



2017
Annual Report
HIGHLIGHTS
www.kiwinet.org.nz

DRIVING
PROSPERITY
FROM SCIENCE
AND INNOVATION



TRANSFORMING SCIENTIFIC DISCOVERIES INTO NEW BUSINESS



ABOUT KIWINET

Since its inception, KiwiNet and the wider Commercialisation Partner Network has demonstrated the power of bringing together diverse players across the science & innovation ecosystem to work towards a collective vision for New Zealand. Together they are driving us towards a globally-competitive technology sector that delivers significant economic growth and prosperity. The foremost ingredient for success is collaboration.

The Kiwi Innovation Network (KiwiNet) is the combined power of New Zealand's Universities, Crown Research Institutes and other research organisations who receive public funding. They are dedicated to taking a collaborative approach to research commercialisation. Together these research organisations represent a total combined research expenditure of over \$500 million and represent 70% of the publicly funded researchers in New Zealand.

FUNDING

KiwiNet is funded from the shareholder research organisations, corporate partners and the Ministry of Business, Innovation and Employment.

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**MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT**
HĪKINA WHAKATUTUKI



WE EMPOWER
THE PEOPLE WHO
COMMERCIALISE
RESEARCH

Plant & Food RESEARCH
RANGAHAU AHUMĀRA KAI

AUTEL

waikatoLink
University of Waikato Commercialisation

agresearch
āta mātai, mātai whetū

SCION™
FORESTS ■ PRODUCTS ■ INNOVATION

CallaghanInnovation

viclink

Lincoln University
Te Whare Wānanga o Aorāki
CHRISTCHURCH, NEW ZEALAND

GNS SCIENCE
TE PŪ AO

≡/S/R

Landcare Research
Manaaki Whenua

UC
UNIVERSITY OF
CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

OTAGO INNOVATION
A UNIVERSITY OF OTAGO COMPANY

Shareholders (universities and Crown research entities) as at 30 June 2017

KIWINET IS THE DRIVING FORCE BEHIND CREATING A HIGH VALUE EXPORT ECONOMY FROM PUBLICLY FUNDED RESEARCH.



The 2017 KiwiNet Annual Report coincides with the fifth staging of our show-case Research Commercialisation Awards.

When KiwiNet was established we asked ourselves 'what will success look like?'

CHAIRMAN'S REPORT

One obvious mark of KiwiNet's success is the impressive array of innovations with commercial promise that have emerged from the collaborative eco-system we have fostered now vying for awards. The overriding mission has been to get publicly-funded discoveries private-sector-ready.

Over these foundation years we have learnt that, but for the creation of the Commercialisation Partner Network of which KiwiNet is a big part, no commercialisation channel would have evolved.

As any participant in a KiwiNet Investment Committee, or indeed in a similar Return on Science exercise would attest, the collaborative eco-system is alive and well, the pipeline of ideas and innovation waiting to be tested for business potential grows, and the commercialisation capability is being lifted in the research institutions.

KiwiNet has chosen to concentrate our collective energies on three interventions we consider will most improve the impact that publicly-funded discoveries can have on New Zealand's prospects.

By our reckoning nurturing talent, strengthening tech transfer and energising the market will pay the best dividends.

We are very proud of our Emerging Innovator Programme which aims to gear up younger researchers to become commercialisation champions. Private sector funding from the Norman F. B. Barry Foundation to the tune of \$375,000 to date has made this programme possible, for which we thank them. The reward is New Zealand's, as the recipients provide inspiration and encouragement to other scientists and colleagues to follow in their footprints.

The quest to increase the quality and quantity of commercialisation activity at research organisations puts a spotlight on tech transfer. What matters most is professional development and institutional recognition of the pivotal role of commercialisation.

The need to energise the market is on the radar of both the public and private sector. There have been a welcome range of initiatives, as businesses and officials alike understand that if New Zealand is really to capitalise on the forces of innovation and to embed them in our economic DNA, then we have to be ready to disrupt the way we do business, access finance and deploy new technologies. KiwiNet means to play an active role in this process of transformation.

Each year the KiwiNet Board invites thinkers and influencers from the public and private sector to present at our strategy day. What continues to astound us is the extent to which the private sector struggles to get visibility to the innovation underway and on offer from our public research organisations.

What continues to dismay us is the extent to which at the official level there is little emphasis on the prospects for research commercialisation as a valued outcome in its own right when research is funded out of the public purse.

This is a wake-up call and spurs us to help mould policy and practice so that it is more in tune with today's disruptive times, which put a premium on leveraging new technologies and innovations.

The management of KiwiNet itself has undergone change in the past year.

Dr Bram Smith, who led the management from the outset, headed off for a career in robotics practising the very commercialisation that KiwiNet has preached. We are proud of him and see his migration to a private sector start-up as a mark of success.

In an exercise involving great succession planning, Dr James Hutchinson from within the KiwiNet team was appointed as our new CEO.

James has quickly brought skill and acumen to the role, deploying a collaborative style to secure the best for both shareholders and his team. However, James and his colleagues know that by definition this is a game where we have to continue to push boundaries and that KiwiNet has to continue to innovate in its own role.

The Board of KiwiNet is highly engaged and each member plays an active part in advancing our mission.

Andrew Turnbull chairs the Investment Committee, a very demanding role in terms of marshalling the material and moderating the proceedings. He sets and gets a high standard and has been very instrumental in making the Investment Committee the force it is for collaboration leading to commercialisation.

