

CallaghanInnovation
New Zealand's Innovation Agency



ACTIVATING OUR STRATEGY

**ANNUAL
REPORT
2019**

As New Zealand's innovation agency

WE PROMOTE THE GROWTH OF THE INNOVATION ECOSYSTEM



Investment in research and development is growing

**24%
GROWTH**
in Business
Expenditure on
R&D (BERD)
in 2018

7,740
businesses introduced
new or improved
goods and services
in 2017

**+
10%**
on 2015
STATISTICS NZ

WE'RE EXPANDING THE REACH AND DEPTH OF OUR SUPPORT



increase in our
customer base compared
with last year



increase in customers
receiving a deeper multiple
services package of support

We empower innovators

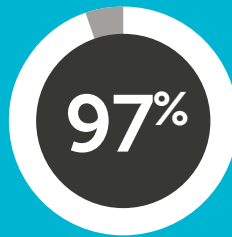


2,916
/ CUSTOMERS

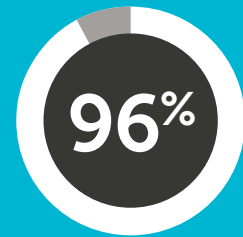
ENGAGED WITH US IN FY 2018/19



of businesses
who completed an
R&D Project Grant rate
Callaghan Innovation's
assistance as valuable



of surveyed
recipients
recommend the
R&D Experience
Grants to others



indicated that a
grant enabled them to improve
or accelerate
their R&D



NPS RATING

our customers are
strong advocates of our services

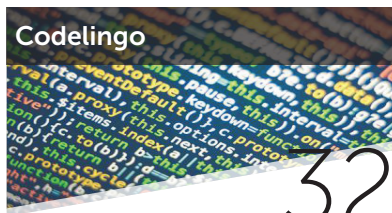
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Case Studies



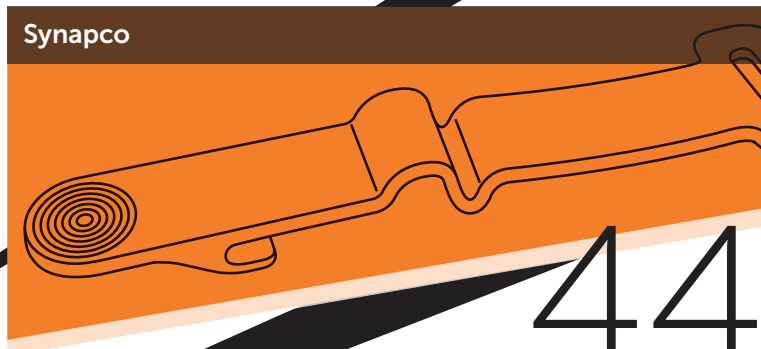
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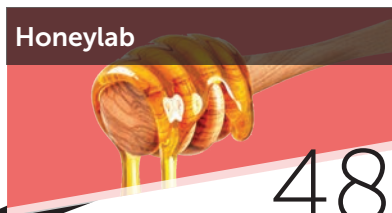
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48



50

REPORT

from the chair and chief executive

Our mission, clearly defined in the Statement of Intent 1 July 2018 – 30 June 2022, is to activate innovation and accelerate commercialisation for a better New Zealand.

We support the Government's economic strategy to improve the wellbeing and living standards of New Zealanders through productive, sustainable and inclusive growth. We grow and connect New Zealand's innovation economy and contribute to improved social outcomes by helping businesses succeed through the use of technology and innovation.

This past year has been characterised by putting our new strategic pillars into action. In order for our strategy to succeed, we must be bold. Being an innovation exemplar, being an activist for innovators, showing the future, connecting a fragmented system – that is a big step from where we are today and a fundamental one we must take.

This strategy is an opportunity to build on the great work and customer success we have already delivered. We want to amplify and extend our reach, while also building our foundations for the future.

A critical milestone for us is the rollout of the Research and Development (R&D) Tax Incentive. The R&D Tax Incentive aims to make R&D more accessible to more businesses. We expect between 2,000 and 3,000 businesses to benefit and the scheme will play an important role in helping meet the Government's goal of New Zealand spending 2% of GDP on R&D by 2027.

Last year's successful launch of Scale-Up NZ marked a major step in connecting New Zealand's innovation ecosystem. Scale-Up NZ is a new free online platform that makes it faster and easier for ambitious businesses to connect with the people, capital and other help they need to innovate and grow, here and offshore. Scale-Up NZ is off to a solid start with more than 900 entity profiles at the end of the year.

The Gracefield Innovation Quarter (GIQ) in Lower Hutt continues to be a significant focus for Callaghan Innovation. As part of Budget 2019, Hon Dr Megan Woods, Minister of Research, Science and Innovation, announced that the Government approved the programme business case in addition to the existing capital expenditure and a significant \$75 million investment to deliver this programme of work.

Over the past year we've had the privilege of working with 2,916

businesses, an eight percent increase over last year. Many of our customers use more than one of our services and are strong advocates of our services. Overall we achieved a Net Promoter Score (NPS) of +57, with exceptionally high numbers recommending our grants (NPS +76) and international services (NPS +71).

We work in close partnership with other organisations in the innovation ecosystem – universities, Crown Research Institutes, Regional Business Partners and government agencies. We work closely with New Zealand Trade and Enterprise and the New Zealand Venture Investment Fund to provide a comprehensive approach to growing internationally successful businesses in New Zealand.

As we move forward, like the private sector we also must put our customers at the centre of how we deliver our services to them. We are mapping our customer's journey from 'idea through to reaching the full potential vision of success' – their critical pain points, success factors and inflection points that accelerate success. We want to understand how they navigate the entire ecosystem – not just Callaghan Innovation. This work will inform decisions about our services and how we can reduce the barriers to their use along their journey. We must make it easier for businesses to access our capabilities, connections and services, their time is precious and needs to be focused on accelerating business growth not unnecessary administrative burden.

We also have important strategic work in the pipeline. The Research


and Technical Services (RTS) strategy was developed and approved by the board. The strategy focuses on de-risking R&D for New Zealand innovators and improving the speed to market for high impact customers. We are now well-positioned to put that strategy into action next year.

The full year surplus of \$1.0m was ahead of budget by \$6.0m for the 12-month period. This is primarily due to higher overseas commercial revenue and lower expenses experienced over the period. RTS and the Commercial Group achieved total commercial revenue actuals at \$19.6 million, an increase of eight percent, the best full year result since Callaghan Innovation was established.

We supported New Zealand's innovation festival this year through diverse coverage of Techweek TV and on-line content. We also supported the Hi-Tech awards programme and sponsored the Hi-Tech Kamupene Māori o te Tau award, won by Robotics Plus.

During the year we said farewell to Simon Botherway who was the Chair of our Audit and Risk Committee and an active and committed board member. His contribution to Callaghan Innovation was immense and important in contributing to steering us through the development of our strategy into execution and delivery.

Callaghan Innovation is now delivering on the promise of our strategy to help even more New Zealand businesses grow and thrive. Their success is our success.



Pete Hodgson
Chair



Vic Crone
Chief Executive



Activating our strategy

Our focus in 2019 has been to put our strategy into action. Below are our four strategic pillars plus the aim of improving Callaghan Innovation's capabilities and systems. The annual report is organised into five sections that show how we've delivered against our strategy and the Statement of Intent.

Show the future

Show New Zealand where technology is taking the world, how we must adapt and show how innovation drives success.

Fuel demand

Be an exemplar for innovation and a voice for innovators. Showcase innovation as a pathway to success.

Connect the ecosystem

Actively connect people, opportunities and networks. Collaborate to remove friction.

Empower innovators

Be a partner – offer the right service and funding at the right time for greatest impact.

Build the critical foundations

Strategic and operational initiatives that keep Callaghan Innovation on the cutting edge.



Show the future

The pace of change is accelerating globally – emerging technologies, social trends and geo-political shifts are creating global disruption and uncertainty. Callaghan Innovation works with our partners to identify emerging global trends, exponential technology trends and smaller, unique technology advances.

We provide insights into how these trends will impact New Zealand industries, our regions and businesses. We utilise our networks to help businesses understand where they need to go, and how to get there. We ensure that our technical experts have capabilities linked to key emerging technology trends so they can successfully support New Zealand businesses to innovate.

We have identified the following technology platforms that will shape the future of innovation in sectors of strategic importance to New Zealand:

- the internet of things and data solutions
- advanced materials
- integrated bioactive technologies
- advanced manufacturing.

RTS collaborates with Crown Research Institutes, universities, institutes of technology and public and private sector experts to identify innovation that can be commercialised. We also plan and facilitate technology seeking missions to international events and visits to world-class innovation facilities to keep our customers abreast of the latest developments overseas.

Showing the future includes:

Increasing the quality of data and deliverables to ultimately improve customer experience through reliable and insightful reporting.

Increasing the visibility of innovators and their innovations.

Over the past year

Innovation Challenge report

We published our *Innovation Challenge* report, which explores an overarching vision for New Zealand in 2040 based on the thoughts, fears and ambitions of more than 100 of New Zealand's leading thinkers, businesspeople and young people.

We completed a market scan of environmental innovation in New Zealand and published a thought piece based on our findings.

Both research projects were published in the media and key ideas were presented in conferences and business meetings.

Growing the Pie report

The aim of the *Growing the Pie* report published last year was to counter negative perception around selling innovative New Zealand companies. The report found that Kiwi entrepreneurs have created at least nine businesses worth more \$1 billion each in the past 10 years.

Future Insights thought leadership

Our Future Insights team completed over 40 thought leadership outputs in the form of articles, blogs and presentations. Topics included the future of healthcare systems, bioplastics, future foods, future packaging, environmental innovation, artificial intelligence, space, Industry 4.0, the future of the construction industry, biotech, megatrends and emerging technology.

Techweek19

We supported New Zealand's innovation festival this year through diverse coverage of Techweek TV and on-line (and on-demand) content. The topics ranged from kaitiaki (guardianship) to the role of technology in the health sector. The week's sessions had nearly 13,000 views. Many sessions featured Callaghan Innovation thought leaders alongside successful Kiwi innovators who have taken risks and defied the odds to achieve great heights.



Showing the future includes:
Over the past year

Hi-Tech Awards

We supported the awards programme which culminated in an awards ceremony at the end of Techweek. We are proud to have worked with most of the companies and individuals nominated, and it was encouraging to be acknowledged by many of the winners over the course of the night. Key winners included the following customers:

- Predict HQ (Hi-Tech Emerging Company of the Year, Most Innovative Hi-Tech Service, Most Innovative Hi-Tech Software Solution)
- Taska Prosthetics (Most Innovative Hi-Tech Hardware Product)
- Robotics Plus (Hi-Tech Kamupene Māori o te Tau – Māori Company of the Year, Most Innovative Hi-Tech Agritech Solution)
- Spalk (Most Innovative Hi-Tech Creative Technology Solution)
- Pushpay (Hi-Tech Company of the Year).

We also sponsored the Māori Hi-Tech Award category which highlighted Māori technology and innovation. The winner of this year's award was Robotics Plus, a great supporter of our work and champion of Māori success and Kiwi agritech success overseas. Robotics Plus offers solutions for labour shortages in horticulture including picking, sorting and packing. Over the last year, the number of Māori customers we work with increased by 25%.

National Fieldays, Mystery Creek

Callaghan Innovation collaborated with New Zealand Trade and Enterprise (NZTE) to co-sponsor the International Business Centre and hosted the Agritech Seminar Series and guided Innovation Tours. We also sponsored an Innovation Award for Partnership and Collaboration for the third year running.

The seminar and tour focussed on: robotics and automation, sustainable farming practices and satellite, UAVs and the internet of things technology. More than 200 people attended over three days including delegations from the UK and China, Callaghan Innovation/ NZTE customers, local companies and farmers. The seminars and tours showcased 28 Callaghan Innovation customers.

Callaghan Innovation's sponsorship of the Business Collaboration and Partnership Award raised our profile among attendees. Winners of the award, Ārepa, are Sprout Agritech Accelerator alumni who have developed plant-based, caffeine-free drinks to help cognitive performance.

Developing partnerships to help solve innovation and technology problems.

Agritech New Zealand

Callaghan Innovation helped establish Agritech New Zealand and sits on the Executive Council. Agritech NZ, a new industry organisation, is part of the Tech Alliance whose purpose is to work together to unleash New Zealand's agri-technology expertise, globally.

Callaghan Innovation is also a founding member of the Agritech (cross government agency) taskforce who released its strategy this year.

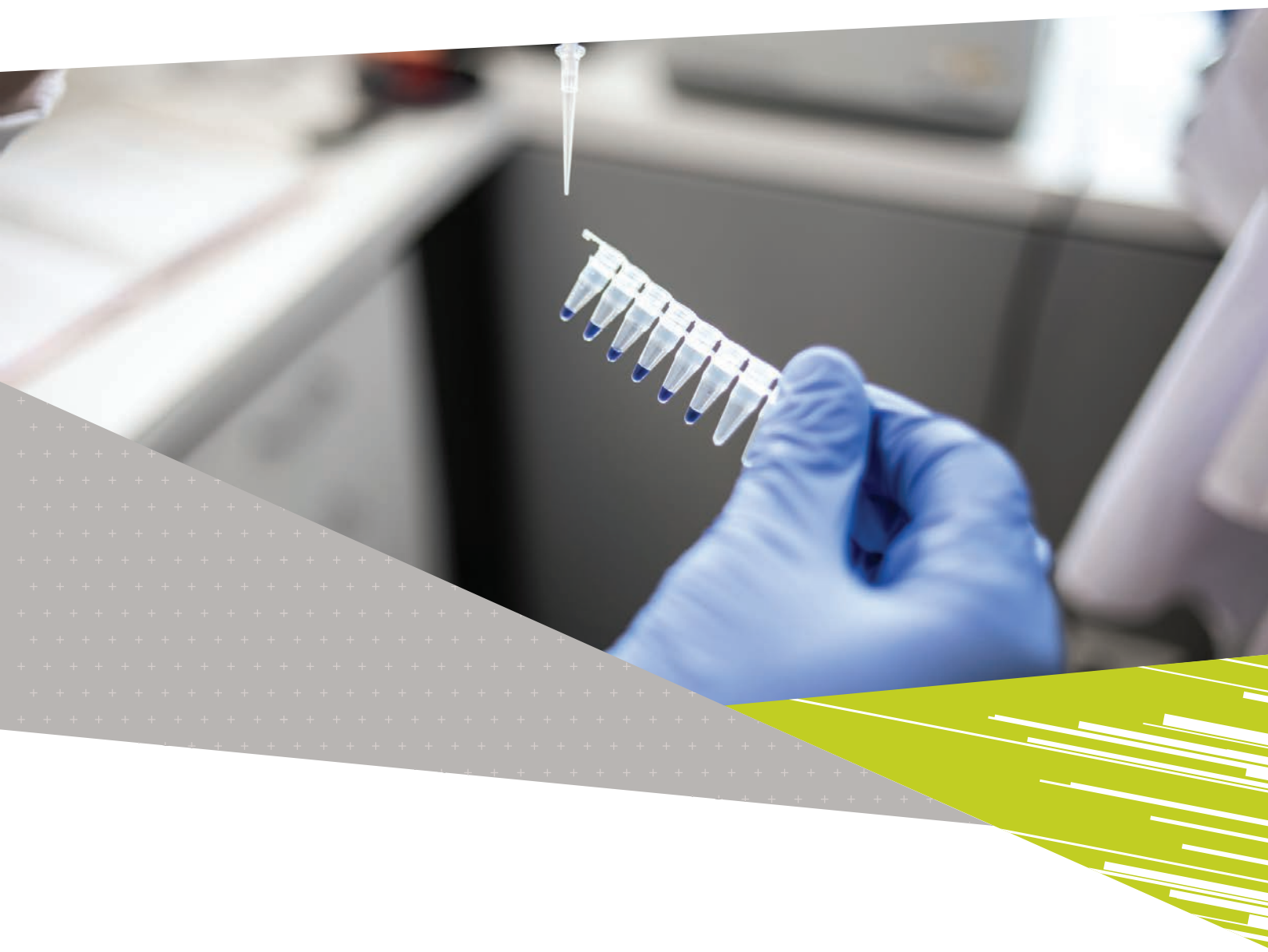
Showing the future includes:

Providing access to our superior equipment and facilities.

Over the past year**Mass spectrometry facility**

Our RTS group purchased a Waters high resolution qToF mass spectrometer and super-critical CO₂ chromatography system - the first of its kind in New Zealand. We are helping increase adoption of these technologies by minimising travel and user training costs and reducing other barriers to equipment acquisition and access.

As part of an innovative cooperative arrangement with Waters and their New Zealand agents AlphaTech, we hosted a Chromatography Educational Workshop at Gracefield to provide local demonstrations of state-of-the-art analytical capabilities to 23 New Zealand companies, Crown Research Institutions, and advanced education institutions. Attendees learned about advanced separation technologies and strategies for simplifying method development, saw sophisticated analytical equipment demonstrations, and networked. We have also hosted a number of other equipment demonstration visits.



Industry 4.0: think big, start small, scale fast

The ongoing 'Fourth Industrial Revolution' is significantly changing markets, businesses and industries. Industry 4.0 describes this transition towards a *smarter, more connected way of delivering value to customers, through using digital technologies*. The future of manufacturing in New Zealand will depend on how well we manage this transition.

Labour productivity in New Zealand is about 40% below the top half of the OECD, which impacts wages, jobs and our international competitiveness. Industry 4.0 provides an opportunity to significantly improve productivity and help close that gap.

Over the last 12 months we have ramped up activities across Callaghan Innovation to support NZ businesses on their Industry 4.0 journey. International insights have highlighted "Think Big, Start Small, Scale Fast" as the most promising approach for businesses to deal with the complex nature of Industry 4.0: thinking big about the future of the business, starting small with the technology, and quickly scaling what works.

The Industry 4.0 Hub on Callaghan Innovation's website is a central repository for Industry 4.0 information. It explains basic concepts, provides case studies and relevant news. Nearly 200 people have subscribed to the newsletter since it was launched in March 2019. The Industry 4.0 Providers Guide has grown to more than 150 providers across seven categories, giving businesses guidance where to look for Industry 4.0 assistance.

Technology is often seen as replacing human labour, but Industry 4.0 offers many opportunities to improve productivity and quality of output. Our Industry 4.0 technology experts have established an Industry 4.0 starter service, helping companies with specific technical support. They also developed a suite of portable demonstration kits that have been used at conferences and trade shows. For example, the Augmented Reality demonstrator shows that by overlaying real world views with data captured by sensors, workers can get more information to make better decisions or conduct maintenance tasks more easily.

Seeing is believing. So in May, our manufacturing sector team took 55 people from businesses across New Zealand to visit four early adopters of Industry 4.0 in Auckland. This Industry 4.0 Trek featured factory tours at Mastip, Methven, Nautech and Facticeon. The visitors saw first-hand how Industry 4.0 helps monitor and improve overall equipment effectiveness, enables collaborative robot automation and ongoing, automatic data collection.

One of the biggest global barriers to wider Industry 4.0 adoption is a skills shortage. Three of the four companies we visited received skills support from us through career grants or technical development support.

To better serve companies who wish to transform towards Industry 4.0, we worked with two companies to complete a prototype for "Lean 2.0". This programme combines 'lean' thinking with Industry 4.0 technologies. The companies involved, Gallagher Group and Tait, achieved significant productivity improvements through the programme. Lean 2.0 is now entering a pilot phase, which will kick off with up to eight companies in the second half of 2019.

Acknowledging the importance of Callaghan Innovation's Industry 4.0 activities, the government has funded "Driving Industry 4.0 Uptake", a new initiative that will further raise awareness of Industry 4.0 over the next four years. It will be delivered by Callaghan Innovation in close collaboration with industry.



WAREHOUSE 6 S BOARD

6S SCOREBOARD

CURRENT SCORE 4

PREVIOUS SCORE 3

IMPROVEMENT

NEED UPDATING + 20%

5

ADAR CHART

AUDIT DATE

RESOURCE

CLEANING BOA

EQUIPMENT FOR

ANINS BOA

METHVEN

DIFOT Current Month

Company Name: Methven

Customer Group: [Red]

Department: [Green]

Business Unit: [Blue]

Plant: [Yellow]

Board: [Red]

Multiple Locations: [Green]

Range: [Blue]

Company Code: AA

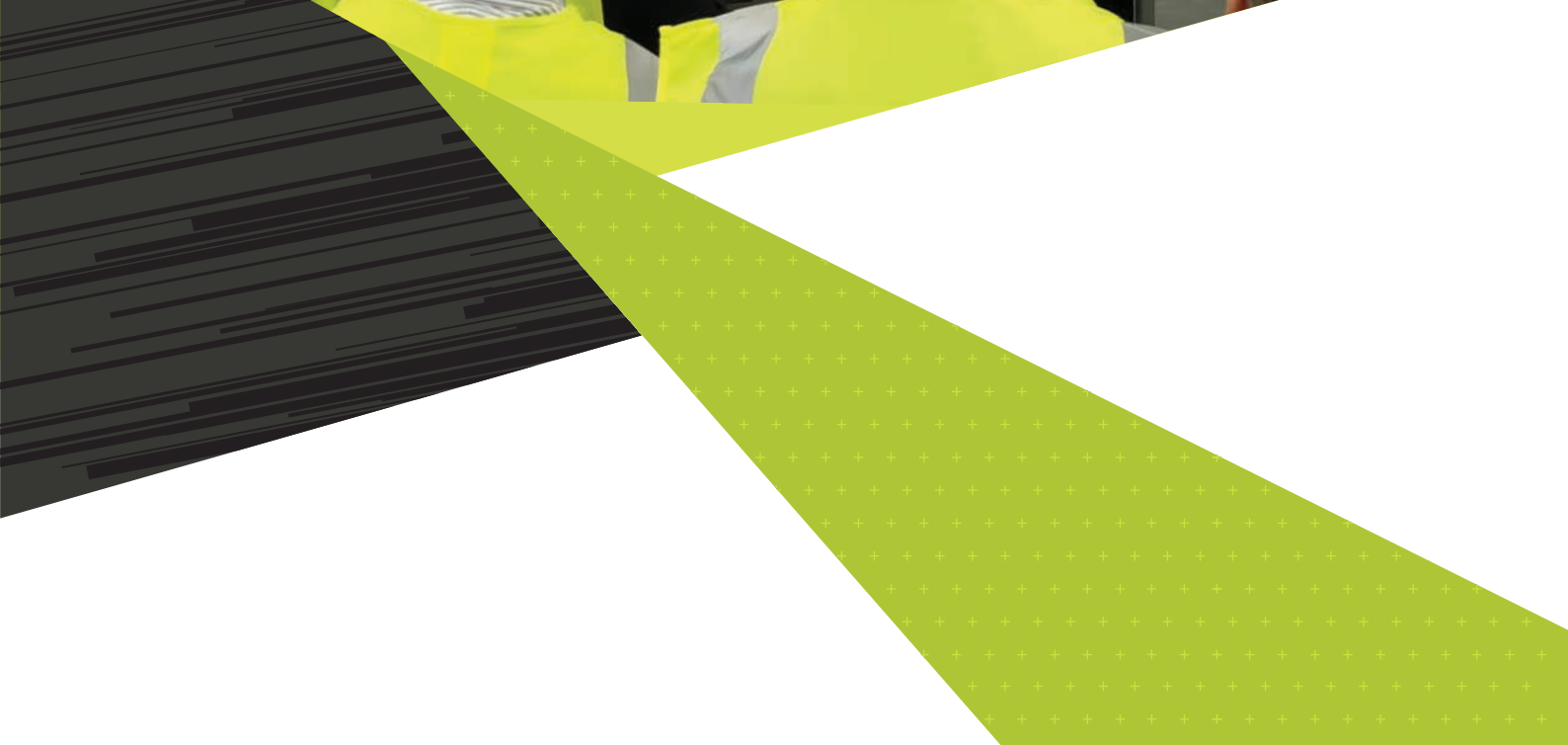
Product Name: AA

Table:

Product Name	Quantity	Value
AA	100	1000
AA	200	2000
AA	300	3000
AA	400	4000
AA	500	5000

Bar chart showing DIFOT % by Month.

Man in high-visibility vest pointing at the screen.



Fuel demand

Callaghan Innovation supports and encourages businesses to innovate. We show businesses how innovation leads to growth and demonstrate the value of innovation in achieving business goals. We act to ensure the entire innovation ecosystem understands the role of innovation in achieving economic and social outcomes

and make sure that the needs of innovators are heard. We generate and share thought leadership, run events, workshops and roadshows for our customers and the wider business community to demonstrate the value of innovation and to target key areas of difficulty faced by New Zealand businesses.

Pilot plants, incubators and innovation precincts - *modelling the sharing economy*

Callaghan Innovation funds and supports three types of accelerators and incubators that work with startup businesses to accelerate their path to market:

- Founder incubators provide entrepreneurs access to support, networks and investments that can help them to test business ideas, validate them in the market and build their businesses.
- Technology incubators are privately owned businesses that concentrate on commercialising complex intellectual property sourced primarily from publicly funded research organisations such as universities and Crown Research Institutes.
- Accelerators typically run from three to five months and focus on rapid and intensive product development to establish an investment ready start-up.

National Science Challenge: Science for Technological Innovation

Callaghan Innovation hosts the National Science Challenge: Science for Technological Innovation (SfTI), a ten-year research programme involving New Zealand universities, Scion, AgResearch, the Institute of Geological and Nuclear Sciences Limited (GNS) and Lincoln Agritech. We are focused on building enduring partnerships between researchers, business and Māori organisations.



Fuel demand includes:

Being part of a networked system of shared innovation facilities and pilot plant services for businesses. We also support two types of incubators, which work with start-up businesses to speed their paths to market.

Over the past year**Pilot plants**

We support the New Zealand Food Innovation Network (NZFIN) of pilot plants. NZFIN has facilities located throughout New Zealand, including FoodBowl in Auckland, FoodWaikato in Hamilton, FoodPilot in Palmerston North and FoodSouth in Christchurch.

Incubators

Founder incubators worked with 144 start-ups, of which 51 joined the scheme in FY 2018/19. Technology incubators worked with 47 start-ups, with eight new to the scheme in FY 2018/19. Our incubators worked with companies in the following sectors:

	Founder	Tech
Agritech	11	8
Digital	83	12
Energy & Environment	11	2
Food & Beverage	7	3
Health	8	18
Manufacturing & Niche	19	3
Transport & Logistics	5	2
Grand total	144	47

Both types of incubators contribute to the broader start-up ecosystem through activities such as:

- increasing the pool of capable mentors and enabling access to specialist advice and expertise
- raising investor funds
- raising awareness of high-tech start-up ventures
- commercialising technology
- hosting entrepreneurial capability development programmes.

Fuel demand includes:

Supporting five accelerator programmes and two innovation precincts.

Over the past year**Accelerator programmes**

Accelerator programmes focus on rapid and intensive product development to establish an investment-ready start-up business.

Callaghan Innovation funded the following five Accelerator programmes in FY 2018/19:

- The Flux Accelerator
- Lightning Lab Tourism Accelerator
- Mahuki Accelerator for Culture-Tech
- Kōkiri Accelerator
- Sprout Agritech Accelerator.

Innovation precincts

We are working to turn the Gracefield Innovation Quarter (GIQ) into a world-class provider of talent and services to support entrepreneurs to grow billion-dollar businesses. The proposed programme of work includes improvements to existing facilities to be followed by the strategic development of the site. Significant new funding for the development of the GIQ was approved by the Government as part of Budget 2019.

Level 2 provides lab and workshop space to tech start-ups in Auckland. It has been home to successful businesses including waste-to-energy firm LanzaTech, aerospace superstar Rocket Lab and high-flying drone technology start-up Dotterel. To date, alumni companies have created over \$1 billion in economic growth for the New Zealand economy, raised over \$600 million in investment, and gained global recognition. We provided funding and support for the creation of the Vodafone xone, a telecommunications focused innovation facility based at the Christchurch innovation precinct.

Fuel demand includes:

Hosting the National Science Challenge: Science for Technological Innovation, which aims to enhance New Zealand's ability to use physical and engineering science for economic growth.

**Over the past year****National Science Challenge: Science for Technological Innovation**

In 2018/19, SfTI funded 40 leading-edge hi-tech projects and supported approximately 300 researchers from over 25 different research organisations.

Some of the projects in progress as part of the 10 year science programme include:

- inverting electromagnetics to help solve the New Zealand and global impasse in understanding groundwater flow
- precision farming technology for aquaculture to enable farm management 'from the desk' at regional and national scales
- Ātea, a project to provide Māori users with a learning environment that connects the past and the traditional, with the future of modern Te Ao Māori (Māori world).

SfTI completed the first five years of tranche 1 projects and will continue to support many of those projects and some new projects over the next five years.

