activity will also generate their own activity (induced). This will total $9.3 million annually, which will generate $5 million GDP. This will be sufficient to support 32 FTEs.

In total, the annual future expenditure of $29.1 million will create total annual activity of $62.8 million. This will generate total annual GDP of $27.1 million, sufficient to support the employment of 218 FTEs annually.

Table 4.5 Future annual ongoing economic impacts

	Direct	Indirect	Induced	Total
Expenditure ($m)	29.1	24.4	9.3	62.8
GDP ($m)	11.4	10.7	5.0	27.1
Employment (FTEs)	107	79	32	218

Source: BERL analysis

5 Human capability, social cohesion, and natural environment

Impacts on human capability, social cohesion, and natural environment are not captured through an EIA. To understand these impacts, we gathered further information through a targeted survey.

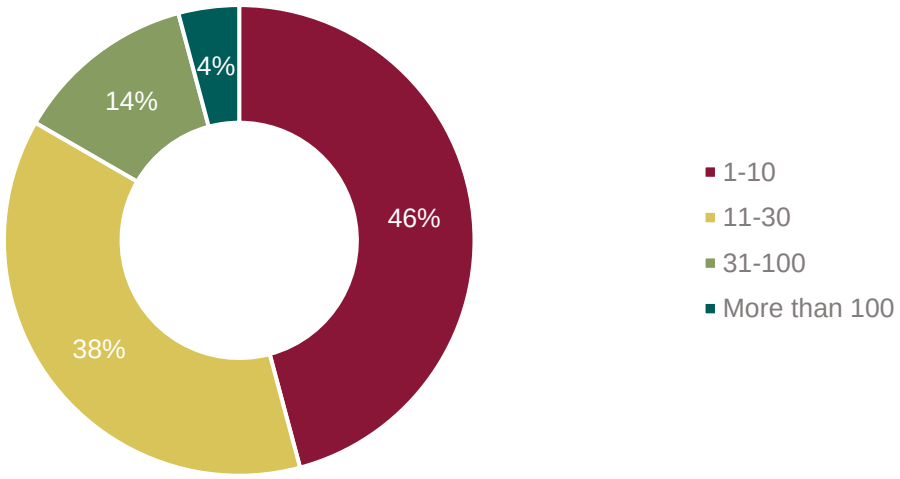
5.1 Additional information gathered through a targeted survey

The survey was designed to gather additional information from the manufacturing-engineering sector businesses. The survey was distributed to 44 businesses and 25 completed all the questions in the survey.

The completion rate was similar across the small and large-investment groups. For businesses in the large-investment group, six out of 11 completed our survey (55 percent). For businesses in the small-investment group, 19 out of 33 completed the survey (58 percent).

5.2 What was the size of businesses that received Kānoa funding?

Figure 5.1 Business size (based on number of staff) prior to receiving funding from Kānoa, all businesses



Source: BERL analysis

To measure business size in terms of staff numbers, we asked, “How many staff (excluding apprentices and interns) did your business employ prior to receiving funding from Kānoa?”

The survey results showed that most businesses were small. This included businesses with one - 10 employees (46 percent), and to those with 11 – 30 employees (38 percent). Together, this group comprised 84 percent of respondents as shown in Figure 5.1. Of the remaining businesses, 14 percent of respondents employed between 31 and 100 people, while four percent employed over 100 people.[5]

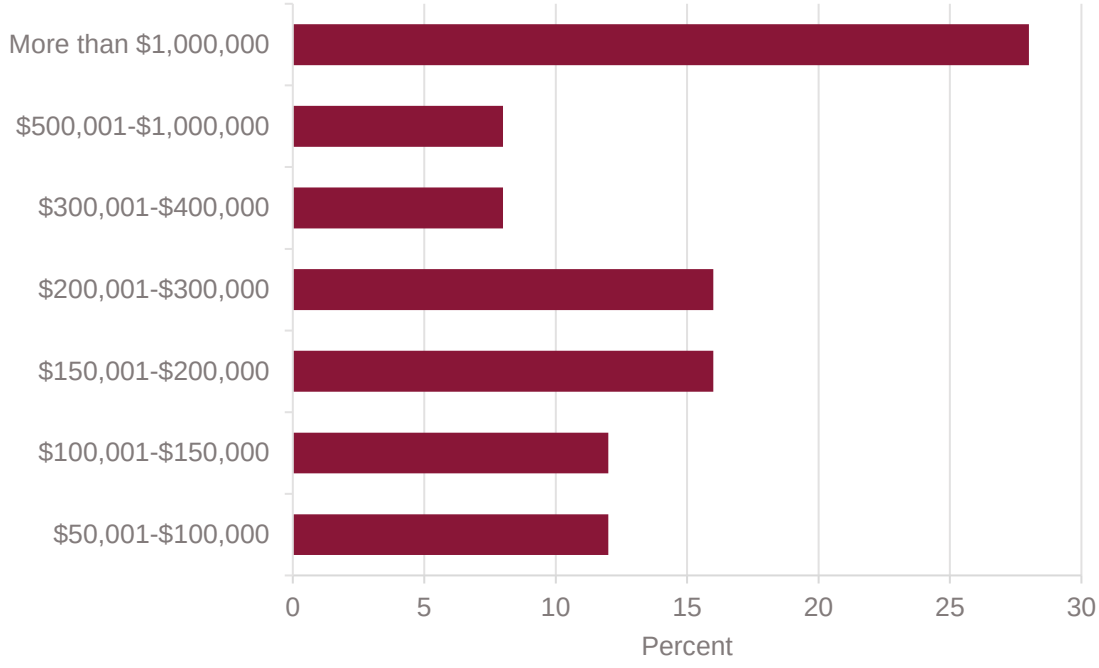
5.3 Was the funding complementary for businesses?

The next question we asked was, "How much funding did your business put into the project(s)?"