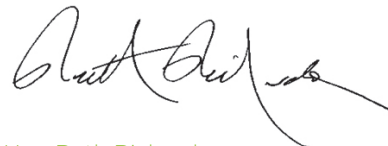
Ngaio Merrick is a highly knowledgeable independent director, generous in dispensing her time and counsel to both the team and wider stakeholders.

Geoff Todd representing the Universities and David Hughes the Crown Research Institutes are both a delight to work with and highly constructive contributors as we work to get enhanced commercialisation performance from both sectors.

The Commercialisation Partner Network, which receives public money to turn science findings into commercially viable products, is due to be reviewed next year.

In a sign of how far we have come, all three participating entities, KiwiNet, Return on Science and CRIS Ltd are collaborating to make a joint case for continuation.

In truth we all need to work together, both across the public and private sectors, to further harness innovation for the benefit of New Zealand.



Hon Ruth Richardson,
Chairman, KiwiNet

KiwiNet's overriding mission is to get publicly-funded discoveries private-sector-ready.



The foremost ingredient for success is collaboration – since its inception, KiwiNet and the wider Commercialisation Partner Network (CPN) has demonstrated the power of bringing together diverse players across the science & innovation ecosystem to drive prosperity for New Zealand.

CEO'S REPORT

A recent expedition to the Association of University Technology Managers (AUTM) Annual Meeting in Fort Lauderdale, Florida, highlighted how they do things in the US. From the many technology transfer professionals I met during panel sessions, at networking functions and even casually on the escalator in the conference venue, there was a real sense of purpose. Not only are they truly valued and respected by their research organisations, the vital role they play in generating impact and potential revenue from scientific discoveries was clearly-visible and well-defined. The entrepreneurial scientists within their institutions are celebrated and nurtured along their journey towards commercial success, while being respected by their peers. And a thriving investment ecosystem provides access to the early-stage capital that new technologies need to propel their journey to market.

That said, there was also a sense of foreboding – of a social and political environment where the relative weight of robust scientific evidence, and the positive change that new technology can bring in tackling the challenges humanity faces, is diminished at the whim of anecdote and 'fake news'.

In New Zealand, in our zone of relative calm in the south-west Pacific, there are many positives upon which to reflect. The overall level of investment into our science system as a nation continues to increase. We punch well above our weight in terms of output of top-quality research publications, according to the well-respected Nature Index, and our Crown Research Institutes (CRIs) have a very high rate of fee-for-service income, suggesting a healthy flow of R&D outputs directly to industry. And our high-tech sector now represents our third largest export, and growing.

However, we are still behind the nations we like to compare ourselves against, and we must be bolder if we are to keep pace – to diversify our economy into one that is high-value over high-volume. Better commercialisation of our technology innovation and entrepreneurship holds the key, and we must consider international markets from the outset if we are to succeed.

The foremost ingredient for success is collaboration – since its inception, KiwiNet and the wider Commercialisation Partner Network (CPN) has demonstrated the power of bringing together diverse players across the science and innovation ecosystem to work towards a collective vision for New Zealand. Together we are driving towards a globally-competitive technology sector that delivers significant economic growth and prosperity.

Through the KiwiNet Investment Committee, we have invested \$15.4M in PreSeed Accelerator Funding (PreSeed) from MBIE into early stage technology opportunities since our origin,

enabling them to reach a point of private-sector-readiness to create new business. We are proud that our PreSeed portfolio has generated a greater than five-fold return-on-investment to New Zealand to date, which continues to rise.

We are working to inspire, incentivise and empower researchers to pursue commercialisation of their discoveries. Through the generous support of the Norman F. B. Barry Foundation, our Emerging Innovator Programme is nurturing kiwi scientists with an entrepreneurial spark and fast-tracking them to commercial success. Twelve innovators were funded in 2016, demonstrating that given the right opportunity and support, many of our scientists have the ability to lead in generating commercial outcomes for New Zealand. A further ten innovators will be identified and supported in 2017, with the programme continuing to grow and evolve.

In close partnership with our member organisations, we are helping to increase the quality and quantity of commercialisation activity aimed at creating new business, in universities and CRIs. Over 20 commercial mentors and deep-tech leaders were deployed to commercialisation projects in 2016, and 22 projects received generous in-kind support from KiwiNet Corporate Partners – Baldwins, MinterEllisonRuddWatt, PwC and BNZ. 2017 sees KiwiNet working with Knowledge Commercialisation Australasia (KCA) to bring their annual conference to Wellington, 7-8 September. This will be a valuable opportunity to bring together technology transfer professionals from across New Zealand and Australia to learn from each other and drive best practice.

KiwiNet continues to work with colleagues in the private sector to foster early and regular engagement, to match technology opportunities with the best possible expertise and maximise their chances of success. Under the leadership of Viclink, we have established a China-NZ Innovation Centre in partnership with Suzhou Industrial Park (SIP) which is lowering barriers to entry and providing a robust and accessible channel to investors and markets in China. And working with our Corporate Partners, we are launching a new Investor Advisory Panel initiative, which will bring invaluable private-sector expertise to bear on early-stage commercialisation projects.

Through KiwiNet's efforts, we are starting to see a real shift in the commercial aspiration of our scientists, and commercialisation of early-stage technologies within our portfolio is driving prosperity from Kiwi science and innovation..