Some examples :

- Building New Zealand's innovation capacity - This bi-cultural (Māori and Non-Māori) project continues over the 10-year lifetime of the Challenge and examines human capacity (people and their skills), and relational capacity (networks between researchers and industry), within New Zealand's innovation system.
- Māori data sovereignty – How data can be used in ways that are appropriate and beneficial for Māori.
- Rangatahi lead – How we can provide a permanent pathway for rangatahi to contribute inspiring new leadership to NZ's technological innovation system.
- Clean water technology – How high tech solutions can be applied to environmental challenges for fresh water.
- Medical technology – Home and Community looks to create and implement integrated technology-based solutions for patient-centric, personalised, home or community treatment of chronic disease.

SfTI proactively supports the Vision Mātauranga policy framework by supporting the Rauika Māngai group of Māori Advisors and the Federation of Māori Authorities Chief Advisor Innovation & Research.

SfTI continues to implement a capacity development programme to ensure the high-tech research community can deliver more from innovation, and contribute to New Zealand's prosperity.

Fuel demand includes:

Getting businesses and individuals excited by the possibilities that innovation holds and be ambitious about growth.


Over the past year
Championing young innovators

Callaghan Innovation helps young people to connect, gain skills and see opportunities for themselves along the future innovation pathway. We work to achieve these outcomes through partnerships on the following programmes and initiatives:

The Wonder Project is delivered by Engineering NZ and made up of three programmes that engage students as they progress through school – a Rocket Challenge for year 5–8 students, a Community Challenge for year 7–10 students and a Careers programme for year 10–13 students.

The Rocket Challenge is designed to inspire students with wonder about science, technology, engineering and mathematics (STEM). All primary and intermediate schools in New Zealand were invited to participate. An estimated 13,500 kids from nearly 200 primary and intermediate schools participated in the challenge. The project recruited 454 champions to support teachers and students to design and build their own rocket while learning about Newton's Laws along the way.

The Community Challenge aims to solve a community issue using technology, innovation and their own creativity and problem-solving skills. The programme is being designed and will be piloted next year.

Venture Up is a fully immersive, four week experiential learning programme for youth between the ages of 16 and 24, who are looking to take their first steps into the entrepreneurship ecosystem. Since its inception four years ago, over 150 youth across New Zealand have taken part in Venture Up. Participants have noted a significant increase in confidence, capability and connection into the entrepreneurial world. In 2019, Venture Up (supported by a partnership with Callaghan Innovation) ran two programmes, in both the North and South Islands with 75 participants.

Callaghan Innovation partners with **Chiasma**, a national student-led organisation that creates links between academia and the wider STEM industries. Chiasma's mission is to inspire and help their members develop a successful career in the STEM industry by providing them with the necessary skills, networks and mind-set. This past year nearly 1200 students and industry members gained knowledge and insights through Chiasma events and initiatives across the country, including the annual Synapse events in Wellington, Auckland and Dunedin.

The Social Experiment is a programme that accelerates participants' power to tackle complex social and business issues through frameworks and methodologies such as design thinking and systems thinking in conjunction with mindset and performance coaching. The format develops entrepreneurial spirits and innovation-driven skill sets and develops leadership capabilities for the workforce of the future. The Social Experiment partnered with Callaghan Innovation to deliver three experiments that involved 66 participants between the ages of 18 and 27 in Palmerston North, Hamilton and Dunedin.

Connect the ecosystem

Callaghan Innovation promotes networking and the transfer of knowledge between businesses and the providers of research, science and technology. We act as a super-connector, helping businesses understand and navigate our fragmented innovation ecosystem, opening doors for New Zealand businesses seeking innovation advice, skills, support and technical expertise – in New Zealand and globally. We leverage our connections to ensure businesses have access to the right advisors, partners, mentors and technology providers, at the right time.

Callaghan Innovation provides line of sight between research, technology and industry. To achieve this we:

- connect New Zealand businesses and innovating organisations with each other, with sources of funding and with other relevant government agencies
- develop and maintain deep international connections and lead delegations to international events
- develop partnerships and establish clusters of businesses to pursue common goals
- ensure the Government understands the needs of innovators and works to support them.

Scale-Up NZ

Last April, Callaghan Innovation launched Scale-Up NZ, a new free online platform that makes it faster and easier for ambitious businesses to connect with the people, capital and other help they need to innovate and grow, here and offshore. It also creates opportunities for investors, incubators, multinationals and other collaborators to connect with innovative New Zealand businesses.

Scale-Up NZ is one of our key strategic initiatives to help connect the innovation ecosystem. At the end of this year, Scale-Up NZ had more than 900 entity profiles, spanning 753 innovative companies, 72 investors, 65 hubs (accelerators, entrepreneurship programmes and co-working spaces) and 17 innovative multinationals that are active in New Zealand.

By the end of June, over 1,800 users registered and more than 70 introduction requests were made via the platform, primarily from innovative local companies seeking connections to investors. Scale-Up NZ has mapped over \$400m of investment activity that took place during fiscal year 2019 and we will continue to expand, update and grow the database to ensure it provides a comprehensive and freely available view of New Zealand's innovation ecosystem.

The launch event was attended by 200 industry, business and government representatives, as well as influencers and media. Media coverage and a digital promotional campaign generated a surge in web traffic and social media activity following the event. Forty-eight thousand people visited the Scale-Up NZ website between April and the end of June. Visit www.scaleup.nz to find out more.



Business collaborations

We provide businesses with opportunities to work with partners around shared technology-based engagements and to form mutually beneficial collaborations. These collaborative projects are aimed at reducing the costs of R&D and promoting the sharing of knowledge among the partnering businesses.

We encourage and promote groups of businesses through:

- collaborative innovation projects where we invite businesses to tackle targeted technology projects jointly with other businesses, industry associations and research organisations
- developing partnerships to help solve common innovation and technology problems
- establishing clusters of Māori businesses with a desire to innovate or create shared opportunities.



We encourage and promote groups of businesses through:

Collaborative innovation projects, where we invite businesses to tackle targeted technology projects jointly with other businesses, industry associations and research organisations.

Planning and facilitating technology-focused delegations to international events and visits to exemplary innovation facilities.

Over the past year we have completed the following collaborative work
Hemp industry workshop

Fifty-four people from across industry and government attended the workshop at Gracefield. The workshop encouraged attendees to identify opportunities for hemp in areas of food and beverage, medicine and fibre.

Software as a Service (SaaS) delegation

Callaghan Innovation took nearly 90 New Zealand companies to San Jose to learn, network and connect with the international SaaS community.

EvokeAG 2019

The inaugural two-day conference brought together the agritech community from New Zealand, Australia and Asia to look at the future of farming and food. It was a chance for some of the cream of the Kiwi agritech crop to showcase their innovations, make connections and pitch for investment. Our delegation included over 80 people from 50 NZ organisations including start-ups, corporates, investors and research organisations.

CRI CEs to San Francisco

Our CE, Vic Crone, led a delegation of chief executives representing several of the country's Crown Research Institutes and Science New Zealand's Chief Executive Anthony Scott, to San Francisco in April 2019.

The purpose was to learn from best practice examples in research and development, science, tech transfer and commercialisation.

The delegation visited companies like AutoDesk, Trimble and autonomous car start-up Nuro as well as Stanford University, the Lawrence Livermore National Laboratory, Lawrence Berkeley National Laboratory and the iconic NASA Ames Research Centre in Mountain View. The delegation returned with some critical insights to share and strong validation from multidisciplinary, mission-driven research.

Robotics and automation delegation to Forbes AgTech Summit

We coordinated a knowledge sharing mission around the Forbes AgTech 2019 Summit in partnership with Agritech New Zealand, NZTE and MBIE.

Twenty leading New Zealand experts in robotics and automation travelled to the United States to better understand and connect with the scalable global problems that need to be solved, and to showcase their R&D capabilities and commercial solutions.

The delegation also attended the Forbes AgTech Summit which brings together over 600 global agriculture leaders and entrepreneurs to tackle some of the world's most critical problems.

A Net Promoter Score of +71 shows our customers love our international missions and find them valuable.

We encourage and promote groups of businesses through:

Developing partnerships to help solve common innovation and technology problems.

Over the past year we have completed the following collaborative work**Understanding Innovation workshops**

We delivered 14 workshops to introduce businesses to key elements of good innovation practice and a structured/integrated framework. These were delivered in seven cities to 210 attendees from 90 businesses.

We developed and delivered four workshops targeting the construction sector in Tauranga, Auckland, Wellington and New Plymouth. The workshops combined industry trend analysis, targeted technology insights and the fundamentals of good innovation practice.

We also developed and delivered a special innovation workshop for the Taranaki energy sector in New Plymouth.

Over the year, we supported six "Innovation Forums" in Tauranga, Hamilton & New Plymouth. These are gatherings of small groups of individuals who have innovation key performance indicators within their businesses. The forums are a safe space to share experiences and learnings in order help each other advance their innovation skills and productivity.

We organised an "innovation tour" of exemplar innovation spaces within Auckland for a group of key manufacturing and engineering businesses.

We encourage and promote groups of businesses through:

Establishing clusters of Māori businesses with a desire to innovate or create shared opportunities.

Over the past year we have completed the following collaborative work

Nuku ki te Puku

Beginning as an international delegation that formed a collective, Nuku ki te Puku have formed their own company. This provides an example of how entities might come together to pool resources for the mutual benefit of all, particularly in the seemingly abstract and risky area of R&D.

Strategic initiative funding in 2019 helped this group successfully develop and trial a pre-diabetes food supplement that meets all nutrient composition and clinical trial targets. They have also signed a memorandum of understanding with Singapore R&D giant A*STAR, to continue product development for the Singapore market.

The NUKU™ strategy and business model has enabled them to design and work in-market with Asian based partners in Southeast Asia to deploy the NUKU NutritionLab in 2021. Singapore will be the first prototype model.

The concept of the NUKU NutritionLab™ is to build a nutrition business in market. This business will design and market high value nutrition formulations in partnership with institutes, governments and local businesses that delivers the NUKU™ mission: Nutrition for improving lives.

Hemp collective

With the hemp industry moving ahead at pace globally and locally, we have brought together key agencies, universities, Crown Research Institutes, the Hemp Industry Association and Medicinal Cannabis Council, to identify and solve some overlaps and gaps in the industry.

Along with discussions with NZTE, Ministry of Primary Industries, Ministry of Health (Medsafe) we are providing an opportunity to offer a more coordinated information to market stakeholders and the businesses we support. There is an opportunity for Kiwi firms to lead the high-value activities of this fast-growing global market.

Tech collective

The Māori tech collective was formed in partnership with NZTE to provide opportunities to Māori tech entrepreneurs and companies. Those involved have demonstrated an interest in coming together to collectivise their growth in the tech sector.

They began planning for a workshop next year on how to use cloud technology to develop and grow their business.

This collective will create a pipeline for future Māori Hi-Tech award applicants and winners.

Natural products collective

Natural products companies have been collaborating on how to address product innovation challenges and export barriers, while trying to be the first to market on a large scale for the benefit of Māori. The collective came together in July 2018 with 20 companies and has grown to 110 business owners. They attend quarterly workshops and collaborate through a slack channel that was initiated by Callaghan Innovation.

International partnerships

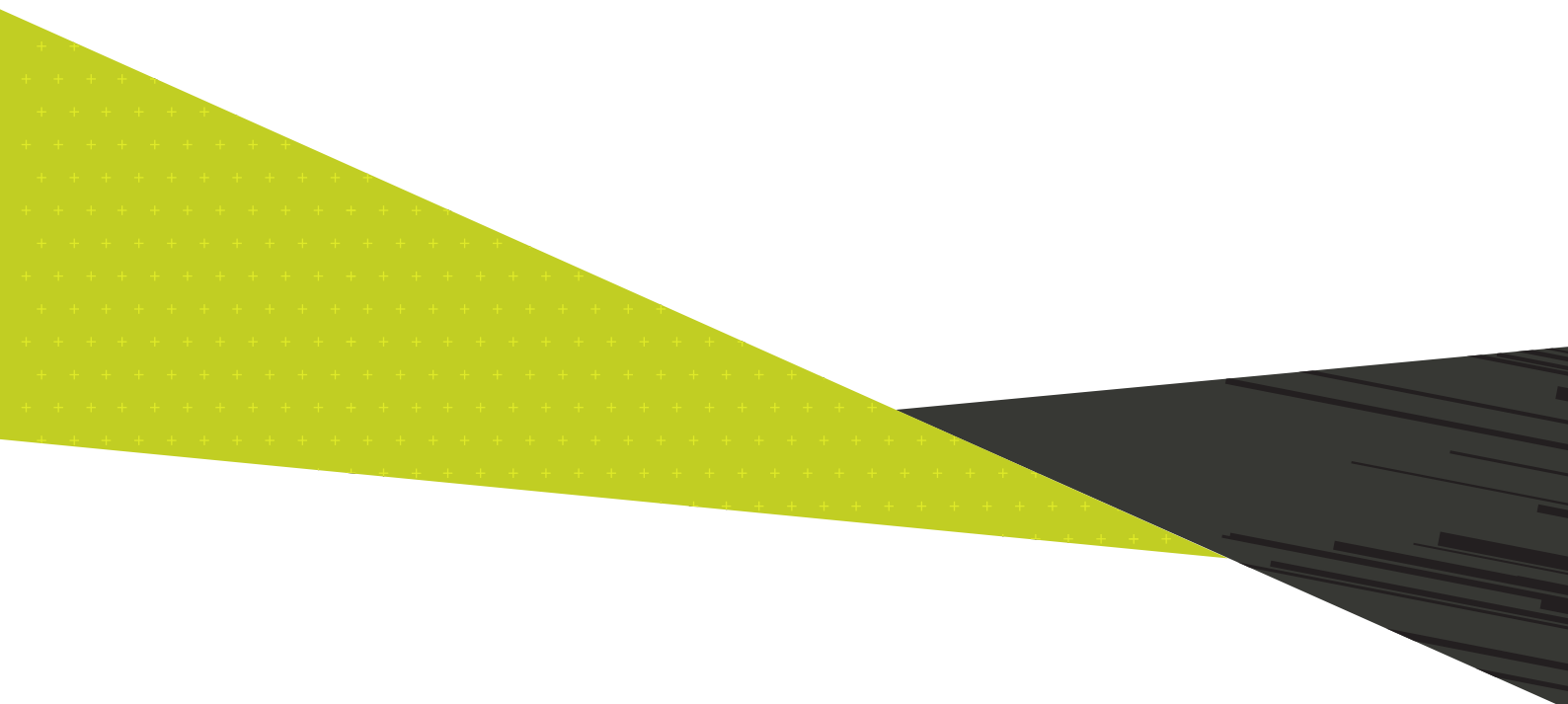
New Zealand businesses need to stay up-to-date with emerging global trends and technology developments. Callaghan Innovation connects New Zealand innovation to what is happening overseas. We create opportunities for innovative New Zealand businesses to develop international partnerships and learn from the latest technologies and trends. We leverage the Government's international networks, lead delegations to major technology events and the International Connections Scheme, and lead New Zealand's membership in the Enterprise Europe Network, the world's largest business and innovation support network.

Callaghan Innovation builds and maintains strategic international partnerships with innovation and research agencies to help New Zealand be at the forefront of innovation best practice and to take advantage of technological trends and opportunities.

Callaghan Innovation also contributes to wider Government initiatives to attract offshore skills and talent, research infrastructure and sources of funding for R&D to New Zealand.

We work with companies to explore technology convergence and innovative ways to create new business value. That could be developing a bleeding-edge product for global export or integrating technologies to realise internal business productivity gains. Callaghan Innovation staff are experts in innovation, technology advancement and many have experience in start-up organisations. We provide customised innovation diagnostics and support through experience-based interventions to address the unique needs of specific industries and businesses.

There are many different paths to take an idea from concept to commercial reality. There are also many challenges to overcome and risks to navigate. Callaghan Innovation partners with businesses, offering the right funding and services mix at the right time to create the greatest impact and the highest chance of success. We provide experienced advisors who help businesses navigate each step and specialist scientists and engineers to deliver tailored R&D solutions.



CASE STUDY



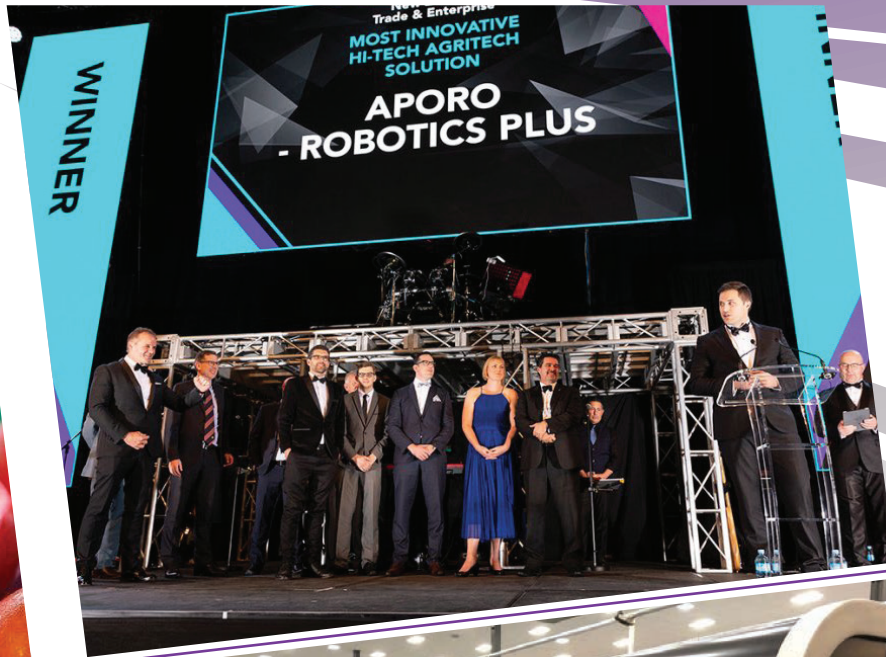
ROBOTICS PLUS

Robotics Plus' award-winning apple packers go international

Robotics Plus, a world-leading agricultural robotics and automation company, is working to address major issues in the horticulture industry caused by labour shortages and increasing consumer demand for fresh fruit. The company has notched up some significant milestones over the past 12 months including the launch of its first commercial products and investment of \$US8 million from partner Yamaha Motor Co. Ltd. (Japan), to bring its total investment to \$US10 million.

In May 2018 its robotic Āporo apple packers were launched internationally with marketing partner Global Pac Technologies. The packer, which identifies and safely places up to

Saunders says, "our core company values are 'he aronga nui' (pioneering), 'manaakitanga' (collaboration), 'tika me te pono' (principled) and 'kaitiakitangi' (stewardship). Importantly, these values also resonate strongly with our local and international partners."



 **RoboticsPlus**

120 apples per minute in display trays, now operates in packhouses in New Zealand and the United States, with Europe soon to follow.

Robotics Plus success was recognised with two of New Zealand's most prestigious technology awards at the 2019 NZ Hi-Tech Awards. Their robotic Āporo apple packer won the NZTE Most Innovative Hi-Tech Agritech Solution and the company was named Callaghan Innovation Hi-Tech Kamupene Māori o te Tau, Māori Company of the Year.

Steve Saunders, co-founder and chairman of Robotics Plus says, "our core company values are 'he aronga

nui' (pioneering), 'manaakitanga' (collaboration), 'tika me te pono' (principled) and 'kaitiakitangi' (stewardship). Importantly, these values also resonate strongly with our local and international partners."

Matt Glenn, CEO of Robotics Plus says, "it was very apt that the Māori Company of the Year was supported by Callaghan Innovation and the Hi-Tech Agritech award was supported by NZTE, as these New Zealand Government agencies have been very supportive of our growth and innovation plans, along with MBIE, MPI and Te Puni Kokiri."

In June 2019, Robotics Plus launched its second commercial innovation,

an industry-changing Robotic Scaling Machine (RSM) which gives a faster, safer and more accurate measure of logs on the trucks and trailers than the manual process. Mount Maunganui-based ISO Limited commissioned the world's first two automated logging truck scalars, which create a 3D image of each load of wood to allow exporters and importers to get a visual representation of their purchase.

Robotics Plus has a range of other technologies under development including: an autonomous agricultural vehicle, robotic pollinator, robotic harvesters, a crop estimator and other commercial projects.

Through our national and international network connections we:

Over the past year

Offer the services of our technology networks and our own team, who apply their deep knowledge of national and international scientific and research expertise.

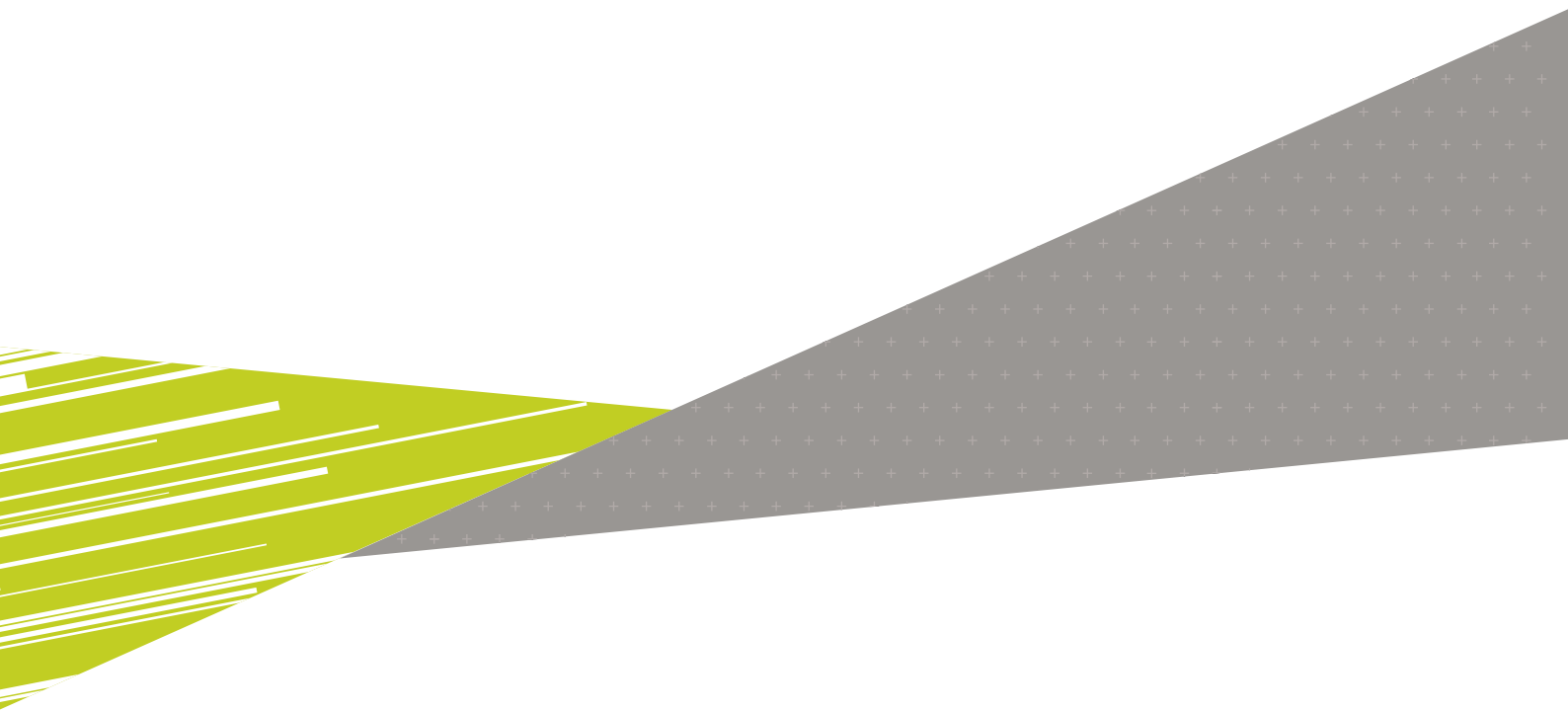
To ensure businesses understand rapidly changing technology and are prepared and comfortable with change, our experts regularly provide thought leadership and insights at conferences, meetings and industry events. Over the course of the year, we have talked about artificial intelligence, Industry 4.0, advanced materials and the future of health technology.

Refer businesses to our partner organisations, including New Zealand Trade and Enterprise (NZTE), regional economic development agencies and the venture capital community, so they have access to the full range of support available.

Callaghan Innovation reaches businesses in the regions through the Regional Business Partner programme. We have integrated working relationships with NZTE to create optimal outcomes for joint customers. Three-hundred seventy five of NZTE's Focus 700 companies are joint customers with Callaghan Innovation.

We build and maintain strategic international partnerships to assist us, and the wider New Zealand innovation system, to be at the forefront of innovation best practice and to take advantage of technological trends and opportunities.

Callaghan Innovation is a partner in the Enterprise Europe Network (EEN), one of the world's largest innovation networks focused on supporting small and medium enterprises to grow internationally. We continue to build our innovation relationships with a number of countries through joint innovation forums, partnering with embassies, and hosting and leading workshops for foreign companies visiting New Zealand.



Our relationships

Callaghan Innovation cannot achieve its mission alone. Our close relationships with other stakeholders in New Zealand's innovation ecosystem is critical to our success. Together we ensure a comprehensive and integrated response to opportunities and challenges that our customers face.

We and our partners aim to provide a platform from which innovators can be empowered to succeed, together, for a better New Zealand. Building and strengthening our connections with our stakeholders is a top priority.

- We work closely with government agencies, including NZTE, the New Zealand Venture Investment Fund, Ministry of Business, Innovation and Employment, the Treasury, the Ministry for Primary Industries, and the Ministry of Foreign Affairs and Trade, to act as a platform for innovation in New Zealand.
- We partner with various regional bodies and economic development agencies to support regional businesses develop and commercialise technology. Many of these are Regional Business Partners who provide local access our services.
- We partner with Crown Research Institutes, tertiary education organisations, and private R&D providers to ensure our customers are connected to the best expertise no matter where it sits in the system.

Our people are at the heart of our engagement with stakeholders. They are out and about engaging with, listening to, and understanding the needs of our stakeholders. The views of our stakeholders were used to inform the development of our new long-term strategy.

Callaghan Innovation and New Zealand Trade and Enterprise

Callaghan Innovation and New Zealand Trade and Enterprise (NZTE) work closely together to drive bigger, better, faster businesses. Our key principles of engagement include a 'no wrong door' approach, sharing information and ideas, an aligned approach, providing complementary functions, and providing the right skills at the right time.

Regional Business Partners

Callaghan Innovation and New Zealand Trade and Enterprise work together with a network of partners across all regions of New Zealand to deliver the Regional Business Partner (RBP) Programme.

The RBP Programme is a government initiative that helps small and medium-sized enterprises (SMEs) innovate and grow. The RBP Growth Advisors are the programme's biggest asset. They have deep local knowledge and strong national support networks. Our Growth Advisors help businesses across New Zealand by providing access to Callaghan Innovation's suite of services, funding for capability development of business owners (capability development vouchers), connections and advice.

Last year RBPs worked with a total of 5,796 businesses and issued 3,028 capability development vouchers, totalling \$5.9 million.

The RBP network plays a crucial role in Callaghan Innovation's ability to support the growth and success of regional businesses and the RBP Growth Advisors are often the 'front door' for businesses accessing our support for the first time. Nearly half of all R&D Project Grants were delivered through RBPs along with 112 Getting Started Grants worth a total of \$490,000.

The programme is also a key delivery mechanism for Business Mentors New Zealand. The RBP Mentor Managers ensure that high-calibre business mentors are available across New Zealand and they match individual mentors to specific business needs. Last year we matched 1,574 businesses with mentors.

CASE STUDY

code lingo

Codelingo app 'autocorrects' coding errors, boosts efficiency

Given that software now underpins practically every area of our lives, many people would be surprised to learn that developers spend almost half of their time fixing coding problems rather than developing life-enhancing new features.

Codelingo founder, Jesse Meek, says some industry estimates indicate the problem costs companies as much as US\$85 billion annually. Codelingo has launched an app that tackles the problem of waste and rework when writing software code.

"It seems like every week you're hearing new reports of security breaches, of systems falling over," says Jesse. "These breaches have huge financial and personal implications and people's lives are on the line."

With the help of a Callaghan Innovation R&D Project Grant, the Dunedin startup developed a tool that scans computer software code for errors and automatically corrects them.

"Our work not only stops bad software, but allows good things to happen," Jesse says.

"We want to see how much acceleration we can bring to the creative side of software if problems are taken care of."

Jesse, a software engineer by trade, got the idea for Codelingo from his experiences at a UK-based software company. As the company's software engineering capability grew, issues with code quality developed despite the team's considerable depth of experience.

A few years ago he quit his day job to focus on the problem, and Codelingo was born.

"Our work not only stops bad software, but allows good things to happen,"

Jesse Meek, Codelingo founder



"All software development teams struggle to find efficient ways to capture knowledge from across the team and ensure everyone follows the same practices," Jesse says.