In all cases, the funding from Kānoa was complementary to private funding from the businesses, and the majority of projects (22 out of 25) would not have happened without Kānoa funding. This suggests that it was the combined Kānoa funding and private funding from businesses that enabled the projects to be realised.

We summarise the amount of funding businesses invested in their project(s) in Figure 5.2. Our data shows that private funding varied significantly. However, the group that put in more than $1,000,000 was the largest, with 28 percent of our respondents reporting this.

Figure 5.2 Private funding into project(s), all businesses

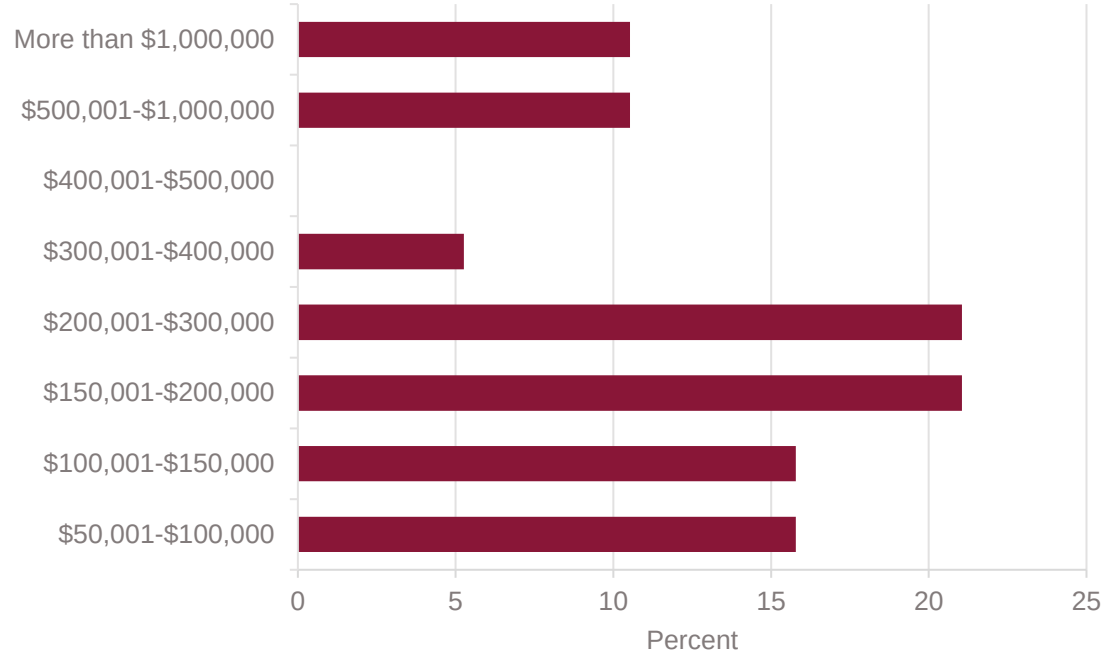


Source: BERL analysis

[5] The percentages add to more than 100 due to rounding

The results change significantly when separating the responses between the small and large-investment groups. In the large-investment group, 83 percent of respondents stated that they invested more than $1,000,000 into their project(s), and 17 percent invested between $300,001 and $400,000. Moreover, when considering only respondents from the small-investment group, most respondents invested between $50,001 and $200,000 (53 percent) as shown in Figure 5.3.

Figure 5.3 Private funding, small-investment group



Source: BERL analysis

5.4 Did the funding increase capacity and capability?

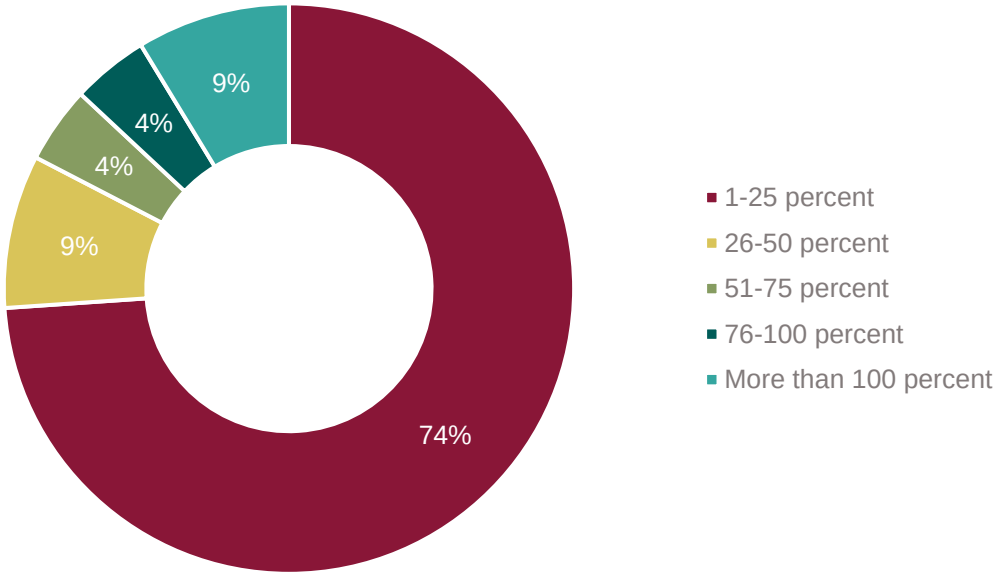
This section looks at how the projects funded by Kānoa allowed businesses to increase their capacity and capability to produce output, and what benefits this delivered to their business. Capacity can be defined as the number of projects, products, and projects a business can produce. Increasing capacity can allow for businesses to increase their revenue, number of employees, and market share. Capability refers to the types of projects and products a business can produce. By increasing its capability, a business can gain access to new types of clients, projects, and markets. Increasing both capacity and capability is necessary for increased productivity.