But we can't maintain this momentum alone... we need Government to help us to beat the commercialisation drum and to better incentivise the research community to internationally commercialise their discoveries. University leaders can work with us to inspire their cohort to pursue commercialisation and to ensure their tech transfer offices are fully valued and supported. CRI leaders can explore new business models that will provide the opportunity to commercialise IP, while preserving core business. And business leaders can work with us to help unlock early stage capital that will support disruptive Kiwi technologies on a pathway to commercial success.

I would like to recognise all of those whose vital in-kind and financial contributions have been the bedrock of our success to date, in particular our shareholders, Board, Investment Committee, Corporate Partners, and MBIE. Finally, a special thanks to the Norman F. B. Barry Foundation for their generous sponsorship of the Emerging Innovator Programme.



Dr James Hutchinson / June 2017
CEO, KiwiNet

Through KiwiNet's efforts, we are starting to see a real shift in the commercial aspiration of our scientists. Commercialisation of early-stage technologies within our portfolio is driving prosperity from Kiwi science and innovation.



HIGHLIGHTS

Operational Funding

The Ministry of Business Innovation and Employment (MBIE) has provided Commercialisation Partner Network (CPN) funding through to June 2018 for KiwiNet, Return on Science and CRIS. This investment provides a solid platform for KiwiNet to target strategic initiatives and ramp-up its investment to strengthen the research commercialisation eco-system.

Investment Committee

The Investment Committee met 9 times across New Zealand and reviewed a record 58 commercialisation projects.

Commercialisation Training

201 researchers from 27 organisations and 59 tech transfer professionals from 16 organisations took part in KiwiNet commercialisation training initiatives last year.

KiwiNet Awards

The fourth KiwiNet Research Commercialisation Awards brought together the innovation community to celebrate successes and inspire others. 271 people attended the evening reception where the 12 finalists and winners were showcased in style.

Suzhou Centre

A China-New Zealand (Suzhou) Innovation Centre has been established with Suzhou Industrial Park (SIP) to facilitate transfer of NZ technologies in China markets. Viclink is leading on the collaboration with the platform providing an opportunity for all KiwiNet partner organisations to participate.

Commercial Mentors

KiwiNet's Commercial Mentor programme has expanded beyond expectation with 51 connections created between mentors and researchers over the last 12 months. KiwiNet provides commercial mentors to support research organisations on everything from assessing new commercial opportunities to mentoring researchers on commercialisation of projects. Commercial mentors are driving significant pipeline growth while helping research organisations overcome limited tech transfer resources.

Corporate Partner Buddy Programme

The Buddy Programme matches KiwiNet's Corporate Partners with projects and Emerging Innovators to provide expert support to both. The programme plays a key role in nurturing new talent and driving projects forward to achieve their full potential. MinterEllisonRuddWatts and Baldwins have supported 21 projects and provided training at 4 events.

KiwiNet Emerging Innovator Programme

The Emerging Innovator programme has gone from strength to strength with an additional \$125,000 provided by the Norman F. B. Barry Foundation and a total of 15 innovators progressing through the programme to date.

CORPORATE PARTNERSHIPS

KiwiNet is delighted to have ongoing sponsorship from valued corporate partners:

- **Strategic Partner, Bank of New Zealand** – substantial support around events and promotion in 2016, helping us raise the profile of research commercialisation.
- **Major Partner, Norman F. B. Barry Foundation** - confirmed support for 5 more Emerging Innovators with a further \$125,000 of funding in November 2016.
- **Major Partner, Baldwins** – provides free IP advice to our Emerging Innovators and research commercialisation events and projects.
- **Major Partner, MinterEllisonRuddWatts** – provides free legal advice to research commercialisation projects from across the country to ensure early stage projects get off on the right foot.
- **Major Partner, PwC** - provides free consultancy for each project and provides lead support in the development of the KiwiNet Advisory Panel and Deep Tech Leaders programme.
- **Photography Partner, Sciencelens** - provides excellent photographic services for our flagship Awards events.

It's exciting to work alongside these leading businesses, who generously offer their expertise and support to drive prosperity from science & innovation in New Zealand.



PROUDLY
SUPPORTING
SCIENCE-LED
INNOVATION

BNZ Partners
Business Centre

bnz

bnz
Be good with money

intellectual
property
Baldwins

pwc

MinterEllison
RuddWatts

NORMAN F. B. BARRY
FOUNDATION

sciencelens.
PHOTOGRAPHING SCIENCE, INDUSTRY AND TECHNOLOGY

STRATEGY

OUR PURPOSE:

KiwiNet exists to drive prosperity from science and innovation.