Traditionally, developers either laboriously read through code to check it, or they use one-size-fits-all tools which are akin to doing a spell check, he says.

"In the middle there's a whole section of automatable judgement calls, and that's where we sit. We've developed a search engine and a query language that allows you to find patterns in your software stack. We take these patterns and automate common development work-flows," Jesse says.

Two large Australian venture capital firms have already seen the potential in Codelingo, providing \$540,000 in seed funding into the startup earlier this year. Callaghan Innovation's support in getting to that stage was "absolutely key", Jesse says.

"You're running on the smell of an oily rag, so any extra dollars are a huge boost. The \$47,000 Project Grant gave us the extra runway to build the first proof of concept, which allowed us to secure that first round of VC funding."

Codelingo has had incredible support from the Dunedin startup community, he says, especially from Callaghan Innovation's Regional Business Partner in the city, Ross

Grey. Ross took him through the steps of launching a company and helped him apply for the project grant.

"I was just a guy in a t-shirt with an idea. Ross actually took me seriously. It's valuable to have local, face-to-face contact with someone from an established, authoritative organisation like Callaghan Innovation."

Ross says it was satisfying to help Jesse access the support and see how it's enabled him to develop his unique product at a much faster pace.

"Having a government agency involved has also helped him to bring in further investment by making it more attractive to investors," he says.

Empower innovators

Callaghan Innovation helps businesses build the skills and capability they need to innovate. Our programmes, training courses and workshops, help them improve business performance, eliminate inefficient processes and activities, and increase customer satisfaction. Our continuous improvement approach means we respond to feedback by changing and enhancing our programme suite to better meet our customers' needs.

Our programmes had a Net Promoter Score (NPS) of +43. Customers have told us that programmes have helped them implement new organisational or managerial processes, operational processes and marketing methods.

There are many paths for taking an idea from concept to commercial reality. Our experienced advisors, specialist scientists and engineers help businesses navigate each step and deliver tailored R&D solutions.

Financial support for R&D



R&D Tax Incentive rolled out

The Government has committed to raising New Zealand's R&D expenditure to 2% of GDP by 2027. To reach this target, more businesses will need to increase their expenditure on R&D. This is being supported by the R&D Tax Incentive, available from the 2019/2020 tax year for businesses conducting eligible R&D.

It is estimated that 2,000 to 3,000 businesses will be able to benefit from the new R&D Tax Incentive, compared to the current 300 businesses receiving Growth Grants. Growth Grants will be phased out over the next two years with the introduction of the R&D Tax Incentive. None of Callaghan Innovation's other services and products are affected.

The main features of the R&D Tax Incentive include:

- a credit rate of 15%
- applies to up to \$120 million of eligible expenditure
- a minimum R&D expenditure threshold of \$50,000 per year
- a limited form of refunds for the first year of the scheme that will mirror Inland Revenue's R&D tax-loss cash-out scheme. A more comprehensive policy will be in place for the second year of the scheme
- a definition of R&D that ensures the credit can be accessed more easily across all sectors, including the technology sector
- the inclusion of state-owned enterprises, industry research cooperatives, levy bodies and minority-owned subsidiaries of select Crown entities.

To help businesses determine if their R&D is eligible, we worked with Inland Revenue to develop an easy-to-use online eligibility tool and guidance. The eligibility tool provides a general indication of whether the R&D may be eligible for the R&D Tax Incentive. Users can then consult the Inland Revenue guidance for more detail on eligibility and record-keeping requirements. The guidance explains:

- what kinds of organisations are eligible
- what types of R&D are eligible
- what kinds of expenditure are eligible
- record keeping requirements
- how to register as an approved research provider
- how to claim and receive the tax credit.

R&D grants

We allocate and administer R&D funding to invest in innovators and their projects and support the R&D Tax Incentive. We also bring our knowledge, networks and expertise to provide advice to Inland Revenue on eligibility of R&D activity and expenditure.

We offer a range of R&D grants to add scale to businesses' R&D investment for greater impact. Our R&D grants are structured to meet a range of business needs, whether businesses are young start-ups or established R&D performers. We encourage and promote groups of businesses through:

- Project Grants – these grants help businesses develop a specific product, process or service with the aim of growing their commitment to R&D.
- Getting Started Grants – these grants help businesses overcome roadblocks and commence R&D activities.
- Student Grants – these grants provide access to undergraduate and postgraduate students who can assist in R&D projects and gain commercial experience
- Growth Grants – these grants support evolving, multi-year R&D programmes in businesses that are experienced R&D performers. These grants target the same businesses as the R&D Tax Incentive and are being phased out.
- Incubator support programme – grants and repayable loans for start-ups that help to commercialise complex technologies.

Callaghan Innovation opens doors for New Zealand businesses seeking innovation advice, skills, support and technical expertise, both from New Zealand and worldwide.

We offer businesses fast and easy access to experts who provide tailored solutions to meet their needs. We act as ‘innovation broker’ to ensure that businesses have access to the right advisors, partners, mentors and technology providers.

In FY2018/19 we supported 373 businesses with an approved R&D project or growth grant and 402 businesses were supported with student placements. Some businesses were supported by both a grant and a student placement.

Our suite of grants is strongly received by our customers, with a Net Promoter Score of +76, an increase from +72 from last year. Our customers say that, while applying for the grant can take time, it is a robust process that helps them apply for venture capital and is a strong reference.

During FY 2018/19 our grants included

Growth Grants

Support evolving, multi-year R&D programmes in businesses that are experienced R&D performers.

The Growth Grant scheme was replaced by the R&D Tax Incentive from 1 April 2019.

Growth Grants co-fund 20% of a business’s R&D costs, up to \$5 million a year, available to businesses that invest over 1.5% of revenue in R&D.

In the period to 31 March 2019, we approved 96 new Growth Grants with an estimated value of \$106 million.

In the period to 31 March 2019, 77 Growth Grants were approved for extensions to their growth grant contract with an estimated value of \$179 million.

With the replacement of the Growth Grants scheme by the R&D Tax Incentive, all eligible Growth Grant customers were offered the opportunity to automatically extend their growth grant to 31 March 2021. The majority of customers have elected to take this opportunity.

Project Grants

Help businesses to develop specific products, processes or services with the aim of growing their commitment to R&D.

Project Grants co-fund up to 40% of R&D costs of an R&D project. They are targeted towards companies that have less established R&D programmes with the goal of developing them into stable and substantial R&D performers. In FY2018/19 we approved 296 project grants, at an average of 40% cover, for a total contract value of \$31 million. 98% of project grant customers said their business activities were positively affected by project grants.

Student Grants

Provide businesses with access to both undergraduate and postgraduate students who can assist in R&D projects and thereby gain commercial experience.

Student Grants support New Zealand students to gain and develop their technical skills in commercial R&D environments. Students received many benefits from Student Grants, including acquiring new technical skills, R&D company exposure and work experience. Last year, we approved 402 Student Grants for 847 student placements at a total contract value of \$11.6 million.



CASE STUDY

AVERTANA

TITANIUM

Extracting value from industrial waste

Reducing industrial waste and leaving the world a better place for future generations is what gets Avertana's commercial director James Obern out of bed in the morning.

"In terms of a driver and job satisfaction I couldn't ask for much more."

Avertana was conceived seven years ago by three entrepreneurs who were colleagues at LanzaTech, a New Zealand biotech company now globally recognised for revolutionising the way we think about waste carbon.

Obern says that back in 2012 he and co-founders, Sean Molloy and Sherif Ibrahim, began turning their attention to other industrial waste streams beyond flue gas emissions.

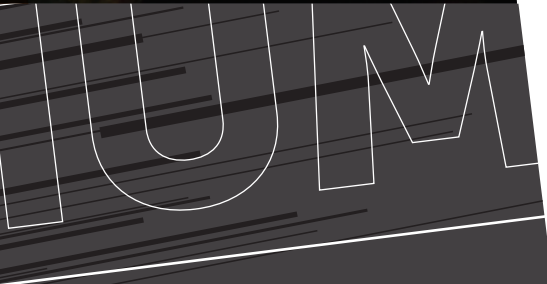
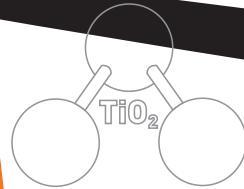
"There was a large mountain of steelmaking slag visible from the LanzaTech pilot plant and when Sherif pointed out that the slag was rich in titanium, we began thinking 'what if?'"

Today, that 'what if' has grown into Avertana. The company has developed a patented extraction technology which turns steelmaking residues into essential raw materials: titanium dioxide, gypsum, alum and magnesium sulphate. These products are used in everyday applications including paint, building materials, water treatment, paper making and fertiliser.

With its ground-breaking technology, Avertana has moved beyond the lab and pilot-plant phase and now operates a pre-commercial demonstration plant out of a 1000sqm warehouse in South Auckland.

The next step is to engage global partners to ramp up its process to industrial scale. And for this world-first technology, the opportunity is huge.

China is an obvious market, with the Chinese government increasing regulatory pressure on the steel industry to reduce waste and shutting down plants that don't comply. The same has happened to small and inefficient titanium producers.



Avertana has also identified opportunities in South Africa, Russia, South East Asia and elsewhere.

For example, in South Africa there are over 40 million tonnes of stockpiled slag sitting unused from a closed steel mill. In Russia there is a large steel mill with slag currently going to the cement industry.

“Our technology can ensure this material is processed far more efficiently and capture greater economic value, with minimal environmental impact,” **says James.**

Technology and product development

Callaghan Innovation provides commercial R&D services to businesses. We have the facilities and expertise to help customers develop components, products, processes and technology by applying or adapting existing technologies, or helping customers with their own ground-breaking research. Our experts help businesses develop, test, measure, analyse and calibrate products – from proof of concept through to commercialisation. Our current focus is in the following technology areas:

- internet of things and data solutions – including microfabrication, transducers and sensing, wireless communications, data science, computer vision, assisted devices, augmented reality and virtual reality
- advanced materials – selecting the best materials for product or process development, materials characterisation and testing
- advanced manufacturing – advanced engineering, robotics, automation and manufacturing technology
- integrated bioactive technologies – transforming biological resources such as meat, dairy, plant and seafood products into higher value products

New Zealand's measurement standards authority – Measurements Standards Laboratory – provides world-class calibration and verification, measurement, consultancy and R&D services that underpins New Zealand's regulatory compliance and international trade.

Callaghan Innovation owns two businesses that directly contribute to New Zealand's innovation capability, GlycoSyn and KiwiStar Optics. GlycoSyn are carbohydrate and complex chemistry experts and a world leader in the development and manufacture of active pharmaceutical ingredients for pre-clinical and clinical trials. GlycoSyn also provides GMP manufacturing services for investigational new drugs and specialty commercial ingredients to pharmaceutical companies in New Zealand and around the globe.

GlycoSyn has had its most successful year to date, generating commercial revenue from a mixture of international and domestic fee for service pharmaceutical development contracts and sales of high quality and high value ingredients used in the manufacture of complex pharma biologics.

We are working on client projects that include developing a novel treatment for multiple sclerosis, new ingredients for beverage suppliers, and continuing to work for a US-based Biotech pharma company to develop a treatment for a rare genetic disorder. This disorder results in the early death of affected infants due to a build-up of toxins in the brain. GlycoSyn also continues to manufacture its own patent protected products for supply to major pharmaceutical companies globally.

KiwiStar Optics, a business unit of Callaghan Innovation, is a global leader in precision optics for astronomy, contributing directly to New Zealand's space technology sector.



K I W I S T A R
O P T I C S

 GlycoSyn®

Callaghan Innovation provides end-to-end support by:

Identify the steps needed to commercialise their ideas.

Apply and adapt existing technology or develop their own ground-breaking research.

Access our superior equipment, facilities, workshops, pilot plants, labs and people for R&D.

Access Research and Technical Services (RTS).

Over the past year

Research and Technical Services and the Commercial Group achieved total commercial revenue actuals at \$19.6 million, an increase of eight percent, the best full year result since Callaghan Innovation was established.

In addition to managing the Measurement Standards Laboratory (MSL) budget of \$7.8 million, the Commercial Group achieved \$15.5 million in international revenue and \$0.6 million in domestic revenue, with total commercial revenue at \$16.1 million. This is a significant achievement given some of the disruptions to facilities at Gracefield as repairs, maintenance and upgrades were undertaken. The Commercial Group undertook major contracts for customers in North America, Europe, India and Australia and won new international contracts during the year. The momentum in this business provides the Commercial Group with a strong platform to build on for next year.

RTS worked with 251 New Zealand businesses and entities during the year, providing a range of services to its customers. These included everything from undertaking R&D on a fee for service basis and preparing R&D project plans on behalf of industry, to educating businesses on how technology can be applied in their workplace. RTS achieved \$7.9 million in commercial revenue, slightly below the previous year, with the focus being on improving service delivery rather than growth in customer base.

RTS launched an improved website that profiles our scientists and engineers to highlight their capabilities as well as sharing customer stories to illustrate the support that can be provided. This has facilitated easier access to expertise and improved visibility of the technologies the 21 teams are working on across the organisation.

RTS Strategy

This year we developed a strategy for our Research and Technical Services (RTS) business unit which was approved by the board.

RTS has gone through significant change over the last ten years, moving from Industrial Research Limited (IRL) into Callaghan Innovation – with a much stronger focus on supporting businesses rather than undertaking basic and applied research.

While the role of RTS had been clarified when Callaghan Innovation was formed, we needed to review their role and strategy in light of our new long term strategy. The new strategy focuses on how RTS can have the biggest impact on New Zealand Inc.

The purpose of RTS is to increase the number of global companies in New Zealand by de-risking R&D and accelerating their speed to market and growth. It will do this through focusing on four key areas:

- Develop 'lighthouse' centres in two to three areas of national significance (that align with the Government's Research, Science and Innovation strategy and industry transformation clusters)
 - Build a network of expertise and assets to connect and enable R&D
 - Become an innovation partner for our customers (currently a transactional service provider)
 - Solve the hard technical problems utilising in-house and outsourced capability.
-

Callaghan Innovation provides end-to-end support by:

Providing technical services, specialist advice and supporting and leading novel research.

Performing testing and measurement for specialised analysis of their products, materials, processes and calibration systems.

Over the past year
Driving efficiencies in the seafood industry

Our Robotics & Automation team completed the first phase of a major R&D project for a New Zealand fisheries company on automated handling and packaging of seafood products. Benefits include removing health and safety risks and improving process efficiency.

Disrupting the air cargo industry

Our Data & Internet of Things team collaborated with NZ businesses Core TT and Nautech to develop an Internet of Things solutions that finally gives airlines the ability to track cargo in real time.

Reducing carbon footprint in the cement industry

Our Advanced Materials team has been working on a project for a New Zealand concrete company to investigate the use of natural New Zealand based pozzolans in order to replace cement clinker in their cement products. This new technology has the potential to save 30,000 tonnes of cement clinker imported annually (\$6M value) and reduce our carbon footprint by 30,000 tonnes of CO₂.

R&D support for the emerging deer milk industry

Our Integrated Bioactive Technologies team has been supporting the emerging New Zealand deer milk industry. The work has involved analysis of the composition of deer milk in order to compare its nutritional benefits to other more common milk varieties. This supports the belief that deer milk could become a new high value export – including as milk powder and as cheeses.

Taking 3D printing to the next level

Over the past year, RTS has been developing a new type of 3D printing that allows to quickly produce prototypes for high-value microfabrication opportunities. There is growing national and overseas interest in this technology and RTS is exploring all options for future commercialisation.

Hemp processing as a high value industry for New Zealand

RTS spearheaded a hemp processing initiative bringing together stakeholders spanning across industry, government, and research organisations. This resulted in an effective demonstration of the capability that exists in NZ and the potential for a successful hemp extraction and medicinal cannabis industry to develop.

Supporting our primary industries in their export markets

RTS has purchased the first "FoodScreener" system in New Zealand. FoodScreener is the de facto international standard for the detection of adulteration and mislabelling for several key export products for New Zealand – most particularly wine and manuka honey which together contribute almost \$2b in export earnings annually. RTS will make the FoodScreener available for all interested NZ industries.

The Measurement Standards Laboratory (MSL) delivered metrology training to 74 participants and provided 168 measurement, testing and calibration jobs to customers. It also performed 41 laboratory assessments for International Accreditation New Zealand (IANZ).

KiwiStar Optics shoots for the stars

KiwiStar Optics is unique in being the only precision optics manufacturer in Australasia with a niche focus on large optics for astronomy. They are headquartered in our Gracefield Innovation Quarter in the Lower Hutt but their relationships span the globe.

KiwiStar's relationships with clients and suppliers are predicated on collaboration to achieve a common project objective. Early in the design process, they use their strong international ecosystem relationships to identify options to achieve their science goals.

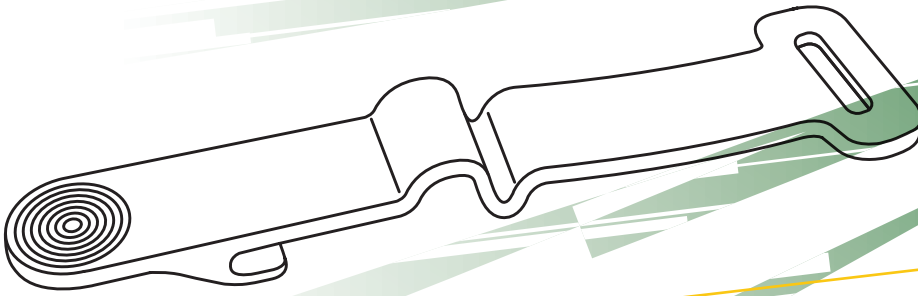
K I W I S T A R
O P T I C S



Some of the key work they undertook last year includes:

- MAROON X spectrograph – KiwiStar designed and developed the two channel spectrograph that features 4kx4k detectors used to classify star systems which may have Earth-like planets. The University of Chicago has located MAROON-X with the 8m Gemini telescope in Hawaii.
- MINERVA Australis – This is the University of South Queensland telescope array connected to the KiwiSpec single channel high resolution, high radial velocity echelle spectrograph. This programme includes Northern hemisphere partner, the Harvard Smithsonian Centre for Astrophysics, where both teams are exploring space for exo-planets.
- MOONS project – Collimator mirrors were manufactured for the MOONS spectrograph which will be mounted on the Very Large Telescope in Paranal, Chile. MOONS is a European Southern Observatory project. The two collimator mirrors are designed to perform at cryogenic temperatures. MOONS will be used to study galactic archaeology, the growth of galaxies and the first galaxies.
- MOA prime focus corrector – This project is managed by the University of Osaka and primed by Nishimura Corporation. KiwiStar is designing and manufacturing the mechanical cell for the Prime Focus Corrector. The MOA Prime telescope, to be installed near Capetown, South Africa, will be a "sister" telescope to the one installed at Mt John, Lake Tekapo.

CASE STUDY



SYNAPCO

'Where there's muck there's brass'

might be a blunt way of putting it, but in the case of Lower Hutt company Synapco it's a pretty accurate description.

The rubber and plastic moulding specialist has solved one of the most vexing problems faced by kerbside rubbish collectors – how to keep wheelie bin lids closed while allowing the lid to open when the bin is lifted and emptied into the truck.

Litter blowing around the streets on collection day or animals getting into bins has long been an issue for local authorities, not to mention the

time workers must spend picking up runaway debris and opening bins that householders have secured shut.

It doesn't sound like rocket science, but somehow no-one had managed to come up with an optimal solution.

Now an unassuming little black latch called SafeWaste is changing the lives of rubbish collectors from Porirua to Kansas and creating a valuable new revenue stream for the Kiwi firm.

Auto-release answer

A friend who owns a local bin contracting company inspired

Synapco general manager Dave Pine to start playing around with the idea of wheelie bin latches.

"He was having a moan about how people put bungy cords and things on their bins or tape them shut, especially here in windy Wellington," Dave says. "It kills the efficiency of the collection system."

At the same time Wellington City Council was looking for an answer and had developed a set of specifications – the device had to have the same 10-year lifespan as the bins, it had to be easy for people to install/use and be cost effective.

Synapco spent several months conducting international research and found that many authorities struggle with the same conundrum, Dave says.



“With the rubbish collection sector moving toward single operator trucks, it was clear the only viable solution was going to be a universal, auto-release latch.”

Dave Pine, Synapco General Manager

Ireland had brought in fines for leaving a bin lid open more than two inches, and all sorts of methods were being used to keep Irish bins closed. “One was a big shower cap that went over the wheelie bin, and there were various straps and hard plastic clips that don’t auto-release,” Dave says.

With the rubbish collection sector moving toward single operator trucks, it was clear the only viable solution was going to be a universal, auto-release latch, he says.

Synapco set to work designing a product. Additive manufacturing, otherwise known as 3D printing, came to play a crucial role.

Initially the firm worked with Jim Collins, General Manager at 3D specialists Complete 3D, to make moulds for injection-moulding the first prototypes.

It then sought the help of AddLab, Callaghan Innovation’s specialist facility for additive manufacturing at the nearby Gracefield Innovation Quarter.

AddLab could direct-print prototypes of the latches and related parts. That enabled Synapco to get the prototypes in front of potential clients and investors quickly, Callaghan Innovation Application Development Engineer Chris Hilleard says.

“Instead of being several months to tool-up and injection-mould, we printed within a week,” Chris says.

Dave Pine says this was a significant advantage, particularly in dealing with US clients.

“We’d have a 9am meeting on a Monday, Chris would usually have the parts to me on Thursday and we’d be sending them over on Friday.

“The client would have them for the following Monday in the States to go over the design details. You can’t put a value on that.”

Big business

Synapco has supplied over 70,000 SafeWaste latches to the Porirua and Wellington City Councils, with lesser quantities to other councils in New Zealand and Australia. While the firm feels good that it is helping

the local environment, its real markets are overseas.

International logistics company SSI Schaefer has incorporated the latches into its products, and five waste companies in Kansas are also using them.

Meanwhile Synapco is working on a solution for a large US garbage cart maker, which is expected to increase latch sales exponentially.

“Considering SafeWaste has only been commercially in the market for the last 12 months, it’s a game-changer for us,” says Dave.

Meanwhile the role direct-printing can play in helping businesses innovate faster is a story AddLab wants to tell more widely.

“We’re here to showcase that and get New Zealand businesses exposed to it, so they can spot these applications in their business,” says Chris.

“If the applications are right, it’s amazing how much money and time it can save.”

Innovation skills

We help businesses build their innovation capability by helping them acquire the knowledge, skills, and motivation to innovate and succeed. We offer a range of programmes and workshops to help a business scale-up and increase the pace of innovation, from improving performance and eliminating inefficiencies through to accelerating software and product development. The programmes we currently offer are:

- Innovation Foundations (formerly the High Performance Working Initiative) – a coaching programme to build an innovation culture, improve work practices and engagement, and build capability through innovation at a strategic level.
- Build for Speed – helps digital businesses speed up software product development by updating architecture, managing technical debt and adopting continuous delivery principles.

- Lean – helps businesses identify value, enhance customer experience and eliminate waste by embedding a culture of continuous improvement.
- Innovation IP – gives businesses the knowledge, capability and confidence to leverage their intellectual property and intellectual assets to enable growth and reduce risk.
- Driving Innovation – supports businesses to increase the speed of innovation by introducing new product development methods and embedding innovation practices throughout the business.

Callaghan Innovation is committed to ensuring our services mix stays relevant and supports the needs of innovators at each stage of the innovation lifecycle. We have been listening to the needs of our customers and are developing a wider set of services to support innovators' needs.

Our current programmes involve deep one-on-one engagement and consulting with customers. We are looking to redesign our programmes around the findings of the customer journey in order to scale and reach a wider base of customers.

Our programmes

Over the past year

Innovation IP helps businesses to identify and strategically manage intellectual property (IP).

A total of 39 businesses worked with us on Innovation IP. Businesses said that the programme enabled their organisation to understand the impact of R&D on the overall strategy and how to advance their IP position with their clients. We worked closely with our Regional Business Partners to extend the reach of the programme and identify new businesses needing to improve their strategic management of IP.

Driving Innovation helps businesses develop better products and services, faster.

This year three customers took part in a 12-month programme to increase the pace of innovation by applying world leading product development methods.

Build for Speed helps businesses deliver better software, faster.

This year 30 software development businesses took part in the discovery phase of the programme including 12 in the deep dive phase. The businesses who participated in the programme found that they had a better understanding of the project development lifecycle under agile and recommend it to any other SaaS company.

We introduced a Christchurch based provider and increased the regional reach and overall participation by almost by 50%.

Lean helps businesses achieve better productivity through engaging staff.

We continue to have strong demand from customers to participate in this programme. 172 businesses attended workshops across New Zealand, resulting in 44 co-funding agreements. We ran an open tender and selected seven new providers to deliver the programme.

Traditional Lean combined with Industry 4.0 principles was prototyped with two businesses. Case studies from participants Gallagher and Tait are available on the Callaghan Innovation Industry 4.0 Hub website. Following feedback and an evaluation, the programme has moved on to the next stage of development. We ran an open tender to appoint providers to deliver the programme to a larger group of customers to further test the concept during the rest of 2019.

Innovation Foundation helps businesses create environments in which innovation can occur and thrive by focusing on governance, leadership, strategy and culture.

During the year we commenced prototyping the refreshed version of the High Performance Working Initiative, now rebranded as "Innovation Foundations" with five SMEs representing businesses from the manufacturing, timber, digital and Māori economy sectors. It is anticipated that a comprehensive pilot of the programme will be completed next financial year.

The Innovation Experts series provides businesses with access to the world's leading innovation practitioners through targeted workshops.

We ran two workshops, "Executing on Innovation" and "Getting Buy-in to Innovate." Justin Wilcox, a globally recognised product market-fit expert, ran the two workshops for non-software companies in the Waikato region which attracted 49 attendees from 31 businesses.

CASE STUDY



honeylab

The healing powers of honey

New Zealand honey is renowned for its taste and health benefits, and now a Bay of Plenty pharmaceutical company is making the golden stuff famous for its medicinal properties.

HoneyLab has proved that its kanuka honey formulation, Honevo, is just as effective as the pharmaceutical alternative in treating cold sores.

It has done so via one of the largest cold sore trials ever conducted, with the ground-breaking results published in the British Medical Journal Open. The research proving the efficacy of Honevo Sore Lip is a key part of HoneyLab's strategy for becoming an international natural pharmaceuticals company.

"You can have all the anecdotes in the world, it's only clinical research that tells you if it works," HoneyLab founder Dr Shaun Holt says.

"The market for cold sore products is worth over a billion dollars every year, and there've been no good new treatments for about 20 years. So, I think the market is ripe for disruption," he says.

HoneyLab is now actively working to establish a partnership with a global company to licence and distribute its product.

The power of research

HoneyLab is an R&D-intensive business which is unusual for a natural products company. Its model is to invest all its spare funds in research to prove its products are as – or more – effective than pharmaceutical medicines, rather than solely focusing on building brands.

"While clinical trials are usually conducted through a hospital or university, it would have been

extremely hard to find participants this way, as people don't go to hospital with a cold sore. It also would have been prohibitively expensive. We had to almost reinvent the way of doing a clinical trial by using pharmacists. It was a bit of Kiwi lateral thinking," says Shawn

The company recruited 75 pharmacists around the country and trained them up to trial HoneyLab's product on their customers. The pharmacists got an impressive 950 customers to compare Honevo Sore Lip against Acyclovir, the drug used in many cold sore medicines. The results show that Honevo is just as effective as the pharmaceutical alternative.

While the findings were exactly what HoneyLab hoped for, it was also clear Honevo Sore Lip offers a host of other advantages.



“You can have all the anecdotes in the world, it’s only clinical research that tells you if it works,”

Dr Shaun Holt , HoneyLab founder

First it’s natural. “There’s a lot of chemophobia out there, and if you ask customers which product they would choose, that are equally effective, when one’s a chemical and one’s natural, in my view 95 per cent will choose the natural one,” Shaun says.

The qualitative data from the study indicated that people prefer the look and taste of Honevo. Another advantage is that it can be safely applied as often as the user likes to keep their lips moist and can be used throughout the cold sore cycle.

Honevo is also good value for money – for a similar price as a tiny 2g tube of a pharmaceutical product the customer gets a 10g tube of Honevo.

Natural healer

While all honey works to some degree in healing wounds, Honevo is made from kanuka honey because it has both antimicrobial and anti-inflammatory properties.

Shaun is a medical doctor by training, and when he researched the benefits of kanuka he realised that in terms of applying it to the skin it was superior to manuka. “No one was interested in it. So we decided to start HoneyLab and began testing kanuka honey for skin diseases,” he says.

The result is Honevo, a treatment for a range of skin conditions that contains just two natural ingredients – pharmaceutical grade kanuka honey and glycerin.