5.4.1 Did the funding increase capacity and revenue?

To understand the impact Kānoa had on business capacity, we asked respondents, "By how much has Kānoa increased your business's capacity to produce output (i.e. more products, projects, etc.)?". Then, to understand the impact of increasing capacity on revenue, we asked respondents, "By how much did this increase in capacity increase your business's total revenue?".

Almost all respondents (23 out of 25) stated that their business's capacity increased because of Kānoa funding. Out of those 23, the majority (74 percent) experienced an increase in capacity of up to 25 percent, as summarised in Figure 5.4.

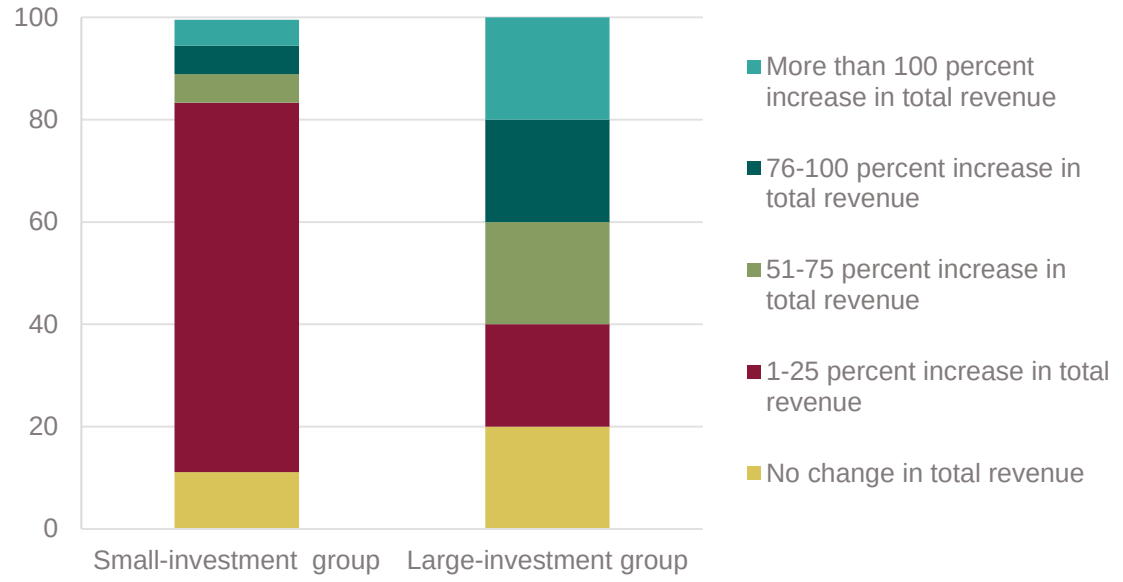
Figure 5.4 Increase in capacity, all businesses



Source: BERL analysis

The impact on revenue of an increase in capacity was very different between businesses in the small and large-investment groups, as shown in Figure 5.5. It is evident that respondents in the small-investment group were much more likely to have an increase in revenue of up to 25 percent (72 percent of respondents reported this), whilst in the large-investment group only one business reported an increase of up to 25 percent. Respondents in the large-investment group (five businesses in total) all had differing levels of revenue change resulting from a capacity increase.

Figure 5.5 Increase in revenue, small vs large-investment groups



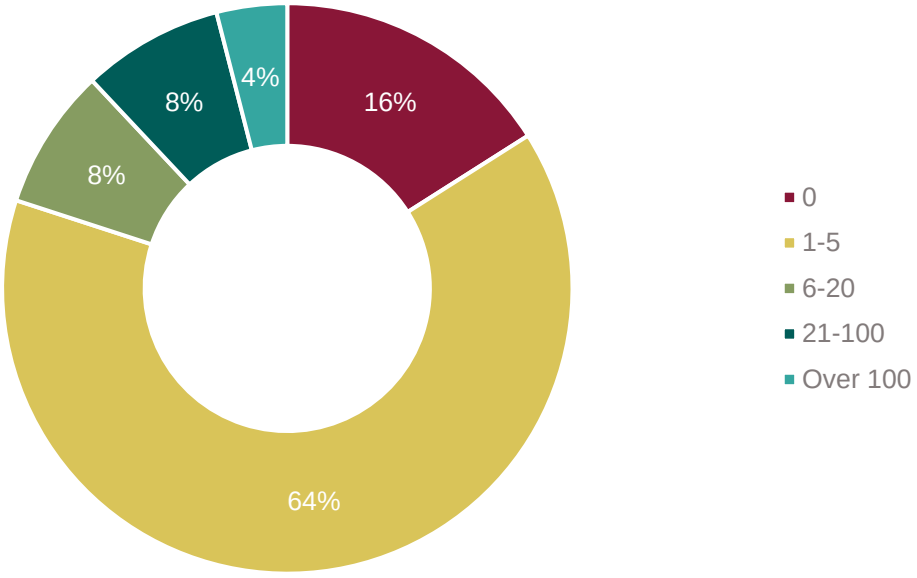
Source: BERL analysis

5.5 Did the funding create employment opportunities?

To understand additional employment, we asked respondents, "How many new staff (excluding apprentices and interns) were employed?"

The projects that received funding from Kānoa allowed most businesses (21 out of 25 - 84 percent) to increase employment as summarised in Figure 5.6. In total, 285 employees were hired. This comprised 246 full-time, 11 part-time, and 28 casual workers. Businesses in the small-investment group hired four employees on average, while the average number of new hires for businesses in the large-investment group was 33.

Figure 5.6 Extra employment created by Kānoa funding, all businesses



Source: BERL analysis

According to the respondents, most of the new employment generated by their Kānoa funded projects was local. Out of the 22 businesses that increased employment, 15 did not hire anyone from outside of their business's region, and seven did. Moreover, out of the 285 hired employees, most (93 percent) were sourced from the business's region.