Faculty of
Science and Engineering



KiwiNet

Kiwi Innovation Network

Sci

STRATEGY

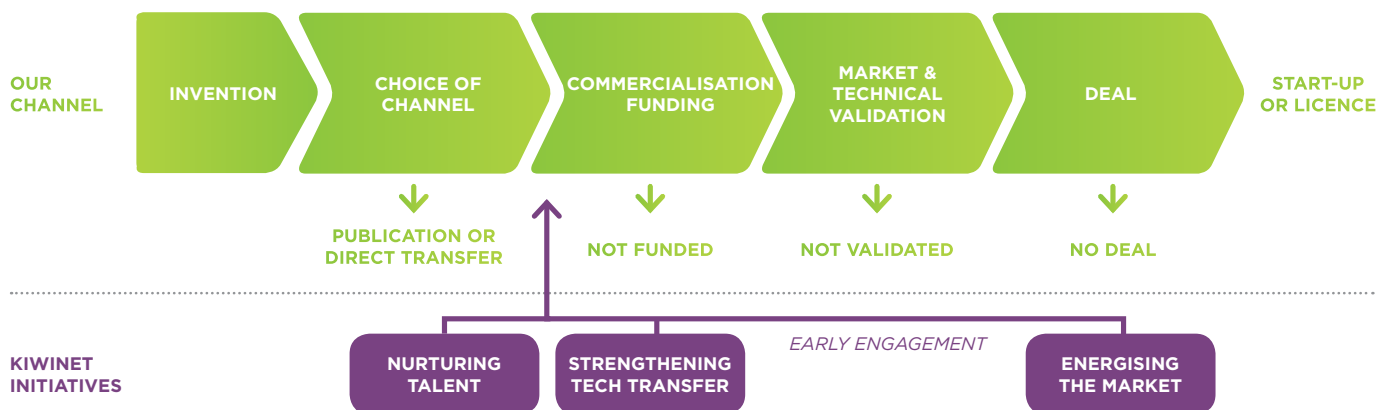
OUR VISION

A globally competitive technology sector, driving a high value economy for New Zealand.

OUR PASSION

Creating the best environment for public research organisations to transform scientific discoveries into new business.

FROM RESEARCH DISCOVERY TO PRIVATE-SECTOR-READY



STRATEGIC PRIORITIES

PreSeed Accelerator Fund Investment

The KiwiNet Investment Committee is our engine room and the focal point of our collaborative model. We invest Government PreSeed Accelerator Funding into early-stage research discoveries with commercial potential, progressing them to a point where they can be taken on by the private sector.

Advocacy

Collaborating with the research community, research organisations, Government stakeholders, Callaghan Innovation, our CPN partners and stakeholders from the private sector, including investors to create the best supportive environment for commercialisation of publicly-funded research.

Nurturing Talent

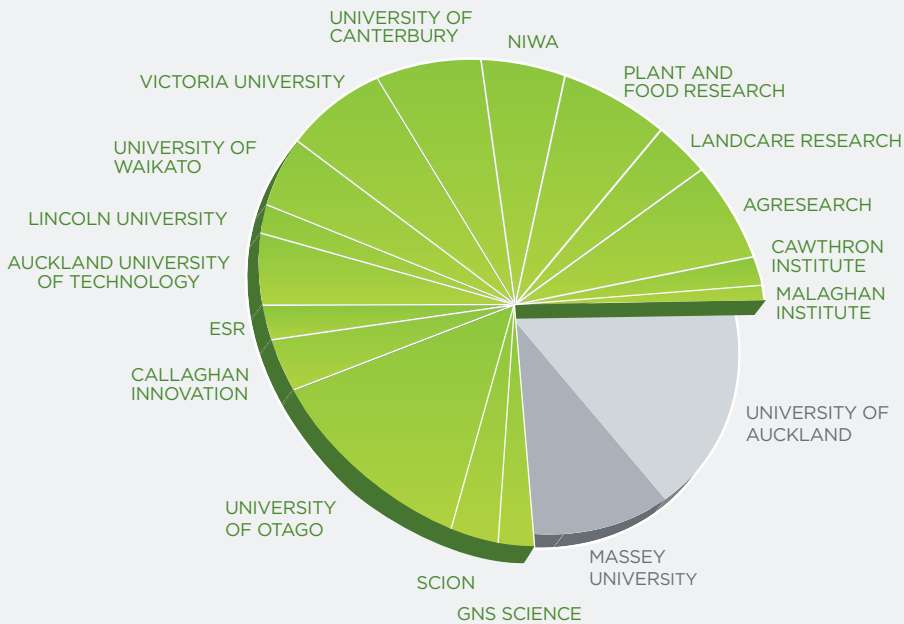
Inspiring, incentivising and empowering researchers to pursue commercialisation of their discoveries to create new business, alongside more traditional academic or tech-transfer routes.

Strengthening Tech Transfer

Increasing the quality and quantity of commercialisation activity at research organisations aimed at creating new business, by strengthening tech transfer capability and expertise.

Energising the Market

Engaging early and often with the private sector to build the best possible expertise around technologies to maximise chances of success.



~6,500

researchers from NZ's public research organisations are now represented around the KiwiNet Investment Committee table.



OUR CORE VALUES

People and their connections

Innovation is first and foremost about people and their connections.

Collaboration not duplication

KiwiNet is a facilitator, working with complementary organisations to achieve outcomes through collaboration.

Trusted neutral party

KiwiNet must be recognised as an independent organisation that is trusted to be fair and balanced.