Testing its efficacy on cold sores was “incredibly ambitious”, Shaun says. “Not only did we go head-to-head with the current gold standard pharmaceutical treatment, it’s really the size of the trial which is impressive in my view.”

Callaghan Innovation’s help was vital, he says. The agency’s co-funding of

the cold sore study meant HoneyLab could accelerate the work and do other research programmes as well, Shaun says. “But it’s not just the funding. I’ve had a long relationship with Callaghan Innovation ever since HoneyLab started 10 years ago, and they have been supportive in all sorts of other ways.”

Kirstin Mead, Callaghan Innovation’s Regional Business Partner, says HoneyLab has a unique business model and a bright future.

“They are growing the body of knowledge in New Zealand around use of natural products in the health industry, and opening doors for the value-added honey sector. Callaghan Innovation looks forward to continuing to partner with HoneyLab, providing access to experts and networks as they continue their R&D journey.”

CASE STUDY



TASKA

Taska takes prosthetic hands to the next level

Wearers of Taska prosthetic hands are an enthusiastic bunch. A bow hunter in the US sent the Taska team photos of himself shooting arrows using his myoelectric limb. Another user in Alaska has been wearing his prosthetic hand while riding a skidoo in sub-zero temperatures.

Those who've lost an upper limb are often very active people who have suffered a traumatic injury, and so they tend to push boundaries, Operations Manager Steve Willsher explains. It's what inspired Taska's founder, Mathew Jury, to design a device that is more robust than anything else on the market.

Eight years ago the engineer had broken both arms in a mountain biking accident and got frustrated at not being able to use his hands.

He started looking at the prosthetics available and realised they weren't that functional, Steve says.

"Mathew's intention was to create a practical and waterproof hand that allows wearers to do more than other devices," he says.

The result is a myoelectric prosthetic hand that has been selling in the US for over a year now. The Kiwi startup is ramping up production at its Christchurch manufacturing facility to meet increasing demand.

"The Taska hand is intended for medium use and its gung ho users need to be careful they don't think they're the bionic man," Steve smiles.

Nonetheless Taska's technology is several years ahead of its competitors'. While other types of myoelectric devices have been available for a while, they tend to be fragile and thus provide more cosmetic than functional benefit.

"We're making a real difference to amputees' lives," Steve says. "This is not just a cool piece of kit, it's something that really gives them their confidence back."

That natural feeling

'Myoelectric' prosthetic devices are designed to mimic human anatomy and function. The user controls the prosthesis using sensors placed on the muscles in the remaining part of their limb. The sensor technology in the device reads



"It's very exciting and the potential for growth is huge."

Steve Willsher,
Taska Operations Manager

the movement, and once it is calibrated to the wearer it becomes a functioning replacement hand.

The advantages of a Taska hand are obvious on people's faces, Steve says. "Quite often they'll come to a fitting, and they may already have a hand from one of our competitors, and they notice the difference instantly."

Taska began exporting hands to the US in December 2017 and is now in full scale-up mode.

Callaghan Innovation has played an essential role in getting the company to this point, Steve says. "It's a hard problem to solve - this device has over 400 parts. It's why there aren't many competitors out there doing the same thing."

A Project Grant helped Taska through the challenging stage of trying to work out how best to design the device, then testing it to make sure it lived up to its vision.

Now a Growth Grant supports Taska's ongoing research and development programme. "We wouldn't be here today without that funding. It's very exciting and the potential for growth is huge," Steve says.

Going global

Taska now has a German-based European distributor, alongside its distribution deal with an established prosthetics company in the US.

The company has also attracted a lot of interest from the research community. It's been approached by

researchers in the US doing work on force feedback sensors, which means the patient will be able to feel the prosthesis as part of their own body.

Andrew Clews, Callaghan Innovation's Business Innovation Adviser Health, says Taska is a great example of true innovation in the medtech space, and the company is willing to share its learnings with New Zealand's burgeoning assisted technology and rehabilitation sector.

"We hear a lot about pharmaceutical developments and surgical implant devices, but this is an impressive combination of technologies that is delivering a pretty futuristic and leading-edge product to an underserved set of customers globally," he says.

Build the critical foundations

Callaghan Innovation must continue to invest in its staff, infrastructure and the systems critical to delivering our strategy. In FY21018/19 we met key milestones in delivering the Customer journey mapping, the digital strategy, rolled out leadership training and began the transformation of GIQ into a world-class innovation hub.

Our programmes

Over the past year

Digital strategy

Last year the board approved our digital strategy and we began work on the digital transformation programme business case. The business case outlines the work required to deliver our digital strategy and build critical digital architecture and products to support our change journey. The aim is to provide outstanding experiences for our people, customers and stakeholders, and become a government and innovation exemplar.

A step change is required to improve user experience and move beyond a singular focus of delivering technology, by enabling our people to be agile and collaborative in the way they work and drive innovation across the ecosystem.

The programme will be delivered in tranches of related projects to manage the pace of change, risk and match the readiness of Callaghan Innovation to embrace new ways of working.

The digital transformation programme will:

- Create and enable digital experiences that strengthen collaboration, accessibility and innovation across our ecosystem.
- Implement digital platforms, products and processes that are fit for purpose and increase staff collaboration, efficiency and confidence.
- Improve organisational agility through fit for purpose, and scalable IT systems and processes.

The programme business case will be submitted to the board in October 2019. In parallel, we stood up a new digital team structure to support the new digital delivery model. By the end of 2018 there was clarity around the additional skills and capabilities required to deliver the strategy. We upgraded and migrated our CRM to a software as a service (SaaS) platform, developed our cyber security maturity project and began our move from Microsoft Office to G Suite.

Coaching, Emotional Intelligence and Story Telling

This year Callaghan Innovation has completed the roll out of coaching, emotional intelligence and story-telling for leaders at every level of the organisation. We completed a leadership skills assessment with over 40 leaders to help identify the cohort's most pressing capability development needs over the next 24 months.

We will present analysis and programme recommendations to the executive leadership team in the first Quarter of FY2019/20. This work will be further informed by the components of the burgeoning Tikanga programme. Capability development needs for the wider workforce will be identified alongside the Tikanga programme to ensure employees have the opportunity to develop the key skills our organisation needs for the future.

Customer journey map

Our strategy identified that ecosystem fragmentation is slowing commercialisation and leading to costly mistakes for our customers. Our current service mix and partnerships have been built around assumptions about our customers' needs. The minimum viable product release of our customer journey work is already challenging our assumptions and helping us work smarter on service redesign projects.

The findings will underpin our programme of work to:

- extend our reach and design our digital channels
- design our services to activate innovation and accelerate commercialisation
- focus effort on high impact customers
- enable Callaghan Innovation to align services with other agencies and players in the ecosystem.

Customer journey mapping is a well-recognised methodology. Its purpose is to clearly articulate the sum of customers' experiences when interacting with your company and brand.

Instead of looking at an individual transaction or experience, the customer journey documents the full experience of being a customer. The Callaghan Innovation journey will take things one step further: we are documenting the entire innovation and commercial R&D ecosystem of New Zealand.

We are mapping the customer's journey from 'Idea through to reaching the full potential' vision of success' – their critical pain points, success factors and inflection points that accelerate success. We want to understand how they navigate the entire ecosystem – not just Callaghan Innovation.

Journey maps express the customer's experience over time and deliver a comprehensive understanding of:

- the broader landscape
- what our role is and should be
- the areas where our partners excel
- where danger and opportunity exist
- who needs what help, when they need it and how best to deliver on it.

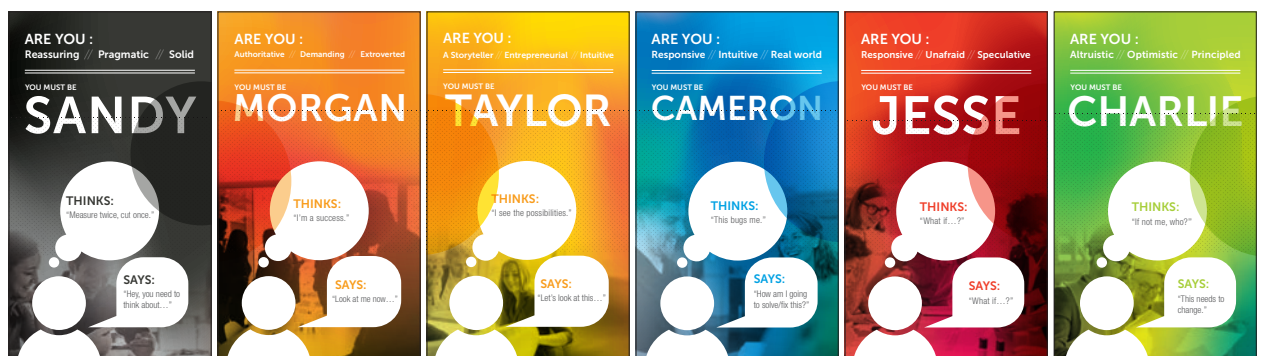
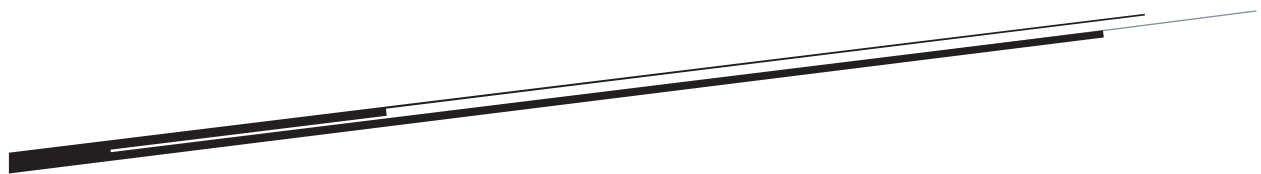
We will operationalise the journey tool – it is not a one-time activity. We will continually talk to customers, track customers through the journey and add detail and data to measure and monitor changes over time.

Next year we expect to complete and operationalise the journey map in a more comprehensive fashion as we begin to add deeper layers of insight through additional data via tracking and measuring the effectiveness of the frameworks.

Our innovation tribes

In 2019 we completed the work identifying the six main personas of customers on the innovation journey. This adds the human layer to the customer journey through an empathic framework which describes the personalities, the motivations and the capabilities of people in the ecosystem. This layer brings a richness that enables improved customer service, targeted communication and effective targeting of such services as programs.

We're already utilising these insights in our daily interactions with customers and see great potential in integrating into the customer journey.



Building the future at Gracefield Innovation Quarter

The Gracefield Innovation Quarter (GIQ) is one of Callaghan Innovation's R&D facilities in Lower Hutt, Wellington. Set on a 10-hectare site, GIQ is home to over 200 world-leading scientists, researchers and technicians, as well as tenant businesses and support teams.

This year we took significant steps towards making GIQ a world-class innovation hub and realising its potential contribution to New Zealand's innovation ecosystem.

The Gracefield site is widely regarded as holding significant opportunity, however there has been a lack of investment in the site for many decades. The current state of facilities means Callaghan Innovation is at risk of not meeting its legislative and regulatory obligations, particularly around health and safety and Hazardous Substances and New Organisms (HSNO) requirements.

In 2018, following The Treasury Better Business Case process, we prepared a Programme Business Case (PBC) that outlined the investment needed in the site to ensure we meet our obligations and create a platform for further investment in Gracefield. Following board approval in June 2018, the PBC was submitted to Government in August 2018.

As part of Budget 2019, Megan Woods, Minister of Research, Science and Innovation, announced that the Government approved the PBC and a significant \$75 million investment to deliver this programme of work. This is in addition to \$20 million contingency funding released in December 2018 and earlier funding for the highest priority works.

We are focused on the immediate action required to ensure facilities are safe and fit for purpose for Callaghan Innovation staff and tenants, including seismic improvements, asbestos removal, roof and weather tightness.

This year we completed construction of the exterior shell of the new building to accommodate the Measurement Standards Laboratory's Electrical, Time and Temperature Standards teams. The internal fit-out is expected to be completed in early 2020.

Beyond the immediate action required to ensure facilities are safe and fit for purpose, the Government's investment in the site also allows us to develop a strategy for our innovation community. This work will be progressed significantly next year as we work to develop a clear business case for the future development of GIQ.

The redevelopment of GIQ will ensure Callaghan Innovation can continue to assist businesses to grow their investment in R&D and support the Government's goal to increase R&D expenditure to two percent of GDP by 2027.

GIQ also has a significant role to play in supporting the government's ambition to shift New Zealand to a more productive economy, where we work smarter, harness and create new technologies, move up the value-chain and reduce our reliance on the export of raw commodities.

We look forward to working closely with our people, tenants, the community, key stakeholders and strategic partners to deliver an innovation community.



REPORT

Measurement Standards Laboratory






Callaghan Innovation's Measurement Standards Laboratory (MSL) is responsible for disseminating national measurement standards and providing related services in accordance with the Measurement Standards Act 1992.

This year the international measurement community achieved a significant milestone with the redefinition of the International System of Units (SI). The SI is structured around seven base units, with at least another 22 (such as volume) derived from these.

Four of the seven base units (the kilogram, ampere, kelvin and the mole) have been redefined according to fixed values of natural constants. The new definitions are based on fixed numerical values of the Planck constant (h), the elementary charge (e), the Boltzmann constant (k) and the Avogadro constant (N_A), as well as on three other physical constants whose numerical values are already fixed.

In November 2018, member states under the Metre Convention, including New Zealand, voted in favour of these redefinitions. On 20 May 2019, World Metrology Day, these changes came into force. The changes are documented in the Measurement Standards Regulations 2019 and implemented by MSL.

In FY2018/19, MSL provided New Zealand with uniform units of measurement and maintained standards of measurement of physical quantities in the following areas:

-  Electricity
-  Time and Frequency
-  Photometry and Radiometry
-  Temperature and Humidity
-  Mass and Pressure
-  Length

MSL maintained 177 internationally recognised calibration and measurement capabilities. It also maintained signatory status of the Mutual Recognition Arrangement between international and national metrology institutes.

New Zealand participated in the following international measurement comparisons:

- CCT K6.1 dew/frost-point temperature
-50 °C to +20 °C
- APMP.T-K8 high dew-point temperatures
30 °C to 95 °C
- APMP.T-K6.2013 dew-point temperature
- APMP.T-S13 low frost-point temperature
-80 °C to -60 °C
- APMP.T-S14 relative humidity 10 %rh to 95 %rh
at temperatures from 5 °C to 50 °C
- APMP.T-K4.2 aluminium point
- APMP-TCPR.S7 grey scale diffused reflectance
- CCPR-K5 diffuse reflectance.

International comparisons are how MSL proves that New Zealand's measurements are equivalent to other countries' measurements.

Traceable measurements for 'appearance'

Whenever we purchase luxury goods, their appearance invariably influences our choices and even more so when we purchase items over the internet. Manufacturers are therefore demanding greater and greater control over the appearance of their products which in turn means better measurement. MSL is partnering with several research institutes in an EU funded research project to deliver the capability to make objective measurements of quantities such as gloss and sparkle that correspond to human perception.

This year a staff member visited our collaborator in the Czech Republic to investigate goniochromatic coatings that change colour with angle. Several meetings were held to draw on our research to put together a normative document for instrument manufacturers to ensure comparability of measurement results.

Next year the expertise developed by MSL staff will be called on to contribute to a workshop in Hong Kong for the wider industrial community. A PhD student will be starting at MSL in October to tackle the next challenge of understanding and characterising translucent materials.

Collaboration with Australia

MSL has a joint work programme with the National Measurement Institute of Australia (NMIA) under the Australia-New Zealand Science, Research and Innovation Cooperation Agreement. The key benefit of this collaboration is the resilience it provides for MSL's services. By leveraging off technical support from Australia we can offer New Zealand businesses access to measurement expertise that is not available domestically and avoid duplicating costly infrastructure.

Over the last year the following scientific activities have been undertaken:

- MSL and NMIA staff have participated in joint strategic foresighting workshops in Australia and New Zealand to address the demand for new technical capabilities arising from emerging technologies in our economies.
- Metrologists from MSL have spent time at NMIA to conduct experiments in the areas of pressure and length metrology. A NMIA staff member visited MSL to use our equipment and measurement methods and conduct technical work to informally verify our metrology standards.
- MSL and NMIA staff are working together to develop a replacement for New Zealand's primary power standard that supports the operation of our electricity industry. An MSL scientist has spent time at NMIA to learn and help fine-tune the components during its construction.

- We are working together to develop a service to measure photobiological safety because both countries have customers that need this service.
- MSL hosted a visit by an NMIA scientist to support capability development in humidity and temperature measurement.

Encouraging the next generation of metrologists (measurement scientists)

We have engaged broadly with the community to raise awareness of the importance of measurement and provided information about the SI redefinition. Some great examples of the outreach work we achieved this year include:

- We supported the Wonder Project Rocket Challenge where students built rockets to better understand Science, Technology, Engineering and Maths (STEM).
- We supported the Royal Society of New Zealand and the Freemason's Powering Potential Programme by providing a female scientist to mentor five secondary school students. The students were working on a project exploring how the SI changes would impact future technology development, including space exploration.
- We held a public event in partnership with the National Library and the Ministry for Culture and Heritage to commemorate the 150-year anniversary of New Zealand adopting standard time across the country.
- Temperature measurement staff spent the day at Taita College in Lower Hutt helping them prepare a hangi and learn about measurement as part of their NCEA units. This was a great opportunity for the school to collaborate across multiple departments, celebrating cultural diversity and apply science and maths to everyday situations.
- We employed five university student interns who learned about the importance of measurement systems in supporting NZ industry and economic growth. They researched the importance of measurement in Māori culture, explored ways to improve measurement comparison analysis and refined our Lego Kibble Balance to support its use during our SI roadshow events.
- We took our "Kilogram to the Kibble" exhibit to the Te Wā Heke Science Festival hosted by the Hutt City Council designed to inspire young school children to take an interest in science. This festival had a large turnout allowing us to promote the importance of measurement to both school children and their parents.



177

INTERNATIONALLY
RECOGNISED
CALIBRATION AND
MEASUREMENT CAPABILITIES



5276

RESOURCES
DOWNLOADED
FROM

www.measurement.govt.nz



288

NUMBER OF ENQUIRIES
VIA WEBSITE



The redefinition of the International System of Units (SI) this year was the culmination of decades of global scientific research.

We launched a new proficiency testing programme this year starting with tests for:

- Piston pipettes**
- Hand-held radiation thermometers**
- Relative humidity hygrometers**

41

NUMBER OF
IANZ TECHNICAL
ASSESSMENTS
OF OTHER LABS

74

NUMBER OF
PARTICIPANTS THAT
RECEIVED
MEASUREMENT
TRAINING

168

NUMBER OF
CALIBRATION AND
MEASUREMENT
CONSULTANCY
JOBS DELIVERED TO
EXTERNAL CUSTOMERS

We threw out the kilogram on World Metrology Day

To celebrate the newly redefined International System of Units (the SI), we enlisted Julia Ratcliffe, New Zealand's Commonwealth gold medallist hammer thrower for the job of throwing the MSL's one kilogram mass standard away! Julia normally throws a four kilogram hammer, so we were keen to find out how far she could throw our one kilogram mass standard hammer.

Any science competition must have some statistical analysis in it along the way, and this one is no different, so our scientists have analysed the results. People were given the value for how far Julia could throw the four kilogram weight. (62.78 m) and then asked to guess how far she could throw a one kilogram weight. Only one person thought the one kilogram wouldn't go as far as the four kilogram. There were some wild guesses (500 m). Most guesses were within 15 m (20%) of the actual value (77.29 m).

Julia's throw of the one kilogram mass standard was 77.28952 m compared to 62.78426 m with the four kilogram Hammer.

We announced the winners on World Metrology Day 20 May 2019, when New Zealand was the first country in the world to welcome the implementation of the new SI definitions. The International System of Units, known as the SI, is the globally-agreed basis for expressing measurements at all levels of precision, and in all areas of science, technology, and human endeavour.

Gavin Tasker from International Accreditation New Zealand (IANZ) won the competition with a guess of 75.55555 m. His prize was a 3D printed replica of the kilogram.

There were more than 1600 views of the competition video and 46 entries in the competition.



Taking the measure of craft beer

The Measurement Standards Laboratory worked with Trading Standards to develop a new, low-cost technique to measure the volume of beer products.

Beer is New Zealand's most popular alcoholic beverage and with the growth of craft brewing, Kiwi's are quickly establishing an international reputation for their brews. Wellington, a craft brewing hub, is also home to the MSL who are making sure drinkers get exactly what it says on the bottle.

The signature bubbles in beer are carbon dioxide (CO₂). CO₂ gets into the beer in one of these two ways:

- Natural carbonation occurs during fermentation. When grains are mashed and added to hot water, the starches they contain turn into sugar. This is the perfect food source for yeast, which produces alcohol and CO₂ as it digests it. Most of this CO₂ is removed by the brewer, but towards the end of the fermentation process, some of it is sealed into the tank, and therefore, into the beer. Other brewers wait to add sugar at the bottling stage – in this case, CO₂ is released into the liquid only after the bottle has been sealed.
- Forced carbonation occurs if the beer is allowed to fully ferment within a sealed container. In this case, the CO₂ is pumped into the tank after fermentation, and is absorbed into the liquid.



Different styles of beer contain varying amount of CO₂, but one thing they all have in common is that they're sold by volume, and this is where MSL's scientists come in.

There are a number of established techniques to quickly and accurately measure the volume of a non-carbonated liquid, but the bubbles in soft drinks and beers make things much trickier. For beers, Trading Standards had relied on a wasteful testing approach to determine the average volume of a batch. This involves taking random samples from the production line and opened, with the product degassed and then poured into graduated cylinders; meaning that all of the samples tested were destroyed/ disposed of. It might sound like a small price to pay to ensure compliance, but for microbreweries and other small-scale producers, it can damage profit margins. And for the regulators, it can be incredibly time-consuming.

As MSL research scientist Yin Hsien Fung explains, "Big breweries can usually afford sophisticated equipment to measure and control their bottled beer volumes. That's hardly an option for microbreweries, and this leads to a two-tier situation. So, we've been exploring alternative ways to measure the volume of NZ beers."

Working with Trading Standards, MSL have developed a reliable, low-cost way to determine the volume of packaged beer products, via measurements of mass and density. The benefit of this approach is that it links back to the world's standardised measurement system, the SI. The kilogram is one of seven base units that provides the foundation for countless other measurements. As the home of New Zealand's standard kilogram, MSL scientists are experts at accurately measuring mass, as well as quantities related to it, such as density, volume, flow, force, torque and pressure.

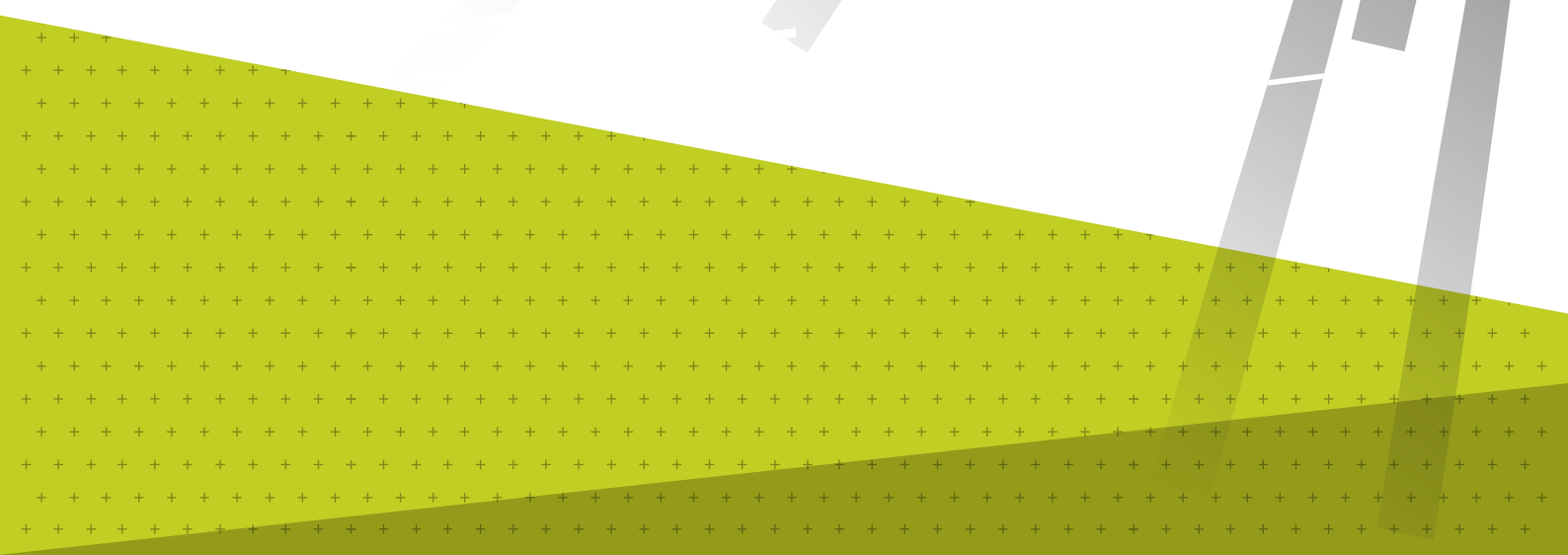
Kevin Gudmundsson, Manager of Length and Mass Quantities at MSL says "The measurement method that we've developed for craft beers will help move away from volumetric checks that tend to be wasteful, and towards gravimetric tests that are traceable to national standards."

Davis White, Legal Metrology Advisor & Senior Officer at Trading Standards says, "Our goal is to protect the consumer, while also providing industry with the tools it needs to thrive. We are experts in legal metrology, but beer is a particularly complex product to measure. So, we turned to the scientists at MSL. Their expertise has helped us develop a new guidance document for NZ that will support the beer industry. The experience of working with them has been incredibly positive."

The new Trading Standards guidance document for beer products was released in April 2019. So the next time you buy a bottle/can of beer, you can happily sip on your brew, safe in the knowledge that measurement scientists have helped to ensure you are getting what you pay for.

OUR PEOPLE

are our greatest asset





Our five core values

About Business, Bold, Connected, Delivering Results, and Home Safe Every Day – shape our culture and define the behaviours for our success. Our people are the most important resource we have. Our team of 413 people range from researchers, scientists and engineers to technologists, investment managers and innovation advisors. Despite coming from different backgrounds, experience and expertise, they bring drive and passion to help New Zealand businesses succeed through technology.

We remain committed to the principles of Equal Employment Opportunities and creating a workplace that attracts, retains and values diversity.

Leadership and talent

We have a vision of being a place where talent wants to work. To meet this goal, we offer a range of learning and development opportunities, coaching and mentoring. This year we had more than 70 people leaders complete three leadership development programmes covering emotional intelligence, coaching and storytelling. We also spent time refocusing our quarterly People Leader’s Forums to harness collective problem solving and build deeper connections across the organisation.

In addition to these programmes we introduced an accelerated development planning framework to support the development of our high potential and high performing leaders. The framework supports facilitating performance and development planning through meaningful conversation, employee self-reflection and assessment, and uses a cross functional approach to identifying opportunities. This approach enables our talent to benefit from real-world opportunities that deliver the stretch they need to realise their potential while solving some of our more complex organisational challenges.

We continue to actively monitoring our culture and the engagement of our people, through our employee engagement tool Officevibe. Officevibe’s pulse survey methodology ensures we have a consistent and real-time view of issues that may be affecting our people and provides a two way channel for leaders to respond to feedback.