Although not a stated objective of Kānoa, four respondents claimed that their business's workforce became more diverse because of new employment generated by Kānoa. This is consistent with other, related objectives of the New Zealand Government, such as the Living Standards Framework.

Finally, respondents also mentioned that they had hired apprentices because their projects had received Kānoa funding. In total, 11 businesses hired between one and eight apprentices, which totalled 25 apprentices.

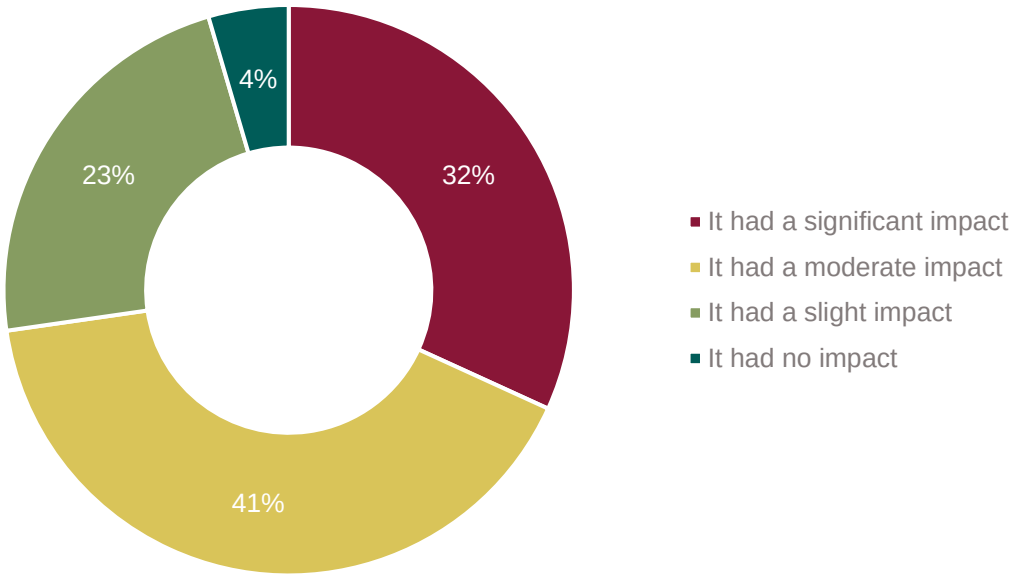
Apprenticeships are a critical path toward prosperity for many people. Previous BERL research has concluded that apprenticeships offer workers a steadily improving Net Financial Position over their career.[6]

5.5.1 Did the funding increase capability?

To understand capability, we asked our respondents, "How did your business's increase in capability impact your ability to get new projects and clients?"

Almost all businesses (21 out of 22) increased their capability because of Kānoa funding. This increase in capability impacted the ability to source new clients and projects for 96 percent of businesses. Furthermore, for about one-third of businesses this impact was significant.

Figure 5.7 Effect on capability, all businesses



Source: BERL analysis

5.5.2 Did the funding enable increased employee skills and capability?

Skill development was required in almost all businesses (22 of 25) because of increases in capacity and capability. All businesses in the large-investment group both trained/upskilled employees, and hired staff with new specialised skills.

[6] Hurren, K. & Cox, M. (2019). *Modelling Alternative Pathways,* BERL.

Although skill development was present in businesses in the small-investment group, it was not as widespread as in businesses in the Large-investment group. Around half (53 percent) of small-investment group respondents stated that their business hired staff with new specialised skills, and 58 percent mentioned that they trained or upskilled employees.

Finally, 16 percent of respondents from businesses in the small-investment group stated that their business did not undertake skill development or hire staff with new specialised skills as a result of Kānoa funding.[7]

5.6 Did the funding increase productivity?

Productivity is about making more value with fewer (or the same) resources. In a technical sense it can be defined as the ratio between total revenue and number of employees, meaning how much each employee produces, on average. Most businesses (19 out of 25) managed to increase their productivity because of Kānoa. This is consistent with our observations regarding the increase in capacity and capability.

Even though most businesses had productivity gains, the majority (79 percent) experienced gains of between one and 25 percent. Furthermore, 10 percent of respondents mentioned that their business had a productivity gain of between 26 and 50 percent, and another 10 percent stated that their business had productivity gains of more than 100 percent.

5.7 Did the funding decrease operating costs?

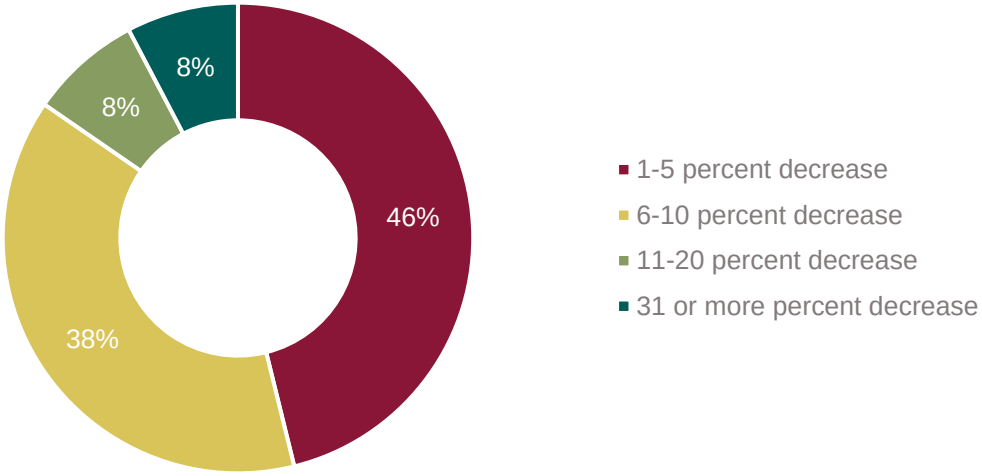
The consequence of increasing productivity is a decreasing per-unit operating cost. The effect is explainable by economies of scale. The larger the production scale of a business the more it can dilute fixed costs, which decreases the overall costs of producing a single unit of output. We expect Kānoa funding to have an impact on this because the funding enabled an increase in the scale of the target businesses.