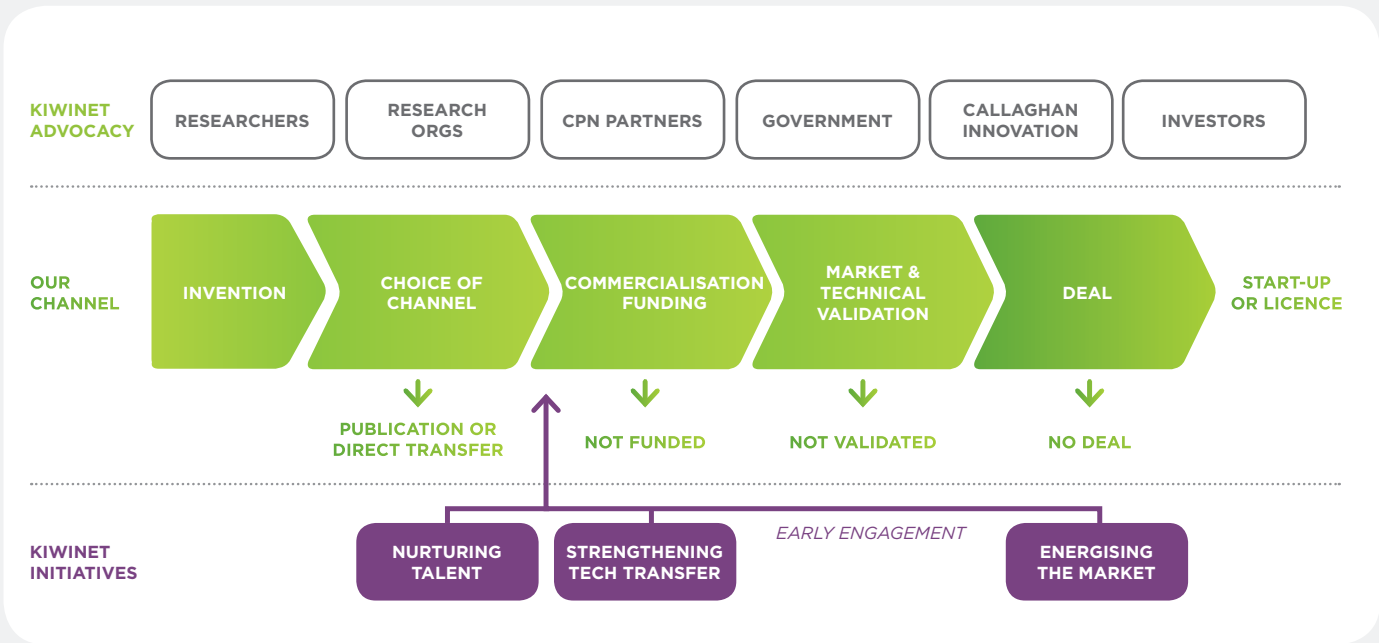
New and innovative approaches

KiwiNet must have a maverick spirit, striving to take new approaches, to create new conversations between new people and to encourage new talent that underpins future innovation.