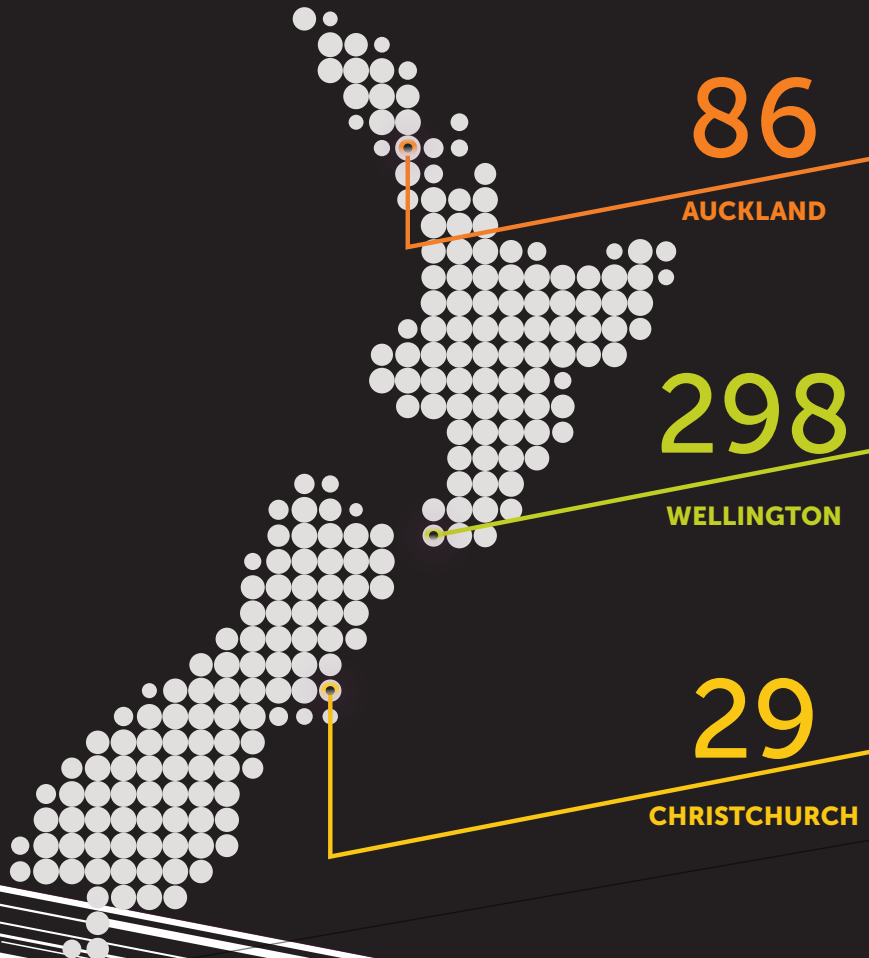
Home Safe Every Day

Our Home Safe Every Day programme remains integral to our organisation. This year we have been focused on ensuring our staff are safe and healthy at work, implementing a new Health Monitoring Strategy to protect employee health, and launching a new Wellbeing Programme for our staff. Our online health and safety employee information management system (HSE online) continues to be used for reporting incidents, hazards and near misses, tracking all HSE actions, carrying out workplace inspections, undertaking risk assessments, and recording equipment that may pose an HSE risk to employees.

Our people

TOTAL
EMPLOYEES

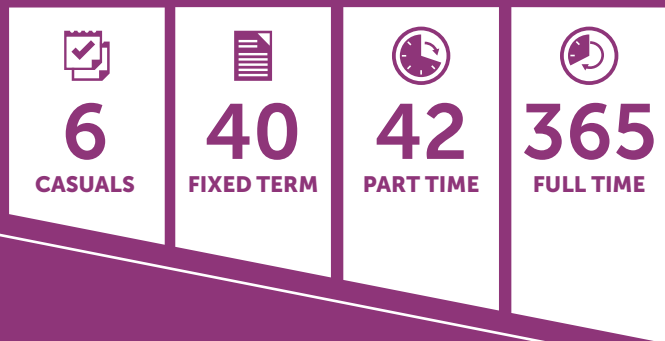
#413



EMPLOYMENT PERMANENT



#367



GENDER

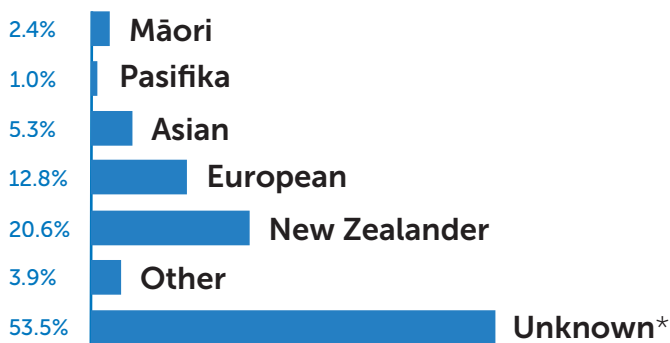


146
FEMALE



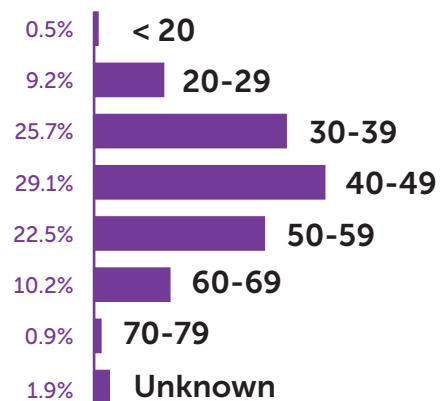
267
MALE

ETHNICITY



*Due to individual choice not to report and unavailable information.

AGE



We're committed to being a good employer

Organisational health and capability

Callaghan Innovation regularly reviews, articulates and iterates policies, programmes and tools to ensure that they support the development of our people capability and reinforce our organisational values. The table below gives an overview of Callaghan Innovation's activities and initiatives that support the seven good employer criteria.

1. Leadership, accountability and culture

- completed the roll out of coaching programmes for all people leaders
 - developed our leaders' skills with the completion of emotional intelligence and storytelling programmes for all people leaders
 - reinvigorated leadership development channels through refreshed Leadership Hub on the intranet and increased communication and engagement with leaders via Workplace
 - refreshed the structure and purpose of people leaders forums to optimise collaboration and collective problem solving
 - developed and implemented an Accelerated Development Planning framework for high potential and high performing senior leaders
 - after seeking feedback from employees, changed the frequency of Officevibe surveys
 - continued monitoring and analysis of employee sentiment through Officevibe polls, improved leaders accessibility to results and two-way feedback mechanisms
 - designed and deployed a Leadership Skills Assessment to identify critical leadership development needs of our leaders in order to target programmes and investment over the next 24 months
 - initiated the redevelopment of our Welcome Programme in collaboration with representatives from across the business
 - continued to promote our employee Values Awards, recognising team members who go above and beyond to support the work we do
 - continued the delivery of opt-in resilience workshops for employees.
-

2. Recruitment, selection and induction

We desire to create a team that supports the changing needs across our organisation and moves toward the workforce of the future. We are reviewing how we engage and retain top talent and best utilise their skills across the organisation. We anticipate that this piece of work will move Callaghan Innovation away from a traditional recruitment model to a talent sourcing approach aimed at connecting and building a pool of talent to enable the organisation to deliver their strategic objectives.

We have also identified a number of critical roles across the organisation. These are roles that have specialised skills or rare skill-sets that are difficult to find and are key to us delivering our strategic initiatives. We expect we'll need to take a specialised approach to ensure we attract the right talent for these roles.

Welcome programme – It's important that we deliver a supportive welcome programme for our new employees so they can quickly get up to speed and contribute to our organisation purpose. Our refreshed welcome programme more clearly explains the induction journey and provides greater support through a buddy system. New content includes pre-start and induction guides for new team members, managers and buddies and an updated induction portal that hosts content and support information for new employees, including essential learning packages.

Over the past year we also:

- continued to welcome new staff through the executive-led orientation programme, Te Waka Nui
 - promoted vacancies on our social media pages (Twitter, Facebook and LinkedIn) and on our corporate site to reach a wider audience
 - actively recruited with the knowledge of our workplace profile and the need for diversity as a key driver.
-

3. Employee development, promotion and exit

Promotions – We help our managers identify areas they can develop to enable them to excel in their roles. We then look to identify opportunities for them to continue to progress and grow internally. Given the size of Callaghan Innovation, we are realistic that sometimes these opportunities may not be available internally so we support and enable people with through our networks to help them transition externally for continued growth.

Exits – As part of our exit process, we talk with departing employees about how they have found their time with us. The majority leave the organisation feeling positive about their growth and development and would consider returning. We analyse our exit discussions so we can learn how we can enhance our customers experience (both internally and externally). The most common reason for departures is career progression.

Over the past year we:

- refreshed our learning management system with a new interface, data cleanse and content protocols
- developed in-house design capability and eLearning content
- identified and implemented compliance learning framework to support essential learning for all employees
- delivered Official Information Act essential learning to all employees with 95% completion
- redesigned, developed and implemented a new approach to performance agreements and development planning
- continued ongoing work on our career pathways project for scientists, engineers and research staff.

4. Flexibility, work design, diversity and inclusion

Callaghan Innovation continues to be committed to building an open, diverse and inclusive workforce that attracts highly motivated people with a broad range of abilities and talent. Over the past twelve months we have focused on ensuring everyone who works within Callaghan Innovation enjoys the same employment experience.

We're connecting every type of employee – gig-workers, interns, summer students and permanent staff – to the Callaghan employee experience through welcome activities, key communication channels, seeking feedback via OfficeVibe and celebrating success. The story of our unique opportunity to help develop the Māori economy is now shared as part of our welcome programme through three cultural competency modules – Te Reo Māori, Tikanga – Māori Customs and Māori Economy. Over 46% of leadership development cohort in 2018/19 were women and 92% of these women completed the leadership development programmes in full.

5. Reward and recognition

- conducted the annual remuneration review
 - presented 16 Callaghan Innovation awards to employees who had consistently demonstrated Callaghan Innovation values in their work
 - recognised employees who had completed 20, 30 and 50 years' loyal service at Callaghan Innovation (and its predecessor organisations)
 - reviewed the job evaluation framework to ensure relativities and fairness in our remuneration structures.
-

6. Harassment and bullying prevention

- no formal complaints of bullying were initiated this year
 - continued to monitor and act as appropriate.
-

7. Healthy and safe environment

- 227 events reported, an 18 percent decrease from the previous year (253). Most events reported are hazards or near misses, rather than incidents
 - completed 107 workplace risk assessments
 - completed 190 work area inspections
 - identified 692 HSE related improvement actions, down from 965 the previous year. 882 actions were completed, including addressing historic issues
 - implemented a new Health Monitoring Strategy to protect employee health
 - launched a new Wellbeing Programme for staff
 - completed a review of building earthquake preparedness.
-

8. Health, safety and wellbeing

- Event reporting decreased by 32% from last year with 154 events reported. These are reflected evenly in near miss events and injury events.
 - The costs associated with ACC claims relating to workplace injury decreased from \$2,794 to \$958 – a percentage of 66%. This decrease in cost is due to the reduced severity of injuries of our people, although the total number of injuries requiring medical treatment rose by one this year.
 - The decrease in the near miss injury events is off-set by a significant increase in the number of hazards and unsafe situations being actively reported – allowing for increased proactive prevention of near miss and harm incidents in the workplace.
 - 128 risk assessments were completed, marginally down on 136 last year. 149 work area inspections were performed - down from 190 last year.
 - 765 HSE related actions were closed out over the year and 456 new actions raised in the system. The total number of overdue actions decreased by 12%, down from 523 to 456. A key area of focus in the coming year is to ensure corrective actions are closed out with regular reminders to staff and management on outstanding actions.
 - Callaghan Innovation is developing its new Health and Safety at Work strategic plan, to include full bowtie risk assessment, in consultation with its staff for implementation next year. Risk assessments continue to be a focal point in harm prevention for Callaghan Innovation, and provide an opportunity for improvement in proactively eliminating sources of harm to our people and tenants.
-

SENIOR LEADERSHIP TEAM



Vic Crone

CHIEF EXECUTIVE

Vic has significant executive and governance experience in technology and innovation. She brings a strong customer focus, and a track record of leading and implementing strategy, and building organisational culture. Vic was previously the managing director of Xero NZ and New Markets, following executive roles at Chorus and Telecom New Zealand. She has been an Independent director on the boards of a number of companies and organisations in the technology sector, including RedShield, Figure.NZ, Creative HQ and the Hi-Tech Trust.



Erica Lloyd

GENERAL MANAGER

Market, Engagement and Experience and Sectors

Erica has extensive experience as a senior executive. At Callaghan Innovation she leads the Sectors team, which supports the delivery of our products and services to customers as well as key initiatives such as the Technology and Founder Incubators programmes. She also oversees digital platforms and marketing, communications, stakeholder management and policy development.

Before Callaghan Innovation, Erica was part of the Group Executive Team at Datacom, where she led all aspects of communications for the IT business as it grew across Asia Pacific. She has also held senior roles at BNZ, TVNZ and Mediaworks, and has run her own technology services businesses for the film and television industry.



Esther Livingston

GENERAL MANAGER

People and Capability

Esther has extensive public and private sector general management and HR experience. She specialises in HR strategy development and implementation, organisational design and development, change management which includes organisational design, organisational and management audits and reviews, restructuring, and employment relations management and advice including mediation and collective employment agreement negotiations.

Esther is former General Manager – Human Resources at the Institute of Environmental Science and Research Ltd and previously held general manager positions for Tourism New Zealand, Infinity Solutions and Comtex Group. She has previously worked as an independent HR consultant and has a MBS (Hons).



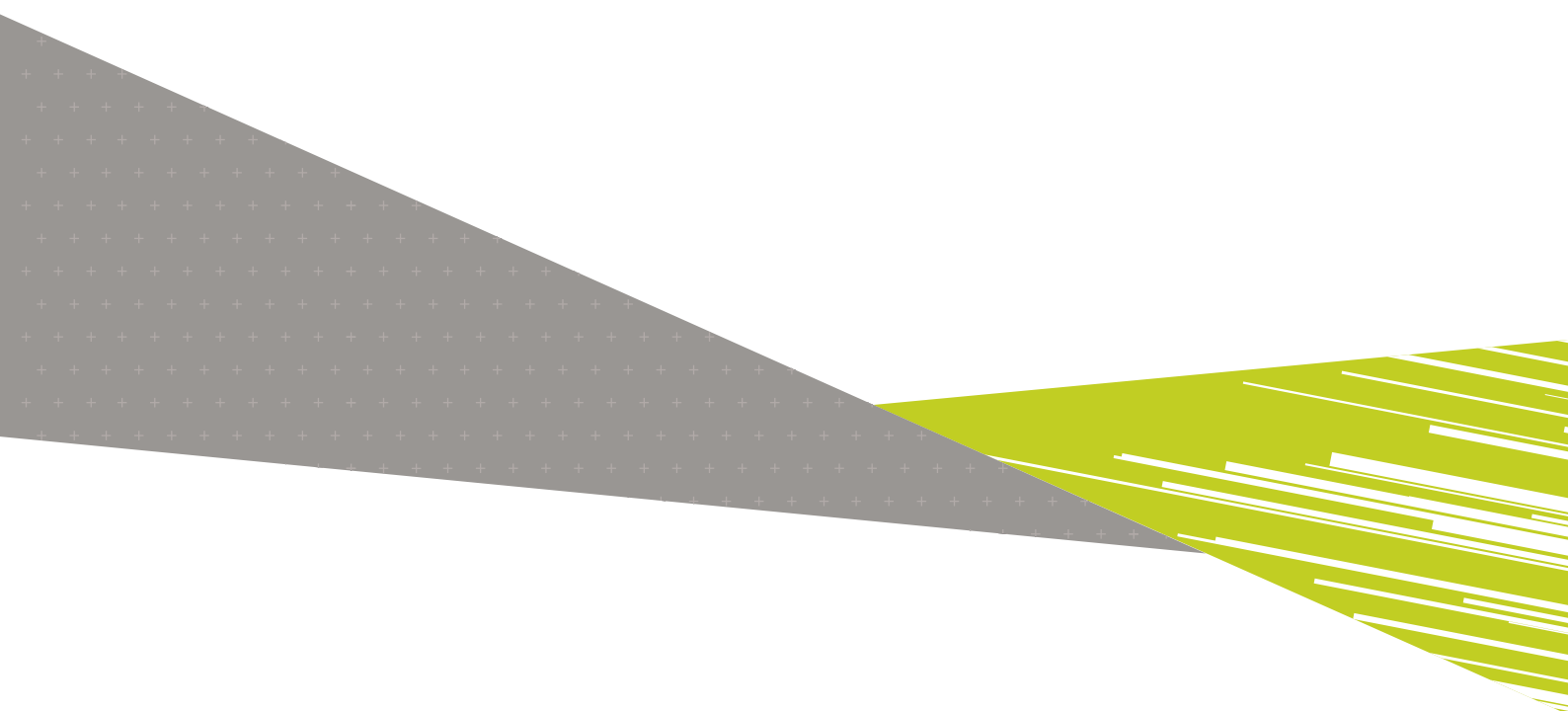
Heather Deacon

GENERAL MANAGER

Research and Technical Services Operations

Heather is responsible for over 130 scientists and engineers. Their aim is to support NZ businesses to adopt and adapt new technology through providing technical advice and R&D services. Her passion for innovation and creative thinking generates novel solutions to meet the rapidly changing environment. She also represents Callaghan Innovation on the MacDiarmid Institute Board.

Prior to joining Callaghan, Heather was the Director of NZ Operations at Airbus. She migrated to New Zealand with her family in 2006 from the UK where she had spent the previous 13 years working on aviation support contracts in the defence industry. Heather started her career as a flying instructor, which culminated in her training military pilots from each of the three British Armed Services.





Paul Linton

GENERAL MANAGER

Commercial Business

Paul has a background in international business and economic development in both the private and public sectors. He has been New Zealand's Trade Commissioner in a number of locations throughout Asia, Australia and the Pacific Islands and ran the Industry Capability Network for NZTE; held a number of General Manager roles at MetService of New Zealand; and has held senior roles with organisations such as software company Objective Corporation and with Airways New Zealand. Paul runs the commercial businesses of Callaghan Innovation. These include export businesses KiwiStar Optics and GlycoSyn; as well as New Zealand's Measurement Standards Laboratory.



Rosalie Nelson

GENERAL MANAGER

Strategy, Impact and Insights

Rosalie drives Callaghan Innovation's research, insights and foresights team, fuelling an important mission – to activate innovation and help New Zealand businesses grow faster. She has deep experience in technology market disruption, strategic response, and forecasting impact, previously being head of market strategy and insights at Chorus, and having held research director, principal analyst and strategist roles with global research and consulting companies Ovum and IDC.



Megan Firkin

GENERAL MANAGER

Digital and Optimisation

Megan has a wealth of experience across multiple disciplines, having run large product portfolios and cross organisational programmes for some of the most innovative and market leading technology organisations in New Zealand and the World.

Previously the Global Manager of Revenue Programmes at Xero, Megan has worked with organisations including Spark Digital and Spark, THUS PLC & Demon Internet, Worldcom & UUNet, Xtra and Apple Computer.

Megan initially joined Callaghan Innovation as our Head of Optimisation focused on improving our organisational effectiveness and productivity with strong systems and processes underpinning how we work together to deliver for our customers and stakeholders; and quickly moved to accelerating the development and implementation of our ambitious digital strategy.



Matt Kenny

CHIEF FINANCIAL OFFICER

Matt is a Chartered Accountant with financial and senior level leadership experience across the health, government, wholesale supply and manufacturing sectors. He has held a number of CFO roles, most recently with private hospital provider Acuity Health Group. He began his career at global accounting firm Deloitte, where for 13 years he provided accounting and business advisory services to a diverse range of clients.

GOVERNANCE

The board is Callaghan Innovation's governing body; all decisions relating to the organisation's operation are made by, or under the authority of, the board in accordance with the Callaghan Innovation Act 2012 and the Crown Entities Act 2004. The Minister of Science and Innovation appointed the chief executive of the Ministry of Business, Innovation and Employment as an advisor to the board. This role was delegated to Paul Stocks, Deputy Chief Executive – Science, Skills and Innovation. The board meets about six weekly and at other times as required.

During the FY2018/19 year there were a number of changes to the board membership. There were four new appointments to the board – Angela Bull, Jennifer Kerr, Elena Trout, and Matanuku Mahuika. Frances Valintine's term was renewed for a further three years, Stefan Korn and George Gong's terms were renewed for a further 12 months. Al Monro, Simon Botherway, and Robin Hapi all finished their terms during the year. We would like to acknowledge and thank all three for the commitment, knowledge and expertise they brought to the table, with special mention to Robin who served as a board member and deputy chair since Callaghan Innovation's inception.

There are four board committees:

Audit and risk

This committee assists the board in fulfilling its responsibilities for the oversight of the internal control environment, external accountability, the internal audit function, legislative compliance, internal reporting, external audit, and oversight of the risk management framework.

Appointments and remuneration

This committee oversees and recommends to the board all matters in regard to the effective management of the appointment and remuneration of the chief executive and her direct reports.

Grants

The Grants Committee supports the Callaghan Innovation Board in its decision-making on proposals, including operational policy-setting and consideration of the impacts of grants for business-led research and development. In addition to the board members, this committee includes two external members.

Health, safety and environment

The purpose of the HSE Committee is to assist the board with its responsibilities with respect to the HSE practices of Callaghan Innovation.

Board terms and committee membership

Board members	Board term	Audit and risk	Appointments and remuneration	HSE	Grants
Pete Hodgson (chair)	31/03/2021	Ex-officio member	Ex-officio member	Ex-officio member	Ex-officio member
Frances Valintine	19/03/2022	-	Chair	-	-
Jennifer Kerr	30/09/2021	-	Member	Chair	-
Stefan Korn	30/09/2019	-	-	-	Chair
Angela Bull	19/03/2022	-	-	-	-
George Gong	30/09/2019	Member	-	-	Member
Shaun Hendy	30/09/2021	Member	-	Member	-
Elena Trout	18/06/2022	Chair	TBC	TBC	TBC
Matanuku Mahuika	18/06/2022	TBC	TBC	TBC	TBC

*Note: A member continues in office despite the expiry of their term in accordance with section 32(2) of the Crown Entities Act

Non-board members	Board term	Audit and risk	Appointments and remuneration	HSE	Grants
Peter Townsend					Member
Dr Alastair MacCormick					Member

Governance policies underpin the board's responsibilities. These policies are regularly reviewed and include a Code of Conduct and obligations regarding the disclosure of interests. A formal delegation framework is in place relating to Callaghan Innovation's principal operations and the delegation of financial authority and decision rights from the board to the chief executive, managers and staff.

Business continuity plans are in place, and these are reviewed and refreshed to reflect organisational changes and context.

STATEMENT OF RESPONSIBILITY

The Callaghan Innovation Board is responsible for the preparation of the financial statements and the statement of performance for the period 1 July 2018 to 30 June 2019, and the judgements used in them. The board is also responsible for establishing and maintaining a system of internal controls designed to provide reasonable assurance as to the integrity and reliability of financial reporting. In the opinion of the board, the financial statements and statement of performance for the period from 1 July 2018 to 30 June 2019 fairly reflect the financial position and operations of Callaghan Innovation.



Pete Hodgson
Chair



Elena Trout
Board member

STATEMENT OF SERVICE PERFORMANCE

This statement of performance reports on progress against the performance measures contained in Callaghan Innovation's Statement of Performance Expectations.

We continued to make steady progress against the key performance measures set out in our Statement of Intent 2015–2019 and the Statement of Performance Expectations in the year ending 30 June 2019.

In 2016/17 three output classes were merged into the Callaghan Innovation Operations Multi-Category Appropriation to align better with our activities. The appropriation is made up of:

- Building Business Innovation
- Research and Development Services and Facilities for Business and Industry
- Business Research and Development Contract Management.

We achieved 79% (15 of 19) of our key performance measures and further information has been provided for the two measures we have not met. With the core building blocks in place we focused on further developing our suite of products and services in order to deliver value to our customers.

We continued to improve core systems and infrastructure to ensure we are a highly effective and efficient organisation. We have a strong focus on strengthening our information collection so that we can monitor the impacts of our services down to an individual business level.

OUTPUT CLASS

Callaghan Innovation operations: multi-category appropriation

This appropriation enables us to broker and provide innovation services to businesses and deliver programmes that enhance New Zealand's innovation system. We can then provide more support for businesses to successfully develop new and improved products, processes and services through R&D and technology-driven innovation by improving the performance of New Zealand's innovation system.

Performance measures

Performance measures	Performance standard	Result
Total number of organisations working with Callaghan Innovation on services this Financial Year and Net Promoter Score of all survey customers	2600	2916 organisations NPS score of +57
Total number of organisations working with Callaghan Innovation and NZTE as a F700	300	375

CATEGORIES

1. Building business innovation

This appropriation is limited to activities that raise awareness about and increase business investment in R&D. Raising awareness of and increasing business investment in R&D is a core function for Callaghan Innovation. We accelerate the growth of innovative companies and build the effectiveness and skills of New Zealand's innovation system. The services we provide support New Zealand's high-value manufacturing and services businesses in overcoming information problems and transaction costs by sourcing advice, technical expertise and training.

Financial performance

	Budget Revenue 2017/18 – \$000	Actual Revenue 2017/18 – \$000	Budget Expenditure 2017/18 – \$000	Actual Expenditure 2017/18 – \$000	Actual Surplus 2017/18 – \$000
Appropriation	32,378	25,978	-	-	-
Other	1,059	1,308	-	-	-
Total 2017/18	33,437	27,286	33,437	27,118	168

	Budget Revenue 2018/19 – \$000	Actual Revenue 2018/19 – \$000	Budget Expenditure 2018/19 – \$000	Actual Expenditure 2018/19 – \$000	Actual Surplus 2018/19 – \$000
Appropriation	32,378	32,378	-	-	-
Other	791	1,311	-	-	-
Total 2018/19	33,169	33,689	28,700	25,480	8,209

Performance measures

Quantity	2017/18 performance standard	2017/18 result	2018/19 performance standard	2018/19 result
Number of organisations working with Callaghan Innovation in the following services:	Establish baseline	1503	1500	1477
<ul style="list-style-type: none"> • programmes • events • international missions • global expert. 				
Net promoter score for Callaghan Innovation Services:	Establish baseline	+45	+50	+49

CATEGORIES

2. Business research and development contract management

This appropriation is limited to the selection of businesses or individuals for either the provision of Research, Science and Technology output, or the award of grants, and to negotiate, manage and monitor appropriate contracts with these businesses or individuals. Callaghan Innovation currently manages three R&D grant funds on behalf of the Ministry of Business, Innovation and Employment. We provide robust, transparent and efficient allocation and monitoring services of these grants to businesses.

Financial performance

	Budget Revenue 2017/18 – \$000	Actual Revenue 2017/18 – \$000	Budget Expenditure 2017/18 – \$000	Actual Expenditure 2017/18 – \$000	Actual Surplus 2017/18 – \$000
Appropriation	7,751	10,230	-	-	-
Other	370	483	-	-	-
Total 2017/18	8,121	10,713	8,121	10,576	137

	Budget Revenue 2018/19 – \$000	Actual Revenue 2018/19 – \$000	Budget Expenditure 2018/19 – \$000	Actual Expenditure 2018/19 – \$000	Actual Surplus 2018/19 – \$000
Appropriation	7,751	7,750	-	-	-
Other	274	470	-	-	-
Total 2018/19	8,025	8,220	11,900	10,113	-1,893

Performance measures

Quantity	2017/18 performance standard	2017/18 result	2018/19 performance standard	2018/19 result
Percentage of growth, project and Student fellowship applications who have received a decision within 30 working days of receipt of the completed application	90%	80% (465 of 581)	90%	69% (657 of 956)

CATEGORIES

3. Research and development services and facilities for business and industry

This appropriation is limited to providing research and technical expertise and facilities to businesses and industry. We meet the R&D needs of businesses and industry to help them grow. Our R&D services provide New Zealand businesses outsourced access to product and process development capabilities, data and analytics expertise, open labs, engineering workshops and pilot plants. We have specialist equipment, facilities and technological expertise to assist business and industry to increase their R&D activity by combining their R&D teams, connecting them to further R&D capability across the ecosystem, and providing our own differentiated R&D portfolio. Our staff work diligently to find solutions that solve our customers' R&D challenges. We also facilitate interactions with other research providers, where they have complementary technical expertise. We are able to quickly assemble and deliver diverse R&D-enabled solutions for customer needs which provides differentiation from the rest of the New Zealand ecosystem.

Financial performance

	Budget Revenue 2017/18 – \$000	Actual Revenue 2017/18 – \$000	Budget Expenditure 2017/18 – \$000	Actual Expenditure 2017/18 – \$000	Actual Surplus 2017/18 – \$000
Appropriation	19,523	23,743	-	-	-
Other	34,239	35,087	-	-	-
Total 2017/18	53,762	58,830	53,662	58,680	150

	Budget Revenue 2018/19 – \$000	Actual Revenue 2018/19 – \$000	Budget Expenditure 2018/19 – \$000	Actual Expenditure 2018/19 – \$000	Actual Surplus 2018/19 – \$000
Appropriation	19,523	19,523	-	-	-
Other	34,653	41,301	-	-	-
Total 2018/19	54,176	60,824	59,800	63,402	-2,578

Performance measures

Quantity	2017/18 performance standard	2017/18 result	2018/19 performance standard	2018/19 result
Number of New Zealand organisations with a research and technical service product this financial year (excluding commercial group)	Establish baseline	270 businesses	175 businesses	251 businesses
Total commercial revenue from Research and Technical Services (excluding commercial group)	\$10.4 million	\$8.2 million	\$8.9 million	\$7.9 million
Total commercial revenue from the Commercial Group (excluding Research and Technical Services)	\$10.6 million	\$11.3 million	\$12.6 million	\$15.9 million
Net Promoter Score from Research and Technical Services (excluding commercial group)	Establish baseline	+52	+60	+41

Business research and development grants

Callaghan Innovation administers three funding programmes aimed at helping businesses to invest more in R&D. We administer a range of R&D grants to add scale to businesses' own R&D investments for greater impact. Our R&D grants are structured to meet a range of business needs, whether those businesses are young start-ups or established R&D performers.