To understand the effect of Kānoa funding on operating costs we asked our survey respondents, "What was the percentage reduction in the per-unit operating costs?"

About two thirds (64 percent) of businesses managed to reduce their per-unit operating costs because of Kānoa. Moreover, as Figure 5.8 shows, most businesses in the small-investment group experienced a reduction in per-unit operating costs, with 84 percent experiencing reductions of between one and 10 percent.

[7] Note that the percentages do not add to 100 percent because respondents could select more than one alternative.

Figure 5.8 Impact of Kānoa on operating costs, small-investment group



Source: BERL analysis

Among the six businesses in the large-investment group, three experienced a reduction in their per-unit operating costs.[8] One respondent stated that the reduction was between six and 10 percent, another noted a reduction of between 21 and 30 percent, and the last one mentioned that the reduction was greater than 30 percent.

While a smaller percentage of businesses in the large-investment group experienced a reduction in their per-unit operating costs compared to the small-investment group, the ones that did manage to reduce their per-unit operating costs did so by a larger margin. Among the nine businesses that did not manage to reduce their per-unit operating costs because of Kānoa funding, two respondents mentioned difficulties calculating this. Finally, four respondents stated that cost escalation resulting from the Covid-19 pandemic cancelled out any cost reductions from Kānoa funding.

5.8 Did the funding facilitate new relationships and markets?

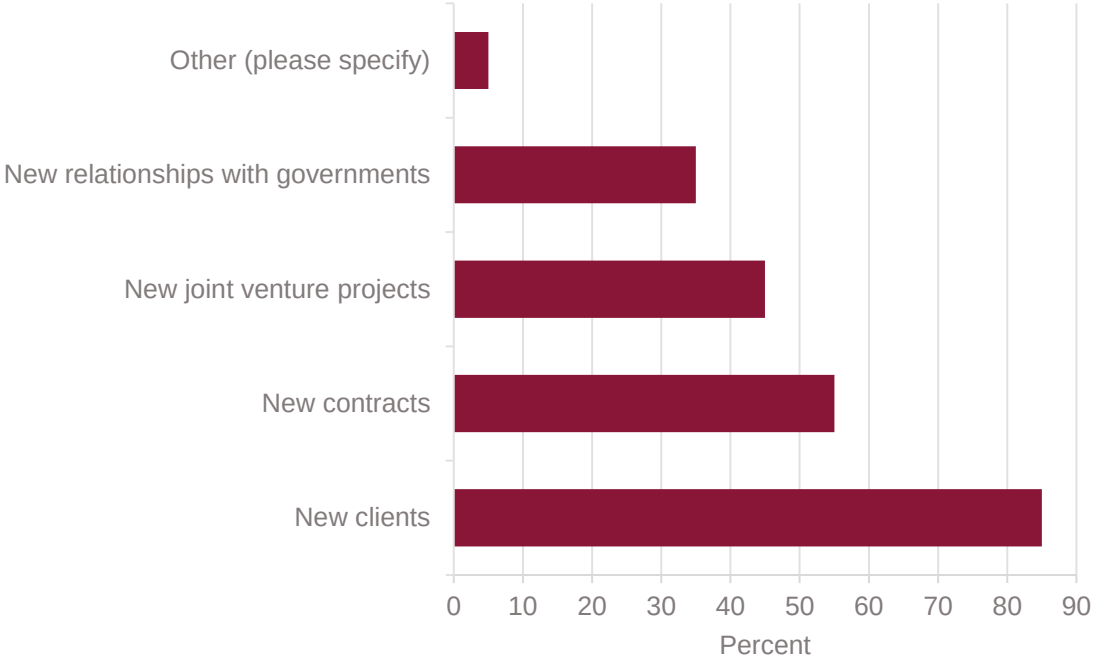
Other benefits that resulted from the changes in capacity and capability facilitated by Kānoa funding included the opening of new markets and new relationships, which resulted in new clients and projects.

To understand what impact Kānoa funding had on respondent businesses and their new relationships and market we asked respondents, “As a result of Kānoa, did your business benefit from any of the following?”. We summarise our results in Figure 5.9 with all respondents indicating a positive outcome in this domain.

[8] Not all survey respondents answered every question. We treat each question as a separate sample when calculating proportions to ensure robust statistics.

Most (85 percent) businesses gained access to new clients resulting from Kānoa funding, over half received new contracts, 45 percent began new joint venture projects, and 35 percent started new relationships with central and/or local government. One respondent stated that their project was not yet finished, and they expect to benefit from new clients and contracts in the future. This is a significant result as it is critical for businesses in the modern economy to continue building relationships and finding new markets.

Figure 5.9 Kānoa impact on new relationships and markets, all businesses



Source: BERL analysis

This positive effect was stronger among businesses in the Large-investment group. Among businesses in the small-investment group, 53 percent gained access to new domestic markets, and five percent gained access to both new domestic and international markets because of Kānoa funding. For those businesses in the large-investment group 17 percent gained access to new domestic markets, and 50 percent gained access to both new domestic and international markets.

Furthermore, among all businesses that gained access to new markets, respondents mentioned three main ways in which Kānoa funding facilitated this access. These were: increases in capacity (80 percent), increases in capability (80 percent), and innovation enablement (73 percent).

Among the businesses that gained access to new markets both domestically and internationally (five out of 25), four increased their exports between one and 25 percent, and one increased its exports by 1,000 percent. It should be noted, however, that this increase in exports by 1,000 percent is very likely due to the low-base effect, meaning a small change from a low initial amount can be translated into a large percentage change.