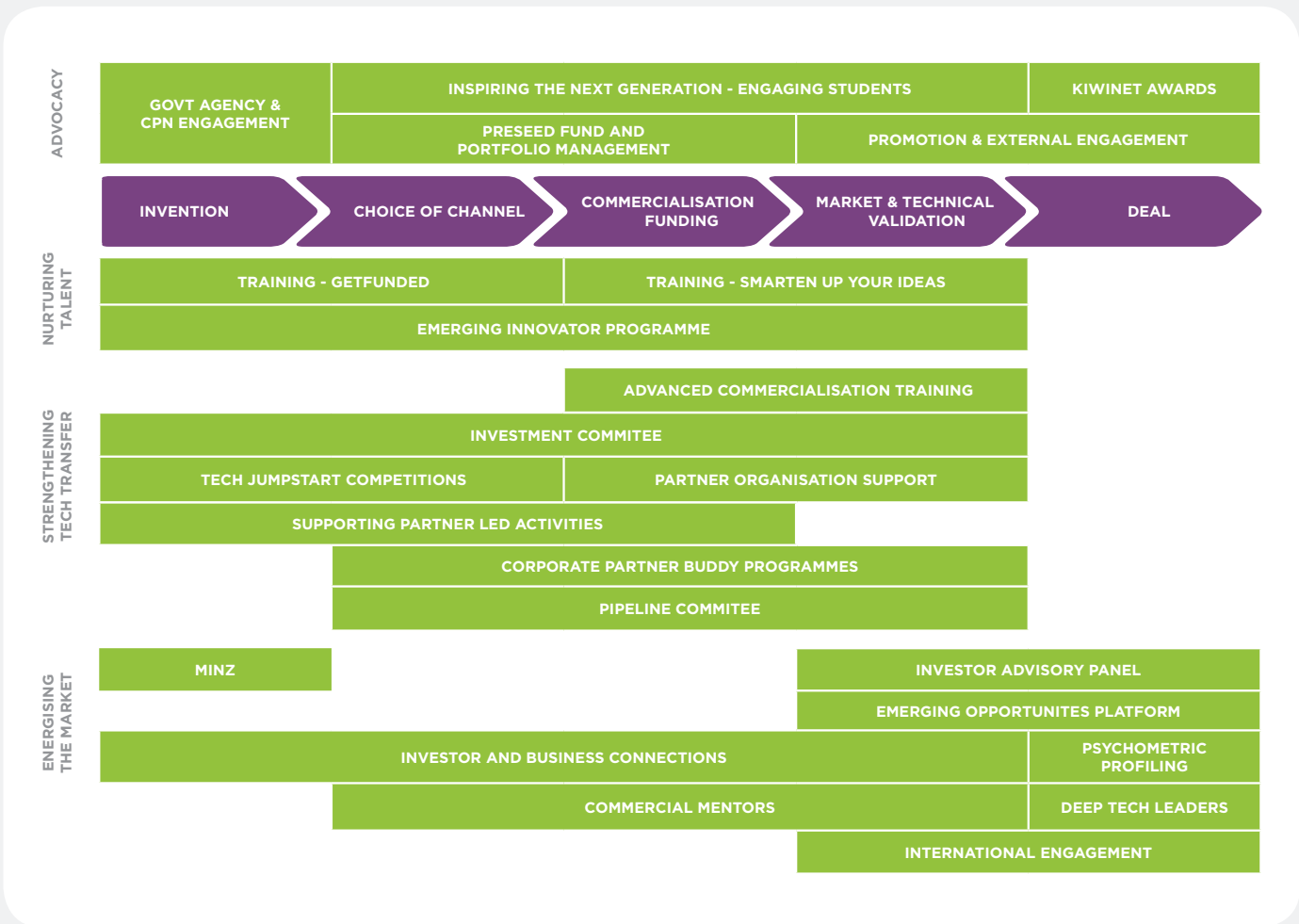
Speed and efficiency

KiwiNet must be nimble and dynamic, acting as a catalyst for new opportunities and ensuring ideas become self-sustaining quickly.

CORE FOCUS

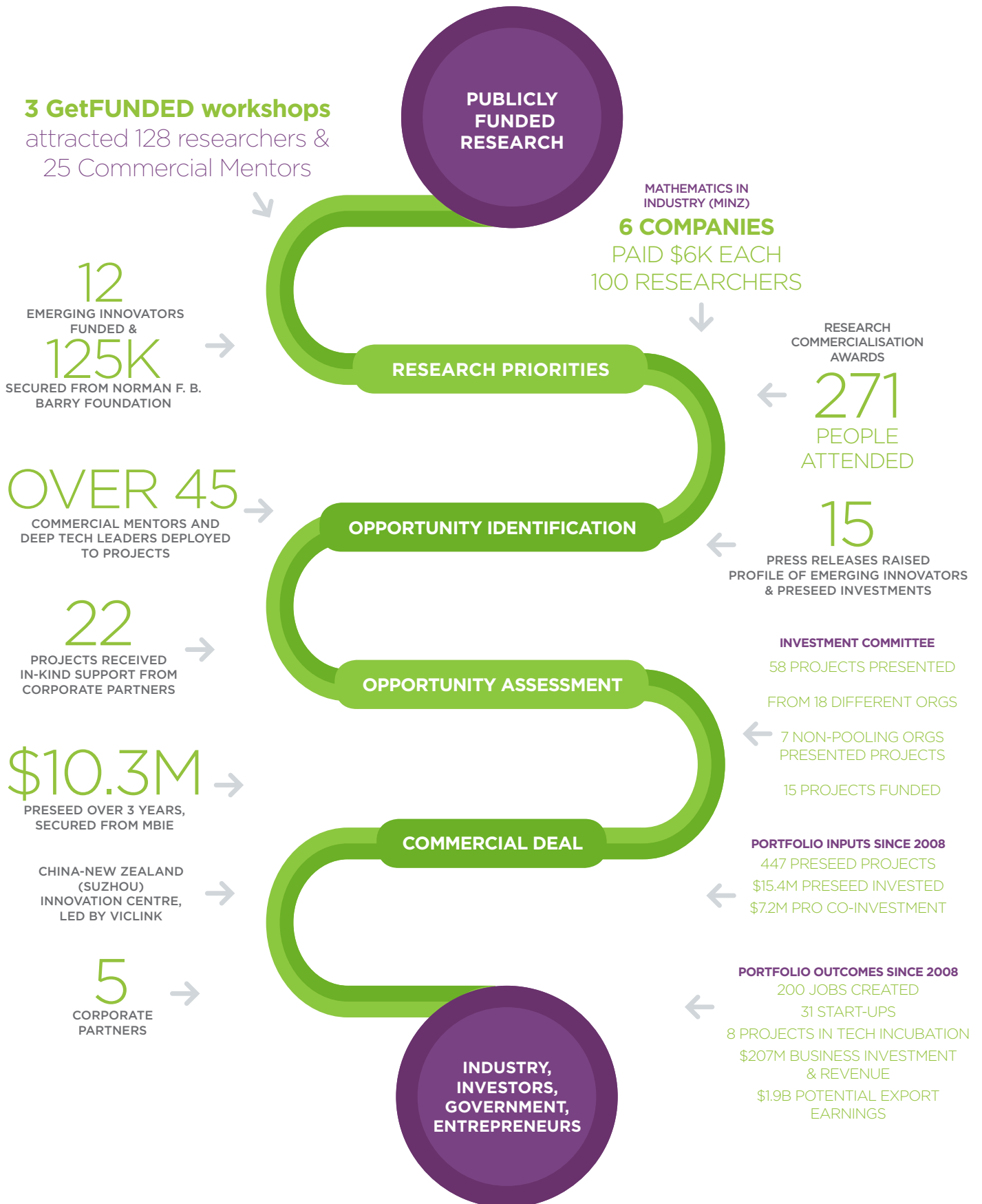


KEY INITIATIVES



TECHNOLOGY TRANSFER

2016-17 HIGHLIGHTS



KiwiNet Investment Committee HIGHLIGHTS

PRESEED INVESTMENT

In July 2016 KiwiNet began a new three year PreSeed Accelerator Funding (PreSeed) contract with the Ministry of Business Innovation and Employment (MBIE). KiwiNet's PreSeed pool services 13 research organisations operating a combined investment of \$10.3 million through KiwiNet.

INVESTMENT COMMITTEE PARTNERSHIPS

With 13 shareholders and 13 pooling organisations collaborating through the KiwiNet Investment Committee, it now represents approximately 70% of researchers in public research organisations in New Zealand. Over the 12 months to March 2017, 58 projects have been presented to the Investment Committee from 18 different research organisations.