Research and development growth grants

Growth Grants are designed to increase R&D investment by businesses that have a strong track record for R&D spending in New Zealand. We provide 20% co-funding for R&D for an initial three years with an extension option, capped at \$5 million a year. Growth Grants are funded by the Crown through a multi-year appropriation.

Quantity	2017/18 performance standard	2017/18 result	2018/19 performance standard	2018/19 result
Percentage of businesses receiving a growth grant that maintain or increase their research and development expenditure over the grant period	70%	86%	70%	82%

Targeted business research and development funding

R&D Project Grants support greater investment by businesses in R&D, especially those with less-established R&D programmes. We provide up to 40% co-funding of R&D costs. Our R&D experience, career and fellowship grants support undergraduate and graduate students to work in commercial R&D environments as interns in New Zealand's excellent commercial R&D facilities; this is a win-win solution for both industry and the students. These grants are funded by the Crown through a multi-year appropriation.

Quantity	2017/18 performance standard	2017/18 result	2018/19 performance standard	2018/19 result
Percentage of businesses completing research and development project grants that positively rate Callaghan Innovation's assistance as valuable in their final reports	80%	99%	80%	98%
Percentage of surveyed recipients who would recommend the research and development experience grants to others	80%	96%	80%	97%
Percentage stating that grant enabled them to improve or accelerate their research and development	Establish baseline	94%	90%	96%

Repayable grants for start-ups

Our Incubator Support Programme accelerates the growth and success of high-value New Zealand start-up businesses through a range of services and funding. We intend to support the development and growth of new technology-focused business start-ups.

Quantity	2017/18 performance standard	2017/18 result	2018/19 performance standard	2018/19 result
Percentage of incubator contracts that are assessed as delivering as required (founder focused, and technology focused)	90%	91%	90%	77%
Percentage of surveyed start-ups who agree that they have gained business or commercialisation skills due to working with the incubator/ accelerator	Establish baseline	84%	60%	91%

National measurement standards

This appropriation is limited to providing specified standards to satisfy the needs for traceable physical measurement in New Zealand. We contribute to the success of companies selling products and services that are dependent on accurate and internationally accepted traceable physical measurements. Our Measurements Standards Laboratory (MSL) is New Zealand's national metrology institute, ensuring that New Zealand's units of measurement are consistent with the International System of Units. The delivery of services is provided by MSL in accordance with its role assigned under the Measurement Standards Act 1992.

Financial performance

	Budget Revenue 2017/18 – \$000	Actual Revenue 2017/18 – \$000	Budget Expenditure 2017/18 – \$000	Actual Expenditure 2017/18 – \$000	Actual Surplus 2017/18 – \$000
Appropriation	5,764	5,465	-	-	-
Other	832	796	-	-	-
Total 2017/18	6,596	6,261	6,596	6,259	2
	Budget Revenue 2018/19 – \$000	Actual Revenue 2018/19 – \$000	Budget Expenditure 2018/19 – \$000	Actual Expenditure 2018/19 – \$000	Actual Surplus 2018/19 – \$000
Appropriation	7,069	7,069	-	-	-
Other	703	781	-	-	-
Total 2018/19	7,772	7,850	7,772	8,098	-248

Performance measures

Quantity	Performance standard	Result
Provide national measurements and standards and related services in accordance with statutory obligations under section 4 of the Measurement Standards Act 1992, reported annually to the minister and accepted	Achieved	Achieved
All technical procedures related to the maintenance of national measurement standards (in accordance with the resolutions and recommendations of the Metre Convention) independently reviewed and validated, with all external review actions completed by 30 June 2019	Achieved	Achieved There were 90 procedures in validation on 1 July 2019, of which 27 have been validated or re-validated between 1 July 2018 and 30 June 2019. IANZ carried out the annual surveillance audit of MSL on 5–7 March 2019. This was MSL's first assessment against the new ISO/IEC 17025:2017 standard. No corrective actions arose, and the laboratory was deemed to conform to the new standard. IANZ also carried out technical reassessments of MSL's temperature (13–15 May) and photometry & radiometry (22–28 August) measurement standard sections. No corrective actions were raised during the reassessment of photometry & radiometry. The laboratory has responded in a timely manner to the one corrective action that was raised during the reassessment of temperature. IANZ gave clearance to the corrective action on 8 July 2019.

Non-departmental capital expenditure

This appropriation is limited to capital expenditure to support the establishment and development of an advanced technology institute. This capital expenditure is to support the purchase or development of assets by and for the use of Callaghan Innovation to ensure we have the appropriate infrastructure to enable us to provide the best possible services to businesses.

Quantity	2017/18 performance standard	2017/18 result	2018/19 performance standard	2018/19 result
Any physical and virtual infrastructure investment is aligned with the overall strategy, mix of services and business engagement model	Achieved	Achieved	Achieved	Achieved
Any major capital project proposal is developed in accordance with published Treasury business case guidance	Achieved	Achieved	Achieved	Achieved

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STATEMENT OF COMPREHENSIVE REVENUE AND EXPENSES

For the year ended 30 June 2019

		GROUP 2019 ACTUAL	GROUP 2019 BUDGET	GROUP 2018 ACTUAL*
	Notes	\$000	Unaudited \$000	\$000
Revenue				
Funding from the Crown	2	82,412	79,208	78,944
Funding from the Crown – grants	2	242,787	212,900	201,814
Commercial and other revenue	2	27,185	23,172	23,309
Interest revenue		1,164	765	1,081
Total revenue		353,548	316,045	305,148
Expenditure				
Personnel costs	3	(50,559)	(48,583)	(46,715)
Science project and subcontract costs	2	(27,041)	(27,348)	(24,533)
Impairment release/(charge) of financial instruments		156	-	(238)
Other expenses	3	(24,346)	(23,586)	(26,766)
Depreciation and amortisation expense	9,10	(8,172)	(8,635)	(6,621)
Grant expense	4	(242,787)	(212,900)	(201,814)
Gain on business combinations	13	421	-	-
Interest expense		-	-	-
Total operating expenditure		(352,328)	(321,052)	(306,687)
Share of surplus/(deficit) from joint venture and associate	12	(218)	-	1,556
Surplus/(deficit) for the period		1,002	(5,007)	17
Other comprehensive revenue and expense				
Item that will be reclassified to surplus/(deficit)				
Cash flow hedges (net of tax)		366	-	(334)
Total comprehensive revenue and expenses		1,368	(5,007)	(317)

* Comparative balances have been restated as outlined in note 2.

Explanations of major variances against budget are provided in note 24.

The accompanying accounting policies and notes form an integral part of these Financial Statements.

STATEMENT OF CHANGES IN EQUITY

For the year ended 30 June 2019

GROUP	Notes	Contributed capital \$000	Accumulated surplus \$000	Hedge reserve \$000	Total equity \$000
Balance as at 1 July 2017		52,873	7,358	86	60,317
Surplus for the year		-	17	-	17
Other comprehensive revenue					
Cash flow hedge reserve		-	-	(334)	(334)
Total comprehensive revenue and expenses for the year					
		-	17	(334)	(317)
Other transactions					
Capital contribution		13,570	-	-	13,570
Balance as at 30 June 2018					
		66,443	7,375	(248)	73,570
Balance as at 1 July 2018		66,443	7,375	(248)	73,570
Surplus for the year		-	1,002	-	1,002
Other comprehensive revenue					
Cash flow hedge reserve		-	-	366	366
Total comprehensive revenue and expenses for the year					
		-	1,002	366	1,368
Other transactions					
Capital contribution		21,152	-	-	21,152
Balance as at 30 June 2019					
	6	87,595	8,377	118	96,090

Explanations of major variances against budget are provided in note 24.

The accompanying accounting policies and notes form an integral part of these Financial Statements.

STATEMENT OF CHANGES IN EQUITY CONTINUED

For the year ended 30 June 2019

GROUP BUDGET (unaudited)	Notes	Contributed capital \$000	Accumulated surplus \$000	Hedge reserve \$000	Total equity \$000
Balance as at 1 July 2017		39,943	8,215	(47)	48,111
Surplus for the year		-	100	-	100
Other comprehensive revenue					
Cash flow hedge reserve		-	-	-	-
Total comprehensive revenue and expenses for the year		-	100	-	100
Other transactions					
Capital contribution		26,500	-	-	26,500
Balance as at 30 June 2018		66,443	8,315	(47)	74,711
Balance as at 1 July 2018		66,443	8,315	(47)	74,711
Surplus for the year		-	(5,007)	-	(5,007)
Other comprehensive revenue					
Cash flow hedge reserve		-	-	-	-
Total comprehensive revenue and expenses for the year		-	(5,007)	-	(5,007)
Other transactions					
Capital contribution		10,000	-	-	10,000
Balance as at 30 June 2019		76,443	3,308	(47)	79,704

Explanations of major variances against budget are provided in note 24.

The accompanying accounting policies and notes form an integral part of these Financial Statements.

STATEMENT OF FINANCIAL POSITION

As at 30 June 2019

		GROUP 2019 ACTUAL	GROUP 2019 BUDGET	GROUP 2018 ACTUAL
	<i>Notes</i>	<i>Unaudited</i> \$000	\$000	\$000
EQUITY				
Contributed capital	6	87,595	76,443	66,443
Accumulated surplus	6	8,377	3,308	7,375
Hedge reserve	6	118	(47)	(248)
TOTAL EQUITY		96,090	79,704	73,570
<i>Represented by:</i>				
CURRENT ASSETS				
Cash and term deposits	5	41,823	13,583	28,061
Trade and other receivables	8	5,018	5,666	5,956
Crown debtor – grants	8	120,456	72,933	106,010
Derivative financial instruments	20	118	-	-
Work in progress		1,527	1,120	1,328
Inventories		323	488	406
Income Tax Receivable	7	6	-	-
Total current assets		169,271	93,790	141,761
NON-CURRENT ASSETS				
Investment in joint ventures and associates	12	4,504	8,871	9,327
Property plant and equipment	9	47,918	62,547	39,374
Intangible assets	10	2,297	4,837	3,041
Capital work in progress	9	7,664	4,850	4,996
Total non-current assets		62,383	81,105	56,738
TOTAL ASSETS		231,654	174,895	198,499

Explanations of major variances against budget are provided in note 24.

The accompanying accounting policies and notes form an integral part of these Financial Statements.

STATEMENT OF FINANCIAL POSITION CONTINUED

As at 30 June 2019

		GROUP 2019 ACTUAL	GROUP 2019 BUDGET	GROUP 2018 ACTUAL
	<i>Notes</i>	<i>Unaudited</i> \$000	\$000	\$000
CURRENT LIABILITIES				
Trade creditors and other payables	16	9,492	9,897	8,153
Employee benefits	14	3,661	4,004	3,554
Derivative financial instruments	20	-	-	248
Grant obligations	18	120,456	72,933	106,010
Funds received in advance	15	989	7,934	6,762
Total current liabilities		134,598	94,768	124,727
NON-CURRENT LIABILITIES				
Employee benefits	14	199	423	202
Deferred tax liability	7	767	-	-
Total non-current liabilities		966	423	202
TOTAL LIABILITIES		135,564	95,191	124,929
NET ASSETS		96,090	79,704	73,570



Pete Hodgson
Director
23 September 2019



Elena Trout
Director
23 September 2019

STATEMENT OF CASH FLOWS

For the year ended 30 June 2019

	<i>Notes</i>	GROUP 2019 ACTUAL	GROUP 2019 BUDGET <i>Unaudited</i>	GROUP 2018 ACTUAL*
		\$000	\$000	\$000
CASH FLOW FROM OPERATING ACTIVITIES				
<i>Cash was provided from:</i>				
Receipts from the Crown – operating		76,843	76,968	77,794
Receipts from the Crown – grants		228,371	212,900	172,224
Receipts from commercial customers		28,480	23,774	22,321
Interest received		1,164	765	1,081
		334,858	314,407	273,420
<i>Cash was applied to:</i>				
Payments to suppliers		(50,353)	(51,361)	(55,211)
Payments to employees		(50,133)	(47,628)	(46,312)
Payments to grant recipients		(228,371)	(212,900)	(172,599)
		(328,857)	(311,889)	(274,122)
Net cash flow from operating activities	<i>17</i>	6,001	2,518	(702)
CASH FLOW FROM INVESTING ACTIVITIES				
<i>Cash was provided from:</i>				
Sale of property, plant and equipment		11	-	3
Term deposit maturities		77,570	63,500	57,000
Cash acquired through business combination	<i>13</i>	2,388	-	-
Finance lease receivables		484	-	728
		80,453	63,500	57,731
<i>Cash was applied to:</i>				
Purchase of property, plant and equipment		(15,834)	(29,951)	(10,736)
Purchase of intangible assets		(440)	-	(1,682)
Investment in term deposits		(90,000)	(45,000)	(58,570)
		(106,274)	(74,951)	(70,988)
Net cash flow from investing activities		(25,821)	(11,451)	(13,257)

* Comparative balances have been restated as outlined in note 17.

Explanations of major variances against budget are provided in note 24.

The accompanying accounting policies and notes form an integral part of these Financial Statements.

STATEMENT OF CASH FLOWS CONTINUED

For the year ended 30 June 2019

	<i>Notes</i>	GROUP 2019 ACTUAL \$000	GROUP 2019 BUDGET <i>Unaudited</i> \$000	GROUP 2018 ACTUAL* \$000
CASH FLOW FROM FINANCING ACTIVITIES				
<i>Cash was provided from:</i>				
Capital contribution		21,152	10,000	13,570
		21,152	10,000	13,570
Net cash flow from financing activities		21,152	10,000	13,570
Net increase/(decrease) in cash and cash equivalents				
Cash and cash equivalents at the beginning of the year		2,491	1,446	2,880
CASH AND CASH EQUIVALENTS AT THE END OF THE YEAR	5	3,823	2,513	2,491

* Comparative balances have been restated as outlined in note 17.

Explanations of major variances against budget are provided in note 24.

The accompanying accounting policies and notes form an integral part of these Financial Statements.

NOTES TO THE FINANCIAL STATEMENTS

For the year ended 30 June 2019

1. Statement of accounting policies

Reporting entity

Callaghan Innovation is a Crown Entity as defined by the Crown Entities Act 2004 and is domiciled in New Zealand. The relevant legislation governing Callaghan Innovation's operations include the Crown Entities Act 2004 and Callaghan Innovation Act 2012.

Callaghan Innovation's parent is the New Zealand Crown. The consolidated financial statements of the Group comprise Callaghan Innovation and its controlled entities, associates and joint ventures.

Callaghan Innovation's primary purpose is to grow New Zealand's innovation economy by helping businesses succeed through technology.

Callaghan Innovation does not operate to make a financial return.

Callaghan Innovation designated itself as a public benefit entity for financial reporting purposes.

Basis of preparation

The financial statements have been prepared on a going concern basis and the accounting policies have been applied consistently throughout the year.

Statement of compliance

The financial statements of the Group have been prepared in accordance with the Crown Entities Act 2004, which includes the requirement to comply with generally accepted accounting practice in New Zealand (NZ GAAP). These financial statements comply with Public Sector PBE accounting standards.

Functional presentation currency and rounding

The functional currency of Callaghan Innovation is New Zealand dollars (NZ\$). The financial statements are presented in New Zealand dollars and all values are rounded to the nearest thousand dollars (\$000).

Standards issued and not yet effective and early adopted

The Crown has elected to early adopt PBE IFRS 9 Financial Instruments in preparing the 30 June 2019 Financial Statements of Government (FSG). In line with the FSG, Callaghan Innovation has elected to early adopt PBE IFRS 9 Financial Instruments from 1 July 2018 replacing PBE IPSAS 29 Financial Instruments: Recognition and Measurement. Under the transition options of PBE IFRS 9, Callaghan Innovation is not restating financial instrument comparatives for classification, measurement and impairment and

has opted to continue to apply the hedge accounting requirements of PBE IPSAS 29.

Therefore, there have been no changes to the classification and measurement when accounting for hedges.

Assets previously classified as loans and receivables have been reclassified to financial assets at amortised cost. There was no material impact to measurement on transition.

Summary of significant accounting policies

Revenue

The specific accounting policies for significant revenue items are explained below.

Revenue from the Crown – operational funding

Callaghan Innovation is primarily funded from the Crown. This funding is provided for the purpose of Callaghan Innovation meeting its objectives as specified in the Statement of Intent and Statement of Performance Expectations and is recognised as revenue at the point of entitlement.

The fair value of revenue from the Crown has been determined to be the equivalent to the amounts due in the funding arrangements.

Grants (Crown revenue)

Grants received are recognised in the Statement of Comprehensive Revenue and Expense when they become receivable unless there is an obligation in substance to return the funding if the requirements under the grant have not been met. Any grants for which the requirements have not been completed are carried as liabilities until all conditions have been fulfilled and recognised as revenue when conditions of the grant are satisfied.

Provision of goods and services (commercial revenue)

Revenue from the sale of goods is recognised when the risk and reward of ownership have been transferred to the buyer.

Revenue from research contract services is recognised by reference to the stage of completion. The stage of completion is measured by reference to project milestones or costs incurred to date as a percentage of the total cost for each contract. Where the contract outcome cannot be measured reliably revenue is recognised only to the extent of the expenses recognised that are recoverable.

Interest

Interest income is recognised using the effective interest method.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED

Royalty and licensing income

Royalty and licensing income arises from income earned from patent royalties and licensing of patents. Royalty and licensing income is recognised on an accruals basis in accordance with the substance of the relevant agreements.

Rental revenue and other income

Lease receipts and expense charges under an operating sublease are recognised as revenue on a straight line basis monthly over the lease term.

Grants expenditure

Grants are approved and administered by Callaghan Innovation for the funding of research and development activities by New Zealand business and enterprise in accordance with Ministerial guidelines.

Grant expenditure is recognised in the Statement of Comprehensive Revenue and Expense when the third party recipient can demonstrate they have incurred expenditure that meets the grant conditions. An operating commitment is disclosed in the notes to the accounts for those grant contracts awarded but yet to be drawn down either in full or in part.

Repayable grants for start-ups are expensed in the Statement of Comprehensive Revenue and Expense in the period payment is made due to the uncertainty of future repayment. Repayable grants for start-ups are classified as a contingent asset.

Basis of consolidation

The consolidated financial statements combine the financial statements of Callaghan Innovation, its controlled entities, associates and joint ventures as at 30 June 2019 ("the Group").

Controlled entities are those entities over which the Group has the power to govern the financial and operating policies, generally accompanying a shareholding of more than one half of the voting rights. The financial statements of controlled entities are prepared for the same reporting period as Callaghan Innovation using consistent accounting policies.

All inter-company balances and transactions, including unrealised surplus and deficit arising from intra-Group transactions, have been eliminated in full.

Where there is loss of control of a controlled entity, the consolidated financial statements include the results for the part of the reporting year during which Callaghan Innovation has control. The purchase method is used to account for the acquisition of controlled entities by the Group.

The cost of an acquisition is measured at fair value of the assets given and liabilities incurred at the date of exchange. Identifiable assets and liabilities assumed in a business combination are measured initially at their fair value at the acquisition date.

Investment in joint ventures

A joint venture is the agreed sharing of control over an activity by a binding arrangement accounted for using the equity method from the date on which it becomes a joint venture. On acquisition of the investment any difference between the cost of the investment and the investor's share of the net fair value of the joint venture's identifiable assets and liabilities is accounted for as follows:

- (a) goodwill relating to a joint venture is included in the carrying amount of the investment.
- (b) any excess of the investor's share of the net fair value of the joint venture's identifiable assets and liabilities over the cost of the investment is included as income in the determination of the investor's share of the associate's surplus or deficit in the period in which the investment is acquired.

Under the equity method of accounting interests in joint ventures are initially recognised at cost and adjusted to recognise the Group's share of the post-acquisition surpluses or deficits and movements in other comprehensive revenue. When the Group's share of losses in a joint venture equals or exceeds its interests in the joint ventures (which includes any long term interests that, in substance, form part of the Group's net investment in the joint ventures), the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the joint ventures.

Investment in associates

Associates are those entities over which the Group has significant influence but not control, generally accompanying a shareholding of between 20% and 50% of the voting rights. Group investments in associates are accounted for using the equity method.

The financial statements of the associate are used by the Group to apply the equity method. Accounting policies of associates have been changed where necessary to ensure consistency with the policies adopted by the Group.

Under the equity method of accounting interests in associates are initially recognised at cost and adjusted to recognise the Group's share of the post-acquisition surpluses or deficits and movements in other comprehensive revenue.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED

When the Group's share of losses in an associate equals or exceeds its interests in the associate (which includes any long term interests that, in substance, form part of the Group's net investment in the associate), the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the joint ventures.

Impairment Joint Venture / Associates

The Group periodically reviews the fair value of its investment in its associate/joint venture investment. If the associate/joint venture net assets exceed the fair value of the Group investment an impairment is recognised in the Statement of Comprehensive Revenue and Expenses.

Business Combination

The acquisition method of accounting is used to account for all business combinations. The consideration transferred for the acquisition of a subsidiary comprises the:

- fair values of the assets transferred, and
- fair value of any pre-existing equity interest in the subsidiary.

Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are, with limited exceptions, measured initially at their fair values at the acquisition date.

The difference of:

- consideration transferred, and
- acquisition-date fair value of any previous equity interest in the acquired entity over the fair value of the net identifiable assets acquired is recognised directly in the Statement of Comprehensive Revenue and Expenses as a bargain purchase within 'Gain on Business Combinations'.

If business combination is achieved in stages, the acquisition date carrying value of the acquirer's previously held equity interest in the acquiree is re-measured to fair value at the acquisition date; any gains or losses arising from such re-measurement are recognised in the Statement of Comprehensive Revenue and Expenses within 'Gain on Business Combinations'.

Acquisition related costs are expenses as incurred.

Foreign currency

Transactions in foreign currencies are initially recorded in the New Zealand dollar using the spot rates ruling at the date of the transaction.

Monetary assets and liabilities denominated in foreign currencies are retranslated at the rates of exchange ruling at the balance sheet date.

Exchange gains, losses and hedging costs arising on contracts entered into as hedges of firm commitments are deferred in equity as qualifying cash flow hedges until the dates that the underlying transactions will affect surplus or deficit.

All other foreign currency translation differences in the consolidated financial statements are taken to surplus or deficit in the Statement of Comprehensive Revenue and Expense. Non-monetary items that are measured in terms of historical cost in foreign currencies are translated to the New Zealand dollar using the exchange rates as at the date of the initial transaction. Non-monetary items measured at fair value in foreign currencies are translated to New Zealand dollars using the exchange rate at the date when the fair value was determined.

Property, plant and equipment

Property, plant and equipment consists of land, freehold buildings, fittings, building auxiliary services, computer equipment, plant and scientific equipment, motor vehicles and office furniture. Property, plant and equipment are shown at cost less accumulated depreciation and impairment losses.

Additions

The cost of an item of property, plant and equipment is recognised as an asset only when it is probable that the future economic benefits or service potential associated with the item will flow to Callaghan Innovation and the cost of the item can be measured reliably.

In most instances an item of property, plant and equipment is initially recognised at its cost. Where an asset is acquired through a non exchange transaction, it is recognised at its fair value as at the date of acquisition.

Disposals

Gains and losses on disposals are determined by comparing the disposal proceeds with the carrying amounts of the assets. Gains and losses on disposals are included in the Statement of Comprehensive Revenue and Expense.

Subsequent costs

Costs incurred subsequent to initial acquisition are capitalised only when it is probable that the future economic benefits or service potential associated with the item will flow to Callaghan Innovation and the cost of the item can be measured reliably. The costs of day-to-day servicing of property, plant and equipment are recognised in the Statement of Comprehensive Revenue and Expense.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**Depreciation**

Depreciation is provided on a straight-line basis on all property, plant and equipment at rates that will write off the costs of the assets to their estimated residual values over their useful lives. The useful lives and associated depreciation rates of major classes have been estimated as follows:

	Estimated useful life	Rate
Freehold buildings	10-40 years (depending on age)	2.5%-10%
Building auxiliary services	8-20 years	5%-12.5%
Computer equipment	3-5 years	20%-33%
Plant and scientific equipment	3-15 years	6.7%-33%
Motor vehicles	3-5 years	20%-33%
Office furniture, fittings and equipment	3-10 years	10%-33%

Intangible assets**Research and development costs**

Research costs are expensed as incurred.

Development expenditure incurred on an individual project is carried forward when its future recoverability can reasonably be regarded as assured.

Following the initial recognition of the development expenditure from the point at which the asset is ready to use the cost model is applied requiring the asset to be carried at cost less any accumulated amortisation and accumulated impairment losses.

Any expenditure capitalised is amortised over the period of expected future sales from the related project from the point the asset is ready for use.

The amortisation period and amortisation method for development costs are reviewed at each financial year end. If the useful life or method of consumption is different from that in the previous assessment, changes are made accordingly. The carrying value of development costs is reviewed for indicators of impairment annually.

Computer software

Acquired computer software is capitalised on the basis of the costs incurred to acquire and gain the right to use the specific software.

Computer software development costs recognised as assets are amortised over their estimated useful lives (between three and five years).

The costs of maintaining computer software are expensed as incurred.

Patents

Costs associated with the registration of patents are expensed immediately due to the uncertainty of deriving economic benefits from the commercial use of the patents.

Impairment of property, plant, and equipment and intangible assets

The Group held both cash-generating assets and non-cash-generating assets. Assets are considered cash-generating where their primary objective is to generate a commercial return.

Property, plant, and equipment and intangible assets held at cost that have a finite useful life are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use.

If an asset's carrying amount exceeds its recoverable service amount, the asset is regarded as impaired and the carrying amount is written-down to the recoverable amount. The total impairment loss is recognised in the surplus or deficit. The reversal of an impairment loss is recognised in the surplus or deficit.

Cash-generating assets

Value in use for cash-generating assets is determined by the present value of the estimated future cash flows expected to be derived from the continuing use of the assets and from their disposal at the end of its useful life. The Group use a discount rate that reflects current market assessments of the time value of money and the risks specific to the assets.

Non-cash-generating assets

Value in use for non-cash-generating assets is determined by the present value of the asset's remaining service potential and is determined using an approach based on either a depreciated replacement cost approach, restoration cost approach, or a service units approach. The most appropriate approach used to measure value in use depends on the nature of the impairment and availability of information.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED

Financial assets

Classification:

The group classifies its financial assets in the following measurement categories:

- those to be measured subsequently at fair value (either through OCI or through profit or loss), and
- those to be measured at amortised cost.

The group classifies its financial assets as at amortised cost only if both the following criteria are met:

- The asset is held within a business model whose objective is to collect the contractual cash flows, and
- The contractual terms give rise to cash flows that are solely payments of principal and interest.

All other financial assets not meeting the criteria above are measured at fair value through the operating balance. Financial assets may also be designated as fair value through profit or loss if doing so eliminates or significantly reduces an accounting mismatch.

All financial liabilities are measured at amortised cost.

Measurement:

At initial recognition, the group measures a financial instrument at its fair value plus, in the case of a financial asset not at fair value through profit or loss (FVPL), transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at FVPL are expensed in profit or loss.

Subsequent measurement of financial instruments at amortised cost are measured at amortised cost using effective interest rate method. Any gain or loss arising on derecognition is recognised directly in profit or loss and presented in other gains/(losses) together with foreign exchange gains and losses.

Impairment losses are presented as separate line item in the statement of profit or loss.

For assets that are held at fair value through profit and loss (FVPL), gains and losses are recognised in profit or loss and presented net within other gains/(losses) in the period in which it arises, unless included in a hedge relationship. Gains and losses from interest, foreign exchange and other fair value movements are separately reported in the statement of financial performance. Transaction costs are expensed as they are incurred.

Trade and other receivables

Trade receivables are amounts due from customers for goods sold or services performed in the ordinary course of business. They are generally due for settlement within 30 days and therefore are all classified as current. Trade receivables are recognised initially at the amount of consideration that is unconditional. The group holds the trade receivables with the objective to collect the contractual cash flows and therefore measures them subsequently a amortised cost.

Cash and cash equivalents

Cash and cash equivalents are recognised at amortised cost. Cash and cash equivalents include cash on hand, bank accounts and deposits with an original maturity of no more than three months. They are reported initially and subsequently at the amount invested.

Trade and other payables

Trade and other payables are recognised at amortised cost. Initially and subsequently at the carrying value as being a reasonable approximation to amortised cost as they are typically short term in nature.

Allowances for expected losses

An expected credit loss model is used to recognise and calculate impairment losses for financial assets subsequently measured at fair value through recognition.