5.9 Secondary impacts of Kānoa funding

This section explores secondary impacts due to Kānoa funding. These include innovation, research and development (R&D), investment attraction, resilience, the environment, and unforeseen challenges.

5.9.1 Innovation

Kānoa funding enabled innovation in most businesses, and as seen in Section 5.8, this enabled many businesses to gain access to new markets. Kānoa funding enabled innovation at a higher proportion among businesses in the small-investment group (89 percent) than among businesses in the Large-investment group (67 percent).

Most respondents (80 percent) commented that they expect their business to increase innovation in the future because of Kānoa funding. This is greatly beneficial to businesses as innovation can increase their competitiveness, efficiency, and market base. This is in line with international experience. An OECD blog post in 2015 described their thinking on how innovation results in more robust economic growth in four ways:

1. Technological progress
2. Knowledge, better ways to do things
3. Using capital and labour more efficiently
4. Strengthening dynamics.[9]

5.9.2 Research and development

Additionally, Kānoa funding promoted R&D in many businesses. Out of businesses in the Small-investment group, 24 percent expanded their spend on R&D, and 35 percent started undertaking R&D expenditure. Among businesses in the Large-investment group, half expanded their spend on R&D.

5.9.3 Private investment

Another possible positive impact of Kānoa funding is increasing private sector confidence in businesses. A business that has increased capacity, capability, and innovation could present itself as a good opportunity for further private investment. While only 12 percent of respondents mentioned that their business had already attracted further private investment because of Kānoa funding, 60 percent mentioned that they expect this to happen in the future.

This result is consistent with the overarching goal of Kānoa and New Zealand Government strategies to lift the performance and productivity of New Zealand businesses.

[9] https://www.oecd.org/innovation/better-innovation-for-better-lives.htm

5.9.4 Resilience

Our world and our economy are changing. Climate change, response to pandemic threat, and supply chains are increasingly putting pressure on businesses. These threats pose significant questions for the ongoing prosperity of businesses. Resilience requires businesses to have strategies and capacity in place to deal with this ever-changing world.

Given that all projects in scope for this report received funding from Kānoa at least partially during the height of the Covid-19 pandemic (2020 to 2022), we have looked at the impacts that Kānoa had on business resilience.

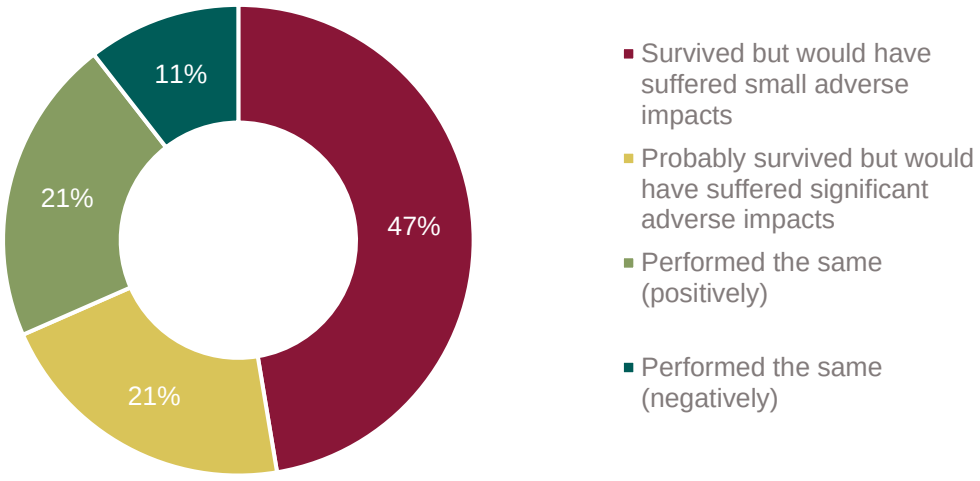
We asked respondents, "During the Covid-19 pandemic, without Kānoa funding your business would have...?"

The results were very mixed. Most respondents from businesses in the small-investment group stated that without Kānoa funding their business would have survived through the Covid-19 pandemic, but would have suffered small adverse impacts (47 percent).

About one-third of respondents in the same group stated that their business would have performed the same without Kānoa. This means that either Kānoa was not able to prevent any adverse impacts (11 percent), or that no adverse impacts would have happened regardless of Kānoa (21 percent).

This is an important finding as it helps MBIE to better target objectives for recipients of Kānoa and other funding programmes. These programmes have positive impacts on some domains, but in others make less of a difference.

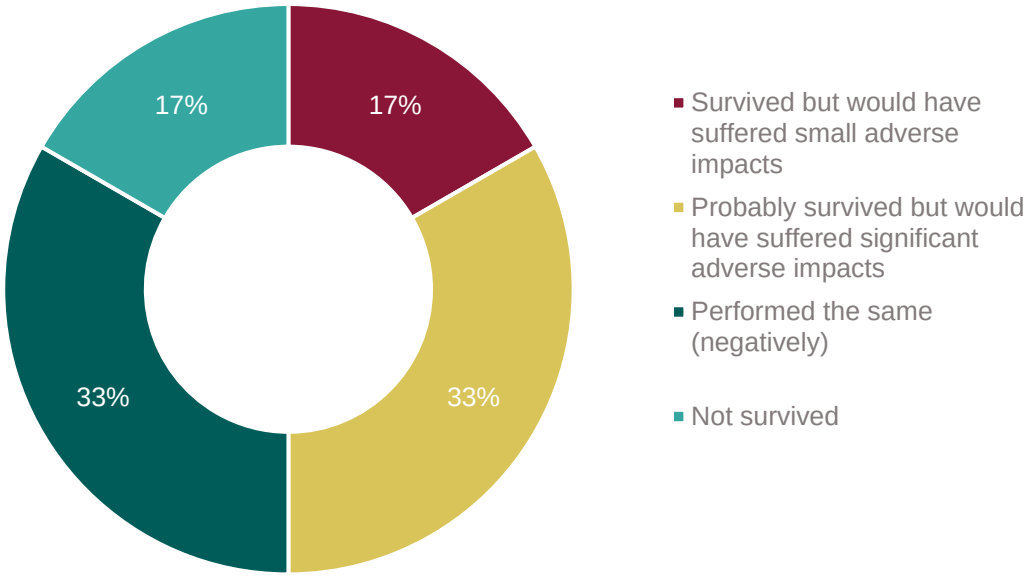
Figure 5.10 Impact of Kānoa funding on resilience for businesses in the small-investment group