"Around the KiwiNet Investment Committee table AUT gets access to all the leading research organisations in NZ and Australia. The rigour of the questioning from the KiwiNet Investment Committee ensures that innovative ideas are given both challenge and support to attain the best outcome."

STEVE CORBETT, DIRECTOR COMMERCIALISATION, AUT

447

PROJECTS UNDER KIWINET
INVESTMENT COMMITTEE*
RECEIVED

*(and its predecessor UniCom) (Since July 2008)

\$15.4

MILLION OF PRESEED
INVESTMENT RESULTING IN

202

COMMERCIAL DEALS AND

\$207

MILLION BUSINESS INVESTMENT
& REVENUE

\$1.9

BILLION POTENTIAL EXPORT EARNINGS.

31

NEW START-UPS, INCLUDING 8 IN
TECH INCUBATION



“KiwiNet is a tremendous initiative that provides crucial funding to support the development of the most promising discoveries originating from leading NZ research organisations. The collaborative nature of KiwiNet ensures that in addition to funding, projects are given access to developmental and commercial expertise to increase their chance of success. Since joining the Investment Committee in 2016, I have been impressed by the quality of the technologies and the collegial nature of the KiwiNet review process”.

CHRIS NAVE, MANAGING DIRECTOR, BRANDON CAPITAL PARTNERS PTY LTD
INDEPENDENT MEMBER OF KIWINET INVESTMENT COMMITTEE



72

Proposals, project previews and Emerging Innovators presented to the Investment Committee*.

*IN THE YEAR TO MARCH 2017.



13

Public organisations pooling PreSeed investment.



18

Different research organisations presented projects to the KiwiNet Investment Committee*.

*IN THE YEAR TO MARCH 2017.

\$10.3m
PRESEED TO INVEST*



*Announced by MBEI in June 2016.



KiwiNet Investment Committee Meeting – NIWA, Auckland, August 2016

“KiwiNet’s Investment Committee continues to go from strength to strength with many more exciting projects progressed over the last 12 months. One of the highlights of the period has been the success of the Emerging Innovator Programme. This programme seeks to support early career researchers who have a desire to engage actively in getting their research into the global market place. Through this programme, which has been pioneered with the generous support of the Norman F. B. Barry Foundation, we seek to wrap support around these researchers and develop them in their commercialisation capability. We have already seen disproportionate success with these researchers and the projects they are working on, and we see these individuals as the future evangelists for commercialisation within New Zealand’s research organisations and hopefully the future CTOs and Founders of New Zealand’s deep tech businesses.”

ANDREW TURNBULL - CHAIRMAN, KIWINET INVESTMENT COMMITTEE



“We’re excited to nurture the future CTOs and Founders of New Zealand’s deep tech businesses.”

SUCCESS STORIES

STRmix™ from ESR

Unravelling DNA mixtures to solve crime

STRmix™ is an “expert software system” designed by researchers at ESR and Forensic Science South Australia (FSSA). It’s used by DNA reporting analysts for the interpretation of forensic DNA profiles, with particular application to complex DNA mixtures with no restriction on the number of contributors.

The KiwiNet Investment Committee approved PreSeed funding for this project in late 2013, and ESR has successfully accelerated this product to a commercial success that is resulting in significant export returns to New Zealand. STRmix™ has had strong sales into foreign markets and ESR have established a strong potential sales pipeline with the software now used in over 100 laboratories worldwide.

The concepts applied and the way that the system works are able to be understood by DNA scientists with an appropriate background in DNA statistics and are able to be explained in court. This is critical for the acceptance of such an approach within the criminal justice system. Answers delivered using a “black box” technology are unlikely to be allowed in court proceedings. The first commercial version of STRmix™ was made available in January 2014, and instantly attracted significant international attention.

“The PreSeed funding from KiwiNet was crucial in supporting us to take a lab model and turn it into a highly successful commercial product. We were able to establish market demand, sort out the best business model, and define a clear marketing entry strategy.”

Bjorn Sutherland - STRmix Commercial Manager, ESR



Cawthron Natural Compounds

The Cawthron Institute specialises in understanding the ecology and chemistry of marine natural toxins from a range of sources, including algae. Some of these toxins are responsible for making seafood unsafe to eat and are subject to tight regulatory control.

The global seafood testing laboratory community needs pure toxins in order to calibrate tests and ensure seafood is free of toxins. The Cawthron Institute is one of only a few organisations in the world capable of producing purified marine natural toxins.

In early 2013, The Cawthron Institute brought forward a project proposal seeking funding to support commercialisation of this project. The KiwiNet Investment Committee recognised the potential value in the project, and allocated PreSeed investment to support development of the business case. Additionally, KiwiNet provided market validation support to identify potential customers for the reference materials.

These pure toxins are now required by the world’s seafood testing laboratories because of work done by Cawthron to improve international testing standards. To meet this demand, Cawthron has entered into a lucrative deal to supply a range of purified marine toxins to the world’s largest chemical and analytical supplier, Sigma-Aldrich.

The export earning potential of these marine toxins is staggering in that as little as 1g of a marine toxin could be worth up to NZ\$5 million. The deal, signed late in 2014 has already created commercial revenues to Cawthron and demonstrates that the outcomes of publicly funded research can form the basis for outstanding commercial deals that generate significant economic returns to New Zealand.