The simplified approach to providing for expected credit losses as prescribed by PBE IFRS 9 is applied to trade and other receivables. The simplified approach involves making a provision at an amount equal to the lifetime expected credit loss. The allowance for doubtful debts and trade and other receivables that are individually significant are determined on an individual basis. Those deemed not to be individually significant are assessed on a portfolio basis as they possess shared credit risk characteristics based on the number of days overdue, and taking into account the historical loss experience and incorporating any external and future information.

Derivative financial instruments

Derivatives are initially recognised at fair value on the dates that derivative contracts are entered into and are subsequently re-measured to their fair value.

The method of recognising a resulting gain or loss depends on whether the derivative is designated as a hedging instrument and the nature of the item being hedged. The Group designates certain derivatives as hedges of highly probable forecast transactions (cash flow hedges).

NOTES TO THE FINANCIAL STATEMENTS CONTINUED

The Group documents at the inception of a transaction the relationship between hedging instruments and hedged items as well as its risk management objective and strategy for undertaking various hedge transactions. The Group also documents its assessment, both at hedge inception and on an ongoing basis whether the derivatives that are used in hedging transactions have been and will continue to be highly effective in offsetting changes in cash flows of hedged items.

Cash flow hedge

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognised in equity in the hedge reserve. The gain or loss relating to the ineffective portion is recognised immediately in the Statement of Comprehensive Revenue and Expense. Amounts accumulated in equity are recycled to the Statement of Comprehensive Revenue and Expense in the periods when the hedged items will affect surplus or deficit (for instance when a forecast sale that is hedged takes place). However, when a forecast transaction that is hedged results in the recognition of a non-financial asset (for example inventory) or a non-financial liability, the gains or losses previously deferred in equity are transferred from equity and included in the measurement of the initial cost or carrying amount of the asset or liability. When a hedging instrument expires or is sold or terminated, or when a hedge no longer meets the criteria for hedge accounting, any cumulative gain or loss existing in equity at that time remains in equity and is recognised when the forecast transaction is ultimately recognised in the income statement. When a forecast transaction is no longer expected to occur the cumulative gain or loss that was reported in equity is immediately transferred to the Statement of Comprehensive Revenue and Expense.

Derivatives that do not qualify for hedge accounting

Certain derivative instruments do not qualify for hedge accounting, or hedge accounting has not been adopted. Changes in the fair value of those derivatives that don't qualify for hedge accounting are recognised immediately in surplus or deficit in the Statement of Comprehensive Revenue and Expense.

Inventories

Inventories held for use in the provision of goods and services on a commercial basis are valued at the lower of cost and net realisable value (NRV), where NRV is the estimated selling price in the ordinary course of business

less estimated costs of completion and the estimated costs necessary to make the sale. Raw materials are recognised initially at purchase cost on a first-in, first-out basis.

Work-in-progress

Work-in-progress comprises the cost of any direct materials and labour incurred where a project milestone has not yet been met such that the client has not yet been invoiced.

Provisions

Callaghan Innovation recognises a provision for future expenditure of uncertain amount or timing when there is a present obligation (either legal or constructive) as a result of a past event, it is probable that expenditure will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. Provisions are measured at the present value of the expenditure expected to be required to settle the obligation using a discount rate that reflects a current market assessment of the time value of money and the risks specific to the obligation. The increase in the provision due to the passage of time is recognised as a finance cost.

Leases

Finance leases – lessor

Leases that transfer substantially all the risks and rewards incidental to the ownership of an asset, whether or not title is eventually transferred, are classified as finance leases. When assets are leased out under a finance lease, the present value of the lease payments is recognised as a receivable.

The difference between the gross receivable and the present value of the receivable is recognised as unearned finance income.

Operating leases – lessor

Leases that do not transfer substantially all the risks and rewards incidental to the ownership of an asset are classified as operating leases. When assets are leased out under an operating lease, the asset is included in the Statement of Financial Position based on the nature of the asset. Lease income on operating leases is recognised over the term of the lease on a straight-line basis.

Operating leases – lessee

Leases that do not transfer substantially all the risks and rewards incidental to ownership of an asset to Callaghan Innovation are classified as operating leases. Payments under operating leases are recognised as an expense on a straight line basis over the lease term.

Employee benefits

Short-term employee entitlements

Employee entitlements that Callaghan Innovation expects to be settled within 12 months of balance date are measured at the undiscounted amount expected to be paid based on accrued entitlements at current rates of pay. These include salaries and wages accrued up to balance date, annual leave earned but not yet taken at balance date, retirement and long service leave entitlements expected to be settled within 12 months.

Long-term employee entitlements

Entitlements that are payable beyond 12 months, such as long service leave and retirement leave, have been calculated on an actuarial basis.

The calculations are based on:

- Likely future entitlements accruing to staff, based on years of service, years to entitlement, the likelihood that staff will reach the point of entitlement and contractual entitlements information.
- The present value of estimated future cash flows. The discount rate is based on risk-free discount rates published by the New Zealand Treasury

An estimate of the average increase in remuneration for employees over the discount period is included in the calculation.

Superannuation schemes

Obligations for contributions to Kiwi Saver and the Government Superannuation Fund are accounted for as a defined contribution superannuation scheme and are recognised as an expense in the Statement of Comprehensive Revenue and Expense as incurred.

Termination benefits

Termination benefits are payable when employment is terminated by the Group before the normal retirement date or when an employee accepts voluntary redundancy in exchange for these benefits. The Group recognises termination benefits at the earlier of the following dates (a) when the Group can no longer withdraw the offer of those benefits; and (b) when the Group recognises a provision for costs for a restructuring and involves the payment of termination benefits. In the case of an offer made to encourage voluntary redundancy, the termination benefits are measured on the number of employees expected to accept the offer. Benefits falling due more than 12 months after the end of the reporting period are discounted to present value.

Income tax

Callaghan Innovation (parent entity) is a crown agent and is consequently exempt from paying income tax. New Zealand Food Innovation Auckland Limited and New Zealand Food Innovation (South Island) Limited, acquired during the year, are tax paying entities.

Income tax expense is the aggregate of current period movements in relation to both current and deferred tax. Current tax is the amount of income tax payable based on the taxable surplus for the current year, plus any adjustments to income tax payable in respect of prior years. Current tax is calculated using tax rates (and tax laws) that have been enacted or substantively enacted at balance date.

Deferred tax is the amount of income tax payable or recoverable in future periods in respect of temporary differences and unused tax losses. Temporary differences are differences between the carrying amount of assets and liabilities in the financial statements and the corresponding tax bases used in the computation of taxable surplus. Deferred tax is measured at the tax rates that are expected to apply when the asset is realised or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at balance date.

The measurement of deferred tax reflects the tax consequences that would follow from the manner in which the group expects to recover or settle the carrying amount of its assets and liabilities. Deferred tax liabilities are generally recognised for all taxable temporary differences. Deferred tax assets are recognised to the extent that it is probable that taxable surpluses will be available against which the deductible temporary differences or tax losses can be utilised. Current and deferred tax is recognised against the surplus or deficit for the period, except to the extent that it relates to items recognised in other comprehensive revenue or equity.

Goods and Services Tax (GST)

All items in the financial statements are presented exclusive of GST, except for trade receivables and trade payables, which are presented on a GST inclusive basis. Where GST is not recoverable as an input tax then it is recognised as part of the related asset or expense. The net amount of GST recoverable from or payable to the Inland Revenue Department is included as part receivables or payables in the Statement of Financial Position. The net GST paid to or received from the Inland Revenue Department including the GST relating to investing or financing activities is classified as an operating cash flow in the Statement of Cash Flows. Commitments and contingencies are disclosed exclusive of GST.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**2. REVENUE**

	GROUP 2019 ACTUAL \$000	GROUP 2018* ACTUAL \$000
Crown revenue – exchange transactions		
Ministry of Business Innovation and Employment – Operational funding including Research and Development	82,412	78,944
Crown revenue – non-exchange transactions		
Ministry of Business Innovation and Employment – Research and Development Grants	242,787	201,814
Total Crown and other revenue	325,199	280,758
Commercial and other revenue – exchange transactions		
Commercial – domestic	7,918	8,565
Commercial – overseas	15,935	10,985
Royalty and licensing income	77	361
Property and equipment rental	1,184	1,673
Other revenue	2,071	1,725
Interest revenue	1,164	1,081
Total commercial and other revenue	28,349	24,390
Total revenue	353,548	305,148

Callaghan Innovation received operational funding from the Crown for specific purposes as set out in the Output Agreement and the scope of the relevant Government appropriations.

Callaghan Innovation received grant funding from the Crown to pay research and development grants to New Zealand businesses as set out in the Statement of Intent and the scope of the relevant Government appropriations.

* The 2018 Crown revenue-exchange transactions comparative has been restated to recognise funding received for the National Science Challenge (\$10,686,000) and the BioResource Processing Alliance (\$2,346,000) received as principal and not agent. Total 2018 Crown funding recognised is \$78,944,000 (previously \$65,912,000). Total 2018 Science project and subcontract costs have increased by a corresponding amount to a total of \$24,533,000 (previously \$11,501,000), resulting in a net nil impact to surplus for the period.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**3. EXPENDITURE**

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL \$000
Personnel costs include:		
Salary and wages	49,248	45,444
Defined contribution plan employer contributions	1,311	1,271
	<hr/> 50,559	<hr/> 46,715
Severance payments		
Severance payments include any consideration (monetary or non-monetary) provided to any employee in respect of the termination of their employment with Callaghan Innovation.		
Severance payments	910	520
Number of employees	23	14
Other expenses include:		
Repairs and maintenance	1,822	3,055
Premises and utility expenses	2,622	3,160
Fees to PricewaterhouseCoopers		
- For auditing the financial statements	136	140
- Other assurance services	10	-
Directors' fees	234	256
Rent and lease expenses	2,411	2,444
Donations	8	4
Loss on disposal of fixed assets	317	235
Foreign exchange losses	312	52
Intellectual property (patents)	166	196

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**4. GRANT EXPENSE**

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL \$000
Grants approved for which recipients can demonstrate they have met grant conditions.	242,787	201,814
Total grants expense	242,787	201,814

5. CASH AND TERM DEPOSITS

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL \$000
Cash at bank	3,823	2,491
Term deposits	38,000	25,570
Total cash and term deposits	41,823	28,061

Various term deposits were held at 30 June 2019 for periods of between 66 and 146 days.

The carrying value of cash at bank and term deposits approximates their fair value.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**6. EQUITY**

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL \$000
CONTRIBUTED CAPITAL		
Balance at 1 July 2018	66,443	52,873
Capital contribution	21,152	13,570
BALANCE AT 30 JUNE 2019	87,595	66,443
ACCUMULATED SURPLUS		
Balance at 1 July 2018	7,375	7,358
Surplus for the period	1,002	17
BALANCE AT 30 JUNE 2019	8,377	7,375
HEDGE RESERVE		
Balance at 1 July 2018	(248)	86
Fair value gain (loss) for the period	366	(334)
BALANCE AT 30 JUNE 2019	118	(248)
TOTAL EQUITY AT 30 JUNE 2019	96,090	73,570

A capital contribution of \$21,152,000 (2018: \$13,570,000) was received on 20th December 2018.

The capital appropriation funded from the Ministry of Business Innovation and Employment is used to fund the purchase and development of assets for the use of Callaghan Innovation and therefore has been treated as a capital contribution rather than revenue.

The hedge reserve is used to record gains or losses on foreign exchange forward contracts in a cash flow hedge. The amounts accumulated in the hedge reserve are reclassified to the Statement of Comprehensive Revenue and Expense when the associated hedge transaction affects surplus or deficit.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**7. TAXATION**

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL \$000
Opening balance	-	-
Acquired through business combination	6	-
Current Tax (Payable) / Receivable	6	-

Deferred Tax Assets / (Liabilities)

	Other provisions	Work In Progress/PPE	Total
Balance as 1 July 2018	-	-	-
Acquired through business combination	35	(802)	(767)
BALANCE AT 30 JUNE 2019	35	(802)	(767)

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**8. TRADE AND OTHER RECEIVABLES**

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL \$000
Current		
Debtors	3,351	4,332
Less: Provision for impairment	(124)	(299)
	<hr/> 3,227	<hr/> 4,033
Accrued income	245	398
Other receivables	44	207
Prepayments	1,502	918
Finance leases – gross receivables	-	415
Unearned finance income	-	(15)
	<hr/> -	<hr/> 400
	<hr/> 5,018	<hr/> 5,956
Crown debtor grants (non-exchange)		
Ministry of Business, Innovation and Employment – grants receivable	120,456	106,010
	<hr/> 120,456	<hr/> 106,010
Gross receivables from finance leases		
- Less than 1 year	-	415
- Greater than 1 year but less than 5 years	-	-
- Greater than 5 years	-	-
	<hr/> -	<hr/> 415
Unearned finance income	-	(15)
	<hr/> -	<hr/> 400
Net investment in finance leases	<hr/> -	<hr/> 400

NOTES TO THE FINANCIAL STATEMENTS CONTINUED

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL \$000
Net investment in finance leases:		
- Less than 1 year	-	400
- Greater than 1 year but less than 5 years	-	-
- Greater than 5 years	-	-
	-	400

The carrying amount of trade receivables are equivalent to fair values.

Trade receivables includes amounts due from related parties see note 22 for details.

(a) Provision for impairment

At 30 June 2019 the provision for impairment of trade receivables is \$124,000 (2018: \$299,000).

The provision for impairment includes allowance for both specific impaired trade debtor balances of \$111,000 and an allowance for expected losses of \$13,000.

The allowance for expected losses has been calculated based on historic loss rate over 5 years of 0.47%.

The impaired receivables were from a number of customers.

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL \$000
Opening balance	299	62
Released	(299)	(62)
Recognised during the period	124	299
CLOSING BALANCE	124	299

(b) Past due but not impaired

At 30 June 2019 trade receivables of \$1,349,000 (2018: \$2,361,000) were past due but not impaired.

These relate to a number of independent customers for whom there is no recent history of default.

The aging of trade receivables is as follows:

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL \$000
Within 1 month	493	1,689
Within 1 to 3 months	128	191
Beyond 3 months	728	481
	1,349	2,361

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**9. PROPERTY, PLANT AND EQUIPMENT**

GROUP	Land Assets \$000	Buildings Assets \$000	Plant Assets \$000	Total Actual \$000
1 July 2018				
Cost	3,001	25,341	32,958	61,300
Accumulated depreciation	-	(7,410)	(14,516)	(21,926)
Carrying amount	3,001	17,931	18,442	39,374
For the year ended 30 June 2019				
Carrying amount at 1 July 2018	3,001	17,931	18,442	39,374
Addition through business combination	-	18	3,401	3,419
Additions	-	5,589	6,794	12,383
Disposals	-	-	(55)	(55)
Depreciation	-	(2,260)	(4,943)	(7,203)
Carrying amount at 30 June 2019	3,001	21,278	23,639	47,918
Cost	3,001	30,955	42,997	76,953
Accumulated depreciation	-	(9,677)	(19,358)	(29,035)
Carrying amount	3,001	21,278	23,639	47,918

NOTES TO THE FINANCIAL STATEMENTS CONTINUED

GROUP	Land Assets \$000	Buildings Assets \$000	Plant Assets \$000	Total Actual \$000
1 July 2017				
Cost	3,001	22,145	26,146	51,292
Accumulated depreciation	-	(5,882)	(11,048)	(16,930)
Carrying amount	3,001	16,263	15,098	34,362
For the year ended 30 June 2018				
Carrying amount at 1 July 2017	3,001	16,263	15,098	34,362
Additions	-	3,424	7,750	11,174
Disposals	-	(24)	(122)	(146)
Depreciation	-	(1,732)	(4,284)	(6,016)
Carrying amount at 30 June 2018	3,001	17,931	18,442	39,374
Cost	3,001	25,341	32,958	61,300
Accumulated depreciation	-	(7,410)	(14,516)	(21,926)
Carrying amount	3,001	17,931	18,442	39,374
			GROUP 2019 \$000	GROUP 2018 \$000
Capital work in progress			7,664	4,996

The majority of assets under capital work in progress are specialised equipment \$828,000, buildings \$6,525,000 and intangible assets \$311,000 (2018: buildings \$1,531,000, specialised equipment \$3,465,000).

Insurable values of fixed assets

The Group has established, maintains and regularly reviews comprehensive cover for business insurance. As part of this cover, it insures its fixed assets at either demolition, indemnity or replacement values. In line with other businesses in the Wellington region, the Group faces higher rates of exclusions on the fixed asset replacement policies. The Group has total insurable assets of \$259 million with an earthquake loss limit of \$115 million. The earthquake insurance deductible is \$10 million.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**10. INTANGIBLE ASSETS**

	GROUP 2019 Software \$000	GROUP 2018 Software \$000
Balance at 1 July 2018		
Cost	4,345	3,148
Accumulated amortisation	(1,304)	(1,099)
Opening carrying amount	3,041	2,049
For the year ended 30 June 2019		
Addition through business combination	58	-
Additions	440	1,719
Disposals	(273)	(122)
Amortisation charge	(969)	(605)
Balance at 30 June 2019		
Cost	4,286	4,345
Accumulated amortisation	(1,989)	(1,304)
Closing carrying amount	2,297	3,041

Intangible assets consists of computer software acquired from third parties.

11. INVESTMENT IN CONTROLLED ENTITIES

The Parent's investment in controlled entities comprises shares at cost. Controlled entities comprise:

Name of entity	Principal activities	Interest held by the Group 30 June 2019	Interest held by the Group 30 June 2018
Non-trading controlled entities			
Callaghan Innovation Research Limited	Non-operating	100%	100%
Glycosyn Technologies Limited	Non-operating - name protection	100%	100%
KiwiStar Optics Limited	Non-operating - name protection	100%	100%
New Zealand Food Innovation (South Island) Limited	Food innovation company	100%	49.9% *
New Zealand Food Innovation Auckland Limited	Food innovation company	100%	67% **

* New Zealand Food Innovation (South Island) Limited was held as an investment in associate as at 30 June 2018.

Following a business combination as outlined in note 13, this is an investment in a controlled entity as at 30 June 2019.

** New Zealand Food Innovation Auckland Limited was held as an investment in joint venture as at 30 June 2018.

Following a business combination as outlined in note 13, this is an investment in a controlled entity as at 30 June 2019.

All controlled entities have 30 June balance dates.

All controlled entities are incorporated in New Zealand.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**12. INVESTMENT IN JOINT VENTURES AND ASSOCIATES**

	GROUP 2019	GROUP 2018
Details of associates		
Associates comprise the following:		
Name of entity	Principal Activities	
New Zealand Food Innovation (Waikato) Limited	Food innovation company	30.0%
New Zealand Food Innovation (South Island) Limited	Food innovation company	100.0%
		30.0%
		49.9% *

* New Zealand Food Innovation (South Island) Limited was held as an investment in associate as at 30 June 2018. Following a business combination as outlined in note 13, this is an investment in a controlled entity as at 30 June 2019.

Investment in associates

On 13th October 2014 Callaghan Innovation purchased a 30% shareholding in New Zealand Food Innovation (Waikato) Limited for \$3,000,000. As Callaghan Innovation does not control but has significant influence over New Zealand Food Innovation (Waikato) Limited, its interest in the associate is accounted for via the equity method. The fair value of the identifiable assets and liabilities of New Zealand Food Innovation (Waikato) Limited was determined via independent valuation on acquisition.

On 1 December 2017, the Hamilton City Council sold 100% of Waikato Innovation Park Limited. Prior to the sale, Hamilton City Council transferred its 70% share ownership of New Zealand Food Innovation (Waikato) Limited to a newly established council control organisation called Waikato Innovation Growth Limited. On sale date, Hamilton City Council further injected \$4 million from the sale proceeds into New Zealand Food Innovation (Waikato) Limited. To maintain Callaghan's 30% shareholding of New Zealand Food Innovation (Waikato) Limited \$1.2 million was allocated to Callaghan Innovation. Callaghan Innovation has recognised this \$1.2 million one-off gain in its 2018 surplus.

New Zealand Food Innovation (Waikato) Limited

	ACTUAL 2019 \$000	ACTUAL 2018 \$000
Current assets	2,483	3,533
Non-current assets	22,675	18,914
Current liabilities	(1,097)	(940)
Non-current liabilities	(10,067)	(10,338)
Total revenue	11,163	7,100
Total expenditure	(9,891)	(6,688)
Net surplus/(deficit)	1,272	412
Results of the associate		
Share of surplus/(deficit)	382	1,324
Interest in associate		
Carrying amount at beginning of year	4,122	2,798
Acquisition at fair value	-	-
Impairment of acquisition value	-	-
Share of surplus/(deficit)	382	1,324
Carrying value at the end of the year	4,504	4,122

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**New Zealand Food Innovation (South Island) Limited**

On 30th November 2014 Callaghan Innovation purchased a 49.9% shareholding in New Zealand Food Innovation (South Island) Limited for \$1.00. As Callaghan Innovation did not control but had significant influence over New Zealand Food Innovation (South Island) Limited at 30 June 2018, its interest in the associate was accounted for via the equity method.

On 28th June 2019 Callaghan Innovation purchased the remaining 50.1% shareholding in New Zealand Food Innovation (South Island) Limited for \$1.00. As Callaghan Innovation holds 100% equity stake as at 30 June 2019, it has been accounted for as an investment in controlled entity as outlined in note 13.

	ACTUAL 2019 \$000	ACTUAL 2018 \$000
Current assets	-	1,316
Non-current assets	-	2,024
Current liabilities	-	(1,058)
Total revenue	1,293	1,834
Expenditure	(1,441)	(1,059)
Net (deficit) / surplus	(148)	775
Results of the associate		
Share of (deficit) / surplus	(74)	386
Interest in associate		
Carrying amount at beginning of year	1,127	741
Share of (deficit) / surplus	(74)	386
Disposal as part of Business Combination	(1,053)	-
Carrying value at the end of the year	-	1,127

Investment in joint venture

On 1 August 2013 Callaghan Innovation purchased a 67% shareholding in New Zealand Food Innovation Auckland Limited for \$1.00. While Callaghan Innovation is the majority owner of New Zealand Food Innovation Auckland Limited, the shareholder agreement requires the unanimous consent of all owners for strategic financial and operating decisions. Callaghan Innovation jointly controls New Zealand Food Innovation Auckland Limited and its interest in the joint venture is accounted for via the equity method.

The fair value of the identifiable assets and liabilities of New Zealand Food Innovation Auckland Limited was determined via independent valuation on acquisition. A purchase gain of \$4,400,000 was recognised in the Statement of Comprehensive Revenue and Expense in the 2014 financial year to recognise the difference between fair value and the purchase price of \$1.00.

On 28th June 2019 Callaghan Innovation purchased the remaining 33% shareholding in New Zealand Food Innovation Auckland Limited for \$1.00. As Callaghan Innovation holds a 100% equity stake as at 30 June 2019, it has been accounted for as an investment in controlled entity as outlined in note 11.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**New Zealand Food Innovation Auckland Limited**

	ACTUAL 2019 \$000	ACTUAL 2018 \$000
Total		
Current assets	-	1,242
Non-current assets	-	7,208
Current liabilities	-	(388)
Non-current liabilities	-	(2,001)
Results of the joint venture		
Revenue	4,052	3,870
Expenditure	(4,837)	(4,100)
Net (deficit) / surplus	(785)	(230)
Share of (deficit) / surplus	(526)	(154)
Interest in joint venture		
Carrying amount at beginning of year	4,078	4,232
Share of surplus / (deficit)	(526)	(154)
Disposal as part of Business Combination	(3,552)	-
Carrying value at the end of the year	-	4,078

All joint venture and associates have 30 June balance dates.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**13. BUSINESS COMBINATIONS****New Zealand Food Innovation (South Island) Limited**

As at 30 June 2018 Callaghan Innovation held a 49.9% equity stake in New Zealand Food Innovation (South Island) Limited, accounted for as an investment in associate. On 28 June 2019, the group acquired the remaining 51.1% of the share capital of New Zealand Food Innovation (South Island) Limited for \$1. The acquisition has taken place so the Crown has 100% control of the company.

The following table summarises the consideration paid, the fair value of assets acquired and liabilities assumed.

	<u>\$000</u>
Consideration paid at 28 June 2019	-
Fair value of interest in New Zealand Food Innovation (South Island) Limited before the business combination	<u>822</u>
Total Consideration	<u>822</u>
	<u>FAIR VALUE</u>
Recognised amounts of identifiable assets acquired and liabilities assumed	<u>\$000</u>
Cash, and cash equivalents	1,127
Trade and other receivables	56
Deferred tax	8
Property, plant and equipment	614
Trade and other payables	(157)
Total identifiable assets	<u>1,648</u>
Bargain Purchase	<u>826</u>

The gain of \$826,000 is recognised in the Statement of Comprehensive Revenue and Expenses in Gain on Business Combination. The transaction resulted in a gain due to the low purchase price. Acquisition related costs of \$12,934 have been charged to other expenses in the Statement of Comprehensive Revenue and Expenses for the year ended 30 June 2019.

The fair value of trade receivables is \$32,000. The gross contracted amount for trade receivables due is \$32,000 all of which is expected to be collectible.

The Group recognised a loss of \$231,000 as a result of measuring at fair value its 49.9% equity interest in New Zealand Food Innovation (South Island) Limited held before the business combination. The loss has been offset against the bargain purchase gain in the Statement of Comprehensive Revenue and Expense in Gain on Business Combination.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**New Zealand Food Innovation Auckland Limited**

As at 30 June 2018 Callaghan Innovation held a 67% equity stake in New Zealand Food Innovation Auckland Limited, accounted for as an investment in joint venture. On 28 June 2019, the group acquired the remaining 33% of the share capital of New Zealand Food Innovation Auckland for \$1.

The acquisition has taken place so the Crown has 100% control of the company.

The following table summarises the consideration paid, the fair value of assets acquired and liabilities assumed.

	<u>\$000</u>
Consideration paid at 28 June 2019	-
Fair value of interest in New Zealand Food Innovation Auckland Limited before the business combination	<u>2,263</u>
Total Consideration	<u>2,263</u>
	<u>FAIR VALUE</u>
Recognised amounts of identifiable assets acquired and liabilities assumed	<u>\$000</u>
Cash, and cash equivalents	1,261
Trade and other receivables	335
Property, plant and equipment	2,805
Intangibles	58
Trade and other payables	(298)
Deferred Tax	(775)
Borrowings	(8)
Total identifiable assets	<u>3,378</u>
	<u>1,115</u>
Bargain Purchase	<u>1,115</u>

The gain of \$1,115,000 is recognised in the Statement of Comprehensive Revenue and Expenses in Gain on Business Combination. The transaction resulted in a gain due to the low purchase price. Acquisition related costs of \$12,934 have been charged to other expenses in the Statement of Comprehensive Revenue and Expenses for the year ended 30 June 2019.

The fair value of trade receivables is \$314,000. The gross contracted amount for trade receivables due is \$314,000 all of which is expected to be collectible.

The Group recognised a loss of \$1,289,000 as a result of measuring at fair value its 67% equity interest in New Zealand Food Innovation Auckland Limited held before the business combination. The loss has been offset against the bargain purchase gain in the Statement of Comprehensive Revenue and Expense in Gain on Business Combination.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**14. EMPLOYEE BENEFITS**

	GROUP 2019 \$000	GROUP 2018 \$000
Current		
Employee entitlements	817	501
Long service and retiring leave	261	230
Annual leave	2,583	2,823
Sick leave	-	-
	3,661	3,554
Non-current		
Long service and retiring leave	199	202

The retiring leave provision was calculated based on risk-free discount rates published by the New Zealand Treasury. The risk free discount rates range from 1.26% in 2019 to 2.57% for years to 2036. The inflation factor is based on the expected long term increase in remuneration for employees currently forecast at 2.92%.

15. FUNDS RECEIVED IN ADVANCE

	GROUP 2019 \$000	GROUP 2018 \$000
Payable under exchange transactions		
Government and other revenue received in advance	161	45
Funds held on behalf of third parties	828	6,717
	989	6,762

Funds received in advance represent funding received on behalf of third parties for agency activities and revenue received from government and other customers for project work not completed at 30 June.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**16. TRADE AND OTHER PAYABLES**

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL \$000
Payables under exchange transactions		
Trade creditors	4,487	3,020
Other payables	4,890	5,119
Total payables under exchange transactions	9,377	8,139
Payables under non-exchange transactions		
Goods and services tax (GST) payable	115	14
Total payables under non-exchange transactions	115	14
Total trade and other payables	9,492	8,153

The carrying amounts of the above items are equivalent to the fair values.

Trade payables includes amounts due to related parties (see note 22 for details).