Source: BERL analysis

We also posed the same question to businesses in the large-investment group. These businesses had different outcomes than the ones in the Small-investment group in this aspect. One-third of businesses would have probably survived without Kānoa but would have suffered significant adverse impacts. Also, another third of businesses would have suffered the same negative impacts without Kānoa, and one business (17 percent) would have not survived without Kānoa funding.

Figure 5.11 Impact of Kānoa funding on resilience, for businesses in the large-investment group



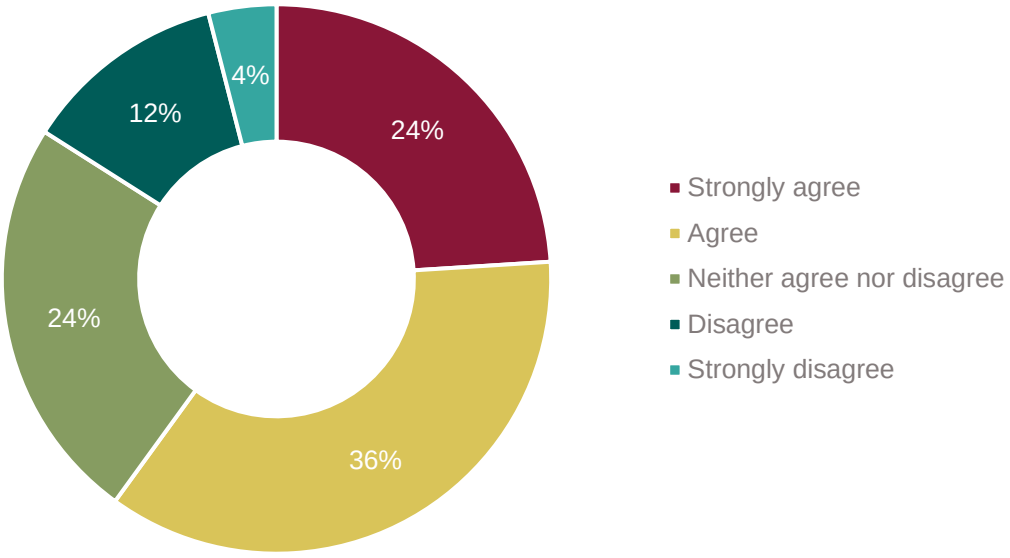
Source: BERL analysis

To capture a more general understanding of resilience we asked respondents to our survey, "Do you agree with the following statement? Kānoa increased my business's resilience to future economic downturns?"

The results are summarized Figure 5.12, with 60 percent of respondents agreeing with this statement, 24 percent of whom agreed strongly. Almost a quarter (24 percent) of respondents had a neutral opinion, and 16 percent disagreed.

On first inspection, answers to this question are inconsistent with those of the previous question. However, the previous question was specifically about the Covid-19-related events of 2020 – 2022. Without the fiscal and monetary response, this period would have been characterised by a significant economic downturn. This fact makes this period distinct from a general economic downturn and we speculate it is the explaining factor as to why answers to these questions appear inconsistent.

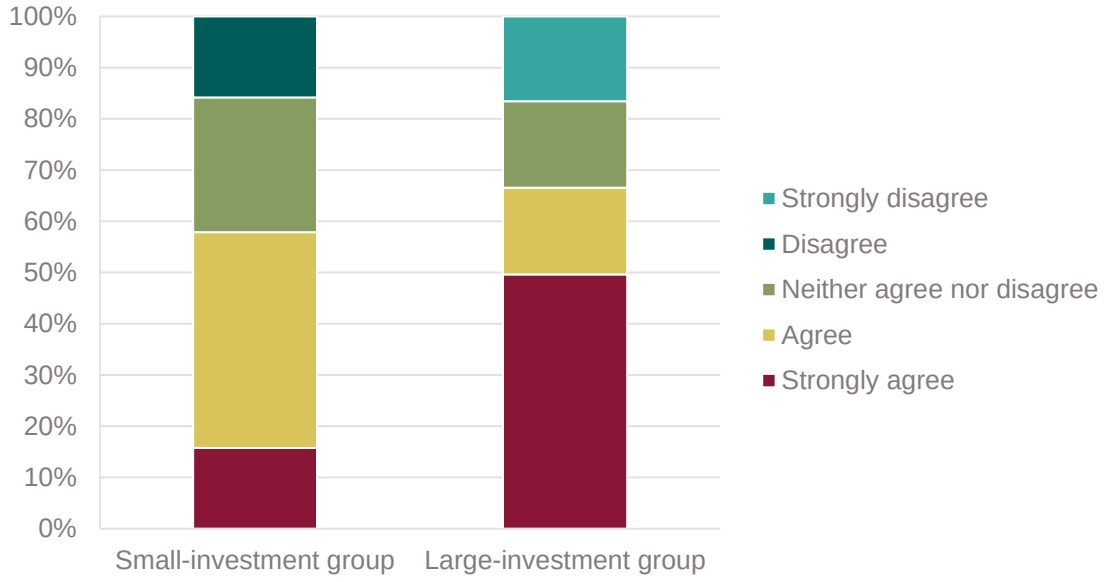
Figure 5.12 Kānoa funding increased resilience to future economic downturns, all businesses



Source: BERL analysis

The difference in answers to this question between the two groups is illuminating. We observed that 16 percent of businesses in the small-investment group strongly agreed with the statement that Kānoa funding made them resilient to economic downturns. This compared to 50 percent of businesses in the large-investment group, as shown in Figure 5.13.