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**17. RECONCILIATION OF SURPLUS WITH
CASH FLOW FROM OPERATING ACTIVITIES**

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL* \$000
Net surplus for the period	1,002	17
<i>Add/(less) non-cash items:</i>		
Depreciation	7,203	6,016
Amortisation of intangible assets	969	605
Share of (surplus)/deficit joint venture and associate	218	(1,556)
Loss on sale of fixed assets	317	235
Proceeds on sale of fixed assets classified as investing activity	11	3
Gain on business combinations	(421)	-
Impairment	674	-
<i>Add/(less) movements in working capital:</i>		
Trade and other receivables	(13,517)	(30,215)
Inventory	83	107
Work in progress	(199)	(360)
Funds received in advance	(5,773)	1,328
Employee benefits	104	(706)
Trade and other payables	15,330	24,158
Derivative financial instrument	-	(334)
NET CASH FLOWS FROM OPERATING ACTIVITIES	6,001	(702)

* The statement of cash flows for the year ended 30 June 2018 has been restated in these financial statements. Within cash flows from operating activities receipts from the Crown – grants have been restated to \$172,224,000 from \$201,439,000, Payments to grant recipients have been restated to (\$172,599,000) from (\$201,814,000), and receipts from commercial customers have been restated to \$22,321,000 from \$20,648,000. Finance lease receivables within cash flows from investing activities have been adjusted to \$728,000 from \$2,401,000. This is to reflect the actual cash flows of the group for these line items. There is no impact on the net decrease in cash and cash equivalents.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**18. CRITICAL ACCOUNTING ESTIMATES AND JUDGEMENTS****Critical accounting estimates and assumptions**

The Group makes estimates and assumptions concerning the future. Estimates and adjustments are continually evaluated and are based on historical experience and other factors including expectations of future events that are believed to be reasonable under the circumstances.

(a) Fair value of long service and retiring leave

The long service and retiring leave liability is determined by use of estimates of retiring age, probability of meeting retirement criteria and discounting future estimated payments. The liability at 30 June 2019 was calculated internally using a discounted cash flow model. Using the discounted cash flow model the liability was calculated for 2019 at \$327,696 (2018: \$431,849).

Adjusting the discount rate down/up 1.0% results in a decrease/increase of the 2019 retiring/long service leave liability balance and end of period surplus of \$9,000 decrease/increase (2018: \$12,000 decrease/increase).

(b) Fair value of subsidiary on acquisition

The fair valuation of New Zealand Food Innovation Auckland Limited and New Zealand Food Innovation (South Island) Limited was determined by an independent valuation of the businesses including an independent expert Property, Plant & Equipment valuation.

(c) Grant obligations and debtor

At balance date for each different grant type an assessment is made based on historical data of the probability of a grant recipient having incurred qualifying expenditure for which a claim has not yet been received.

Based upon this assessment an accrual for grants obligations is made and a receivable is recognised in the financial statements of \$120,456,000 (2018: \$106,010,000). Payments against the 30 June 2019 accrual are expected to be made during the 2019/20 financial year.

	GROUP 2019 ACTUAL \$000	GROUP 2018 ACTUAL \$000
Payable and Receivable under non-exchange transactions		
Grant obligations and debtor	120,456	106,010
Total grant obligations and debtor	120,456	106,010

(d) Revenue

Some revenue for the Group is project based. Revenue is recognised on an accruals basis in the Statement of Comprehensive Revenue and Expense when it is earned. Managers review projects and provide an assessment of project status.

Based upon this assessment revenue in advance adjustments are made to the financial statements 2019: \$161,000 (2018: \$45,000).

Critical judgement in applying the Group's accounting policy**(a) Grants (Crown revenue)**

The Group receives funding for grants which it then distributes to businesses in order to support science and technology based innovation. The Group's view is that it is acting as principal in the transaction given it is the Group's responsibility to allocate the funding, manage the contracts and deal directly with the grant recipients.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED

19. FINANCIAL INSTRUMENTS BY CATEGORY

	GROUP \$000	GROUP \$000
As at 30 June 2019		
Financial assets		
Cash and term deposits	41,823	-
Crown debtor – grants	120,456	-
Derivative financial instruments	-	118
Debtors and other receivables	3,516	-
	165,795	118
	GROUP \$000	GROUP \$000
	Financial Assets at amortised cost	Derivatives used for hedging at fair value
Financial liabilities		
Creditors and other payables	9,492	-
Grant obligations	120,456	-
Employee benefits	3,400	-
	133,348	-
	GROUP \$000	GROUP \$000
	Liabilities at amortised cost	Derivatives used for hedging at fair value
As at 30 June 2018		
Financial assets		
Cash and term deposits	28,061	-
Crown debtor – grants	106,010	-
Debtors and other receivables	5,038	-
	139,109	-
	GROUP \$000	GROUP \$000
	Loans and Receivables	Derivatives used for hedging
Financial liabilities		
Creditors and other payables	8,153	-
Grant obligations	106,010	-
Derivative financial instruments	-	248
Employee benefits	3,324	-
	117,487	248

The only financial instruments held at fair value are foreign exchange contracts \$118,182 asset (2018: \$247,675 liability). These are level 2 instruments in the fair value hierarchy and have been valued using balance date financial institution valuations.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED

20. FINANCIAL RISK MANAGEMENT

The Group's activities expose it to a variety of financial risks, market risk (including currency risk and interest rate risk), credit risk and liquidity risk.

The Group's overall risk management programme seeks to minimise potential adverse effects on the Group's financial performance.

The Group uses derivative financial instruments to hedge certain risk exposures. Risk management is carried out under policies approved by the board of directors. Management identifies, evaluates and hedges financial risks in consultation with operational units.

The board approves the overall risk management policies covering specific areas such as foreign exchange risk, interest rate risk, credit risk, use of derivative financial instruments and non-derivative financial instruments, and investment of excess liquidity.

(a) Market risk

Foreign exchange risk

The Group operates and generates commercial revenue internationally and is exposed to foreign exchange risk arising from various currency exposure, primarily with respect to the US dollar and Australian dollar.

The Group's primary objective in managing foreign currency risk is to provide certainty of New Zealand dollar net cash flows. To manage the foreign exchange risk the Group use forward exchange contracts.

Group finance treasury policy is to hedge between 50% and 100% of anticipated cash flows (mainly overseas revenue receipts and purchase of materials). A process of

natural hedge and forward cover contracts are used to hedge foreign currency risk.

Between 60% and 70% of foreign currency receipts are used to purchase goods payable in foreign currency. Forward cover contracts are utilised to repatriate remaining foreign currency balances.

Forward exchange contract volatility on designated hedged transactions is accounted for through the cash flow hedge reserve. For the period ended 30 June 2019 the balance of the cash flow hedge reserve representing unexpired designated hedged foreign exchange contracts was \$118,182 (gain) (2018: \$247,675 loss).

At 30 June 2019, if the currency had strengthened/weakened by 10% against the US dollar with other variables held constant, surplus for the period (Group) would have been: strengthened \$84,000 lower, weakened \$103,000 higher (2018: strengthened \$143,000 lower, weakened \$174,000 higher) as the result of foreign exchange translation of US dollar denominated trade receivables/payables.

At 30 June 2019, if the currency had strengthened/weakened by 10% against the Australian dollar with other variables held constant, surplus for the period (Group) would have been: strengthened \$9,000 lower, weakened \$11,000 lower (2018: strengthened \$50,000 lower, weakened \$61,000 lower) as the result of translation of Australian dollar denominated trade receivables/payables.

At 30 June 2019, the Group has forward foreign exchange contracts for the sale and purchase of currencies to cover firm foreign currency denominated receipts and payments. Details of forward foreign exchange contracts outstanding at balance date are:

Outstanding contracts	GROUP 2019		GROUP 2018	
	Currency (Thousands)	Contract value NZD\$000	Currency (Thousands)	Contract value NZD\$000
Bank buys				
United States dollar	2,495	3,667	3,165	4,467
Australian dollar	64	67	818	867
Euro	2,035	3,620	2,531	5,632
Bank sells				
United States dollar	842	1,212	1,018	1,450

All forward foreign exchange contracts are due for settlement within 12 months of balance date.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**(b) Interest rate risk**

The Group has interest-bearing assets arising from short term cash deposits. However, the Group's income and operating cash flows are substantially independent of changes in market interest rates. Excess funds are invested in New Zealand registered banks with a minimum Standard and Poor's rating of A- or better.

(c) Credit risk

Financial instruments which potentially subject the Group to credit risk principally consist of bank deposits, trade and other receivables, and foreign exchange contracts.

Credit risk is minimised as a result of several key controls:

- maintaining maximum limits for each broad class of counterparty and individual counterparties
- limiting investments to organisations with a long term Standard & Poor's credit rating of A- or better and
- controlling the level and spread of trade and other receivables outstanding.

There are no significant concentrations of credit risk other than the receivable from MBIE in respect of grants.

(d) Liquidity risk

Liquidity risk is the risk that Callaghan Innovation cannot meet its financial obligations in full.

The Group maintains sufficient liquid bank deposits to conservatively manage its liquidity requirements without the requirement for bank credit facilities.

The Group's financial assets and liabilities and net settled derivative financial liabilities are all due within 12 months of balance date.

The amounts disclosed in the table are the contractual undiscounted cash flows.

	GROUP 2019 Less than One Year \$000	GROUP 2018 Less than One Year \$000
Cash and term deposits	41,823	28,061
Trade and other receivables	5,018	5,956
Crown debtor – grants	120,456	106,010
Trade and other payables	(9,492)	(8,153)
Grant obligations	(120,456)	(106,010)
Employee benefits	(3,661)	(3,554)

The Group's derivative financial instruments which will be settled on a gross basis within 12 months of balance date.

The amounts disclosed in the table are the contractual undiscounted cash flows.

	GROUP 2019 Less than One Year	GROUP 2018 Less than One Year
Forward foreign exchange contracts		
– cash flow hedges		
Inflow	7,354	10,966
Outflow	(1,212)	(1,450)

The Group holds no forward foreign exchange contracts for trading purposes.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**21. CAPITAL RISK MANAGEMENT**

The Group capital comprises general funds which represents capital invested by the Crown and accumulated funds. Equity is represented by net assets.

There has been no material change in the management of capital during the year.

Callaghan Innovation manages its net assets to ensure that the entity achieves its objectives and purpose while remaining a going concern.

22. RELATED PARTY DISCLOSURES**General**

Callaghan Innovation is a wholly owned entity of the Crown.

Transactions with other government agencies (for example, Government departments and Crown entities) are not disclosed as related party transactions when they are consistent with the normal operating arrangements between government agencies and undertaken on the normal terms and conditions for such transactions.

Transactions with Joint Ventures and Associates

	GROUP 2019 \$000	GROUP 2018 \$000
Sales of services and general recoveries		
- New Zealand Food Innovation Auckland Limited	13	11
- New Zealand Food Innovation (South Island) Limited	12	10
- New Zealand Food Innovation (Waikato) Limited	28	29
	53	50
Operational and project funding		
- New Zealand Food Innovation Auckland Limited	2,253	2,056
- New Zealand Food Innovation (South Island) Limited	625	599
- New Zealand Food Innovation (Waikato) Limited	80	80
	2,958	2,735

All trading transactions with the above entities are on a commercial basis.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED

	GROUP 2019 \$000	GROUP 2018 \$000
KEY MANAGEMENT PERSONNEL COSTS		
Board members		
Remuneration	225	256
Full-time equivalent members	1.0	1.0
Leadership team		
Remuneration	2,876	2,389
Other benefits other than remuneration and other short term cash benefits	-	-
Total full time equivalent personnel	9.7	7.1
	3,101	2,645

23. COMMITMENTS AND CONTINGENCIES

	GROUP 2019 \$000	GROUP 2018 \$000
CAPITAL COMMITMENTS		
Commitments for capital expenditure budgeted and approved		
Buildings	5,814	2,315
Plant	4,220	-
TOTAL CAPITAL COMMITMENTS	10,034	2,315

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**OPERATING COMMITMENTS**

Commitments for non-cancellable operating leases, grant contractual obligations and other operating commitments:

	GROUP 2019 \$000	GROUP 2018 \$000
Not later than one year	2,773	1,925
Later than one year and not later than five years	9,488	4,618
Later than five years	3,962	1,949
TOTAL OPERATING COMMITMENTS	16,223	8,492

Leased assets comprise computer hardware, computer software, office equipment and property.

Grant commitments

	GROUP 2019 \$000	GROUP 2018* \$000
Grant commitments for those grant contracts awarded but yet to be drawn down	538,033	608,803

* The 2018 comparative has been restated to take account of the Group's total grant commitments for those grant contracts awarded but not yet drawn down.

Operating leases rental receivables – group company as lessor

	2019 \$000	2018 \$000
No later than 1 year	459	583
Later than 1 year and no later than 5 years	-	14
Later than 5 years	-	-
	459	597

The Group leases property under various agreements which terminate in 2020.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**CONTINGENCIES**

Contingent asset	GROUP 2018 \$000	GROUP 2017 \$000
Repayable incubator grants	16,125	14,983

Incubator grants are repayable once the grant recipients product produces commercial revenue. A percentage of the commercial revenue generated is payable to Callaghan Innovation as repayment of the outstanding loan each year until the loan is repaid. Due to these grants only being made since 2014/15 there is limited information on which to assess the timing of any future repayments from grant recipients and the likely quantum of such repayments.

During 2018 there was a fire in one of the research buildings at the Gracefield site, resulting in damage to the building, plant and equipment.

The Group held insurance policies at the date of the fire that provided cover for contents of \$3.1 million, building restatement of \$3.9 million, and building indemnity of \$0.3 million. It is probable that the policies will enable the Group to obtain a reimbursement for various costs incurred as a result of the fire however there is insufficient information to form a reliable estimate of the financial effect at this stage.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**24. MAJOR BUDGET VARIANCE**

Explanation of major budget variations are provided below for the Statement of Comprehensive Revenue and Expense, Statement of Financial Position and Statement of Cash Flows. The budget is published in the Callaghan Innovation Statement of Intent and Statement of Performance Expectations for the 12 months ended 30 June 2019. The budget figures have been prepared in accordance with NZ GAAP using accounting policies that are consistent with those adopted by the board in preparing these financial statements.

Statement of Comprehensive Revenue and Expense

Funding from the Crown was above budget due to the timing of recognition of Crown funding in the National Science Challenge and BioResource Processing Alliance programmes.

Funding from the Crown - Crown grants funding was above budget due to increased demand for Growth Grants.

Commercial and other revenue was above budget due to increased demand from overseas for services from our Glycosyn business group.

Interest revenue was above budget due to higher than planned cash balances during the year.

Personnel costs were above budget due to the increased use of contractors to delivery both Gracefield Innovation Quarter and Digital projects.

Grant expenses were higher than budget due to increased demand for Growth Grants.

Statement of Financial Position and Statement of Changes in Equity

Cash and cash equivalents were above budget due to lower than planned capital expenditure and the higher than budgeted surplus.

Crown debtor grants increased due to a greater number and value of grant obligations outstanding at 30 June 2019.

Work in progress was higher than budget due to KiwiStar project work that will now be invoiced early in the 2019/20 year.

The investment in joint ventures and associates was lower due to the purchase of the New Zealand Food Innovation Auckland and New Zealand Food Innovation (South Island) entities. Both these entities were previously joint ventures / associates and are now subsidiaries.

Property, plant and equipment was below budget due to lower than planned capital expenditure.

Intangible assets were higher than budget due to lower software purchases than planned.

Capital work in progress was higher than budget due to more projects in progress at year end than planned.

Grant obligations were higher than budget due to a greater number and value of grant obligations outstanding at 30 June 2019 than planned.

Funds received in advance is below budget due to the completion of several crown programmes in the 2018/19 year.

Equity is higher due to higher than planned capital contribution from owner and a surplus being achieved rather than the budgeted deficit.

Statement of Cash Flows

Higher operating receipts were due to higher receipts from the Crown for grants, and higher receipts from commercial customers.

Higher operating payments were due to higher payments to grant recipients.

Higher investing receipts were due to higher receipts from term deposits transferring funds from term deposits.

Higher investing payments were due to higher term deposit payments transferring funds to term deposits.

Higher financing receipts were due to higher than planned owner capital contribution.

NOTES TO THE FINANCIAL STATEMENTS CONTINUED**Reconciliation: Statement of Performance Expectations to Statement of Comprehensive Revenue and Expenses****For the twelve months ended 30 June 2019**

		2019	2018*
		Year	Year
	Output class	\$000	\$000
Statement of Performance Expectations: Outputs			
Building business innovation	1	32,378	25,978
Research and development and facilities for business and industry	2	19,523	23,743
Business Research and Development contract management	3	7,750	10,230
National measurement standards	4	7,069	5,465
Total output revenue		66,720	65,416
Revenue from the Crown – Grants income		238,409	196,888
Revenue from the Crown – Incubator Funding		4,378	4,926
Revenue from the Crown – Science contestable funding and other		-	496
Revenue from the Crown – National Science Challenge		15,692	13,032
Other revenue, including interest		28,349	24,390
Total revenue per Statement of Comprehensive Revenue and Expenses		353,548	305,148
Minus :			
Personnel costs		(50,559)	(46,715)
Science project and subcontract costs:		(27,041)	(24,533)
Impairment release/(charge) on financial instruments		156	(238)
Other expenses including interest		(24,346)	(26,766)
Depreciation and amortisation expense		(8,172)	(6,621)
Grant expense		(242,787)	(201,814)
Gain on business combinations		421	-
Total expenses per Statement of Comprehensive Revenue and Expenses		(352,328)	(306,687)
Share of surplus from joint venture and associate		(218)	1,556
Surplus for the year		1,002	17

* Certain comparatives have been reclassified to align with current year presentation. Refer note 2.

25. EVENTS AFTER THE BALANCE SHEET DATE

There were no significant events arising after balance date requiring adjustment or disclosure in these financial statements.



INDEPENDENT AUDITOR'S REPORT

to the readers of Callaghan Innovation's financial statements and performance information for the year ended 30 June 2019

The Auditor-General is the auditor of Callaghan Innovation group (the Group). The Auditor-General has appointed me, Chris Barber, using the staff and resources of PricewaterhouseCoopers, to carry out the audit of the financial statements and the performance information, of the Group on his behalf.

Opinion

We have audited:

- the financial statements of the Group on pages 82 to 123, that comprise the statement of financial position as at 30 June 2019, the statement of comprehensive revenue and expenses, statement of changes in equity and statement of cash flows for the year ended on that date and the notes to the financial statements including a summary of significant accounting policies and other explanatory information; and
- the performance information of the Group on pages 73 to 80.

In our opinion:

- the financial statements of the Group on pages 82 to 123:
 - present fairly, in all material respects:
 - its financial position as at 30 June 2019; and
 - its financial performance and cash flows for the year then ended; and
 - comply with generally accepted accounting practice in New Zealand and have been prepared in accordance with Public Benefit Entity Standards.
- the performance information on pages 73 to 80:
 - presents fairly, in all material respects, the Group's performance for the year ended 30 June 2019, including for each class of reportable outputs:

- its standards of delivery performance achieved as compared with forecasts included in the statement of performance expectations for the financial year; and
- its actual revenue and output expenses as compared with the forecasts included in the statement of performance expectations for the financial year; and
- complies with generally accepted accounting practice in New Zealand.

Our audit was completed on 23 September 2019. This is the date at which our opinion is expressed.

The basis of our opinion is explained below. In addition, we outline the responsibilities of the board of directors and our responsibilities relating to the financial statements and the performance information, we comment on other information, and we explain our independence.

Basis of opinion

We carried out our audit in accordance with the Auditor-General's Auditing Standards, which incorporate the Professional and Ethical Standards and the International Standards on Auditing (New Zealand) issued by the New Zealand Auditing and Assurance Standards Board. Our responsibilities under those standards are further described in the Responsibilities of the auditor section of our report.

We have fulfilled our responsibilities in accordance with the Auditor-General's Auditing Standards.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of the board of directors for the financial statements and the performance information

The board of directors is responsible on behalf of the Group for preparing financial statements and performance information that are fairly presented and that comply with generally accepted accounting practice in New Zealand.

The board of directors is responsible for such internal control as it determines is necessary to enable it to prepare financial statements and performance information that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements and the performance information, the board of directors is responsible on behalf of the Group for assessing the Group's ability to continue as a going concern. The board of directors is also responsible for disclosing, as applicable, matters related to going concern and using the going concern basis of accounting, unless there is an intention to merge or terminate the activities of the Group, or there is no realistic alternative but to do so.

The board of director's responsibilities arise from the Crown Entities Act 2004.

Responsibilities of the auditor for the audit of the financial statements and the performance information

Our objectives are to obtain reasonable assurance about whether the financial statements and the performance information, as a whole, are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit carried out in accordance with the Auditor-General's Auditing Standards will always detect a material misstatement when it exists. Misstatements are differences or omissions of amounts or disclosures, and can arise from fraud or error. Misstatements are considered material if, individually or in the aggregate, they could reasonably be expected to influence the decisions of readers, taken on the basis of these financial statements and the performance information.

For the budget information reported in the financial statements and the performance information, our procedures were limited to checking that the information agreed to the Group's statement of performance expectations.

We did not evaluate the security and controls over the electronic publication of the financial statements and the performance information.

As part of an audit in accordance with the Auditor-General's Auditing Standards, we exercise professional judgement and maintain professional scepticism throughout the audit. Also:

- We identify and assess the risks of material misstatement of the financial statements and the performance information, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- We obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- We evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the board of directors.
- We evaluate the appropriateness of the reported performance information with the Group's framework for reporting its performance.
- We conclude on the appropriateness of the use of the going concern basis of accounting by the board of directors and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements and the performance information, or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- We evaluate the overall presentation, structure and content of the financial statements and the performance information, including the disclosures, and whether the financial statements and the performance information represent the underlying transactions and events in a manner that achieves fair presentation.
- We obtain sufficient audit evidence regarding the financial statements and the performance information of the entities or business activities within the Group to express an opinion on the consolidated financial statements and the consolidated performance information. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our opinion.

We communicate with the board of directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Our responsibilities arise from the Public Audit Act 2001.

Other Information

The board of directors is responsible for the other information. The other information comprises the information included on pages 2 to 132, but does not include the financial statements and the performance information, and our auditor's report thereon.

Our opinion on the financial statements and the performance information does not cover the other information and we do not express any form of audit opinion or assurance conclusion thereon.

In connection with our audit of the financial statements and the performance information, our responsibility is to read the other information. In doing so, we consider whether the other information is materially inconsistent with the financial statements and the performance information or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If, based on our work, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Independence

We are independent of the Group in accordance with the independence requirements of the Auditor-General's Auditing Standards, which incorporate the independence requirements of Professional and Ethical Standards 1 (revised): *Code of Ethics for Assurance Practitioners* issued by the New Zealand Auditing and Assurance Standards Board.

In addition to the audit we have carried out engagements in the area of controls assurance services which are compatible with those independence requirements. Other than the audit and these engagements, we have no relationship with or interests in the Group.



Chris Barber
On behalf of the Auditor-General
Wellington, New Zealand



PricewaterhouseCoopers

STATUTORY REPORTING REQUIREMENTS

Ministerial directions (section 151(1)(f) Crown Entities Act 2004)

Callaghan Innovation received an updated Ministerial Direction in April 2017. Current Ministerial Directions applicable to Callaghan Innovation can be found on our website.

Systems and procedures for administration of government grants

Section 15(2) of the Callaghan Innovation Act 2012 requires that we report on the systems and procedures that provide fairness and transparency around the administration of government research, science and technology (RS&T) grants.

Callaghan Innovation undertook a grants enhancement programme in the 2015/16 financial year, which reviewed all the systems and procedures for RS&T grants. This review resulted in updated systems and procedures to provide further clarity and transparency and to ensure that current processes were in accordance with the revised Ministerial Direction. The review streamlined processes across the four schemes where feasible and simplified the application process for customers. Callaghan Innovation has embedded the streamlined processes and is undertaking continuous improvements.

To give effect to the requirement of the Act, the following systems and procedures have been implemented and operated throughout the year across all our grants:

- grants criteria are published on our website
- application forms are standard for grant type and not amended for individual circumstances
- eligible research and development is assessed by a minimum of two persons. Grant applications that do not meet the R&D eligibility criteria are not accepted
- a qualified Financial Risk Analyst performs financial due diligence on all Project Grants and Growth Grants to confirm that the grant recipient has sufficient financial stability to be able to conduct the R&D activity for the period of the grant
- all grants are approved in line with a delegations policy approved by the Callaghan Innovation Board. The amount and type of the grant will determine at what level it can be approved. For Project and Growth Grants, approval is by way of investment committee, with larger grants requiring approval by committees that comprise both internal and external members
- funding contracts are standard and not amended for individual circumstances
- Project Grants greater than \$200,000 are independently reviewed by an external reviewer in order that the internal assessment of criteria is supported by relevant industry experts. Callaghan Innovation has a robust Conflicts of Interest policy and where any conflicts of interest are identified, additional information is required to be provided to explain how the conflict will be managed. In administering and allocating RS&T grants, Callaghan Innovation no longer provides any contestable grant funding.

Enforcements of Acts (section 20(3) Crown Entities Act 2004)

Callaghan Innovation did not enter into any transaction that was invalid under section 19 of the Crown Entities Act 2004, and therefore was not required under section 20 of the Crown Entities Act 2004 to perform any such transaction.

A transaction would be invalid under section 19 if:

- Callaghan Innovation breached the Crown Entities Act 2004 by entering into it
- Callaghan Innovation was acting outside its authority under the Crown Entities Act 2004 by entering into it, or
- Callaghan Innovation did not enter into it for the purpose of performing its functions.

Employee remuneration

The table below shows the number of Callaghan Innovation employees who received remuneration and/or benefits (excluding redundancy and cessation payments) of \$100,000 or more for the financial year ended 30 June 2019.

Pay bracket	# of employees
100,000 - 109,999	27
110,000 - 119,999	36
120,000 - 129,999	23
130,000 - 139,999	24
140,000 - 149,999	11
150,000 - 159,999	11
160,000 - 169,999	13
170,000 - 179,999	4
180,000 - 189,999	1
190,000 - 199,999	4
200,000 - 209,999	3
210,000 - 219,999	2
220,000 - 229,999	1
230,000 - 239,999	0
240,000 - 249,999	0
250,000 - 259,999	0
260,000 - 269,999	0
270,000 - 279,999	0
280,000 - 289,999	1
290,000 - 299,999	2
300,000 - 309,999	1
310,000 - 319,999	2
320,000 - 329,999	1
330,000 - 339,999	0
340,000 - 349,999	0
350,000 - 359,999	0
360,000 - 369,999	0
370,000 - 379,999	0
380,000 - 389,999	0
390,000 - 399,999	0
510,000 - 519,999	1
TOTAL	168

Board of directors' remuneration

Directors Fees 12 months to 30 June 2019

Directors	Amount net
Hodgson	58,000
Kerr	21,000
Botherway	25,667
Gong	28,000
Hapi	26,250
Korn	28,000
McGrath	-9,333
Hendy	21,000
Monro	451
Bull	7,000
Valintine	18,667
Grand Total	224,702

Grants committee (non-board members) remuneration

Callaghan Innovation (non-board members)	2018/19 (\$)
Peter Townsend	6,000
Dr Alastair MacCormick	6,000



GLOSSARY OF TERMS

F700

NZTE focuses much of their efforts on a diversified portfolio of around 700 value-added companies called the Focus 700 (F700). These are knowledge-intensive companies who have strong ambitions for growth and the ability to compete internationally. The F700 is weighted towards Information, Communication and Technology (ICT), high value Food and Beverage (F&B), specialised manufacturing and Māori companies.

Growth Grant

grants to support evolving, multi-year R&D programmes in businesses that are experienced R&D performers.

IANZ

International Accreditation New Zealand

MBIE

Ministry of Business, Innovation and Employment

MPI

Ministry of Primary Industries

Net promoter score

a measure of customer loyalty and satisfaction, based on asking customers how likely they are to recommend your company's products or services to peers. Customers are categorised as promoters, passives or detractors based on their responses. The Net Promoter Score is derived from the difference between the percentage of respondents who are promoters and the percentage who are detractors. NPS ranges from -100 to +100 with positive values indicating that there are more promoters than detractors. What constitutes a 'good' NPS score is highly dependent on the type of product/service and the industry.

NZTE

New Zealand Trade and Enterprise

Project grant

grants to help businesses develop specific products, processes or services with the aim of growing their commitment to R&D

R&D Tax Incentive

The R&D tax incentive provides businesses doing eligible R&D with a 15% tax credit. The scheme is administered by Callaghan Innovation and Inland Revenue.

RTS

Research and Technical Services

Student Grants

provide businesses with access to both undergraduate and postgraduate students who can assist in R&D projects and gain commercial experience. These grants also support New Zealand students to gain and develop their technical skills in commercial R&D environments.

**Rukuhia te wāhi ngaro,
hei maunga tātai whetū.**

Explore the unknown,
pursue excellence.

AUCKLAND / WELLINGTON / CHRISTCHURCH

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CallaghanInnovation

New Zealand's Innovation Agency