Figure 5.13 Kānoa funding increased resilience to future economic downturns, by investment group



Source: BERL analysis

Additionally, a greater proportion (67 percent) of businesses in the large-investment group agreed (strongly or otherwise) with the statement, versus 58 percent of businesses in the small-investment group. Although the sample size of the large-investment group is just six, we can tentatively conclude this difference is meaningful.

5.9.5 The natural environment

In 2021 the New Zealand Government committed New Zealand to a "Just Transition" to a low carbon economy by signing The International Just Transition Declaration at COP26 in Glasgow.[10]

Our survey results show Kānoa funding supported outcomes in line with this. Overall, we observed that Kānoa funding empowered the businesses surveyed to become more environmentally friendly. Some of the positive environmental impacts observed by respondents included reduced greenhouse gas (GHG) emissions and reduced waste material generated.

Over half of respondents (56 percent) agreed that Kānoa funding had allowed their business to be more environmentally friendly. In terms of GHG emissions 44 percent stated that Kānoa funding enabled them to slightly reduce these. 52 percent mentioned that their business slightly reduced its amount of waste generated because of Kānoa funding. Lastly, one business responded that Kānoa funding empowered the business to make substantial reductions in its amount of waste generated.

5.9.6 Challenges

Finally, respondents were given the opportunity to comment in their own words on any unforeseen challenges resulting from Kānoa funding. Two respondents commented that progress was slow, and it took a long time to transact deals, which made it difficult to manage their projects. Three respondents mentioned staffing issues as barriers to unlocking all the benefits from Kānoa funding. This included both budget limitations because of higher wages, and a struggle to find skilled workers. Lastly, one respondent stated that due to cost escalation, their project was left incomplete.

These challenges encountered by businesses receiving Kānoa funding are worth a deeper exploration. Focus should be on investigating the drivers of these challenges and finding ways to align Kānoa and business processes.

[10] https://ukcop26.org/supporting-the-conditions-for-a-just-transition-internationally/

6 Conclusion and observations

In this report, we have described a framework to guide evaluating outcomes from Kānoa's investment programme. We employed a robust and well-established methodology to understand the economic impact of the funding allocated through Kānoa, as well as the combined funding of Kānoa and private investment.

Our analysis shows that Kānoa investment has had a positive impact, boosting GDP by $99 million, and supporting employment of 1,979 FTEs. We drew a comparison with other PGF evaluations BERL has completed, and concluded that Kānoa has achieved a much greater value in terms of employment outcome per dollar invested.

Economic impacts are not the only aspiration of regional investment programmes like Kānoa. To understand what other direct impacts the programme has had, we surveyed businesses that had received Kānoa funding for projects.

Our scope was focused on business performance in terms of productivity, costs, and employees. For the most part, the responses to our survey indicate that Kānoa has achieved many of the outcomes described in the outcomes framework. The outcomes achieved also align with other strategies of the New Zealand Government, such as the Living Standards Framework.

We also looked at secondary impacts of Kānoa funding that extend beyond the business into the areas of the environment, innovation, and resilience. Again, we concluded that Kānoa has empowered businesses to make changes to processes and projects that have resulted in significant progress toward the intended outcomes of the programme. Businesses became more innovative, more likely to increase R&D spending, and were more likely to attract private investment because of Kānoa funding.

Kānoa also improved outcomes in the wider concept of resilience. However, using a narrow concept of resilience, specifically to the events of 2020 – 2022, Kānoa did not have a significant impact. Finally, the responses to our survey differed significantly between businesses in the small and large-investment groups. Some of this difference is explained by the relatively small sample size of the large-investment group (six) but this is an indication that Kānoa investment has various impacts depending on funding size.

Observations

Our analysis was limited in scope to projects within the manufacturing-engineering sector. Nevertheless, it shows Kānoa has been successful in achieving desired outcomes. We suggest that MBIE pursues an evaluation of Kānoa among each of the other industries. One research objective could be to determine what differences there are between outcomes by sector, and what the determinants of these differences are.

Finally, we suggest that MBIE undertakes further engagement and ongoing discussion with businesses that received funding. The goal of this engagement should be to improve processes in the receiving businesses, as well as Kānoa, to maximise positive impact.

Appendix A Confidence interval

To determine a confidence interval, a significance level, size of the population, and the standard deviation of the variable being assessed is required. For this report, the main variable that requires a confidence interval to be calculated is the additionality of each project. This is because it is this variable that was unknown for each project. While we know the additionality of projects for those businesses that completed our survey, for the remainder we had to estimate based on the results obtained from the survey responses.

Table A.1 Confidence interval for the total economic impact

	Direct	Indirect	Induced	Total
Expenditure ($m)	(103.7 - 109.3)	(83.2 - 87.7)	(32.5 - 34.3)	(219.5 - 231.3)
GDP ($m)	(40.0 - 42.2)	(37.0 - 39.0)	(17.6 - 18.6)	(94.7 - 99.8)
Employment (FTEs)	(654 - 689)	(957 - 1008)	(282 - 297)	(1,893 - 1,995)

Source: BERL analysis

Table A.2 Confidence interval for the isolated Kānoa economic impact

	Direct	Indirect	Induced	Total
Expenditure ($m)	(75.4 - 79.5)	(58.9 - 62.1)	(23.5 - 24.8)	(157.9 - 166.4)
GDP ($m)	(29.4 - 30.7)	(26.4 - 27.8)	(12.7 - 13.4)	(68.2 - 71.9)
Employment (FTEs)	(440 - 464)	(688 - 726)	(198 - 208)	(1,326 - 1,398)

Source: BERL analysis