ES/R





Plant & Food
RESEARCH
RANGAHAU AHUMĀRA KAI



Wakefield Raspberry Success Story

'Wakefield' is a raspberry cultivar that has proven commercial benefits over other varieties. Early in Plant & Food's relationship with US partner, Northwest Plant Company LLC (NWPCO), it was recognised that a traditional royalties strategy based on plant sales would not generate sufficient revenues to justify starting a new plant breeding programme, even if the resulting varieties were hugely successful.

Plant & Food Research worked hard to develop a commercialisation strategy for the Wakefield Raspberry project that is as effective and innovative as the science itself. The solution was to implement a new pricing model based on quantifying the value delivered by the variety and applying an annual area-based grower license fee for its use. In this way, variety developers and growers are able to share in the commercial success of the variety.

This innovative model has seen licensing fees of NZ\$3.34M returned to New Zealand to date. The Wakefield variety now has greater than 25% market share in the Pacific Northwest. Plant & Food Research has recently brought the variety and the growing and processing technology back to New Zealand and is running a demonstration trial in Nelson.

"PreSeed funding enabled us to collate and articulate the benefits that 'Wakefield' could provide to potential investors. This increased investor confidence and accelerated the timeframe, scale, and ultimate success of our product launch."

Andrew Mackenzie, Business Development Manager
Plant Varieties, Commercial - Plant & Food Research

Boutiq Nanoparticles

Through its spin out company Boutiq Sciences Limited (Boutiq), Viclink has the opportunity to access a suite of market opportunities combining a clinically approved superior magnetic nanoparticle product with emerging medical device technologies from partner companies/ organisations. These are aimed at next generation diagnosis and treatment of cancers and degenerative diseases. This project will confirm the regulatory requirements for a chosen target product profile, and complete the regulatory process for a Grade 2A medical device. This is the remaining step required for Viclink to take the technology to market as part of a medical device package, and to allow them to secure further investment into the spin out company, rendering it fully commercialised.

Next generation diagnosis and treatment of cancers and degenerative diseases requires novel medical devices and approaches. In many cases, the newly developing technologies require an accessory or complimentary technology (such as a tracer or contrast agent) on which the function of the device significantly relies, in order to produce an image or signal for the purposes of diagnosis. The tracer material used in these technologies often derives from colloidal magnetic nanoparticles, of which there is a significant lack of supply at a clinical level. This poses a three-fold barrier to market implementation and success for device manufacturers: 1) lack of supply of clinically approved materials 2) need for registered tracer materials that show the best competitive performance, when coupled with the device, and 3) security of supply and the ability to address future adoption or supply problems within the realms of the developers' expertise.

The magnetic nanoparticles produced by Boutiq have the potential to solve this problem, through their superior performance in sensitivity and detection capability (relative to any other magnetic particle product that may be suitable for clinical application).

PreSeed funding of \$149,718 supported early stage commercialisation of the project. The project is being commercialised by Ferronova who are progressing a medical device technology for cancer staging based on a combination of the Boutiq magnetic particle technology and an ultrasensitive magnetic probe technology from the University of South Australia. Ferronova has received investment from NZ technology incubator Powerhouse Ventures alongside a \$200,000 AUD grant from Bioinnovation SA to progress development of their first product into first clinical trials. The technology is fully invested and commercialised outside of the University, with associated job creation and value retention for NZ.

boutiq
NANOPARTICLE SOLUTIONS



viclink

SUCCESS STORIES

Aduro Biopolymers – a bloody good idea



Making plastic from blood meal is the basis for Aduro Biopolymers, a spin out company generated around IP conceived at the University of Waikato by Dr. Johan Verbeek. Through an innovative process, dried blood meal is taken and converted into Novatein® granules, which can be used for the manufacture of a wide range of polymer products. Aduro Biopolymers are taking a by-product from the meat industry and adding value, creating a biodegradable polymer – solving supply and waste problems in the plastic industry all with one great idea.

In 2007, \$140,878 of PreSeed funding was approved for investment into the blood plastics project. The goal of this funding was to develop a commercially viable process to manufacture blood derived bioplastics and form a company to manufacture the product in New Zealand. In 2014, with Aduro Biopolymers established, employees on board and a significant investment from Wallace Corporation, the commercial directives which attracted the PreSeed investment have taken this project from public research to a place where it is generating market opportunity for New Zealand. In 2016 the Maisey Group invested a seven figure sum in Aduro which allowed the company to establish commercial scale resin production, combining technologies from Taiwan, Canada and New Zealand into a first of a kind plant capable of producing up to 200kg of Novatein per hour.

The Aduro story is a prime example of how IP can be successfully transferred from a public research organisation, and accelerated to private enterprise. This project has created strong connections into outside organisations such as Wallace Corporation, The Maisey Group, Scion and the Biopolymer Network. While these connections are invaluable for the progress of Aduro, they also create open doors for other projects from WaikatoLink, who are the University of Waikato's tech transfer office.

PreSeed has helped shape this innovative New Zealand idea into a commercial contender. Aduro Biopolymers are in a strong position to change the way the world thinks about plastics.

Blood Plastics - by the numbers

 **\$4million**
potential revenue to NZ per annum

 **\$3million**
potential revenue to the university
(research back to the university and return to WaikatoLink)

“Without PreSeed, I don't think this project would have gotten anywhere to be honest. I think it would have still been a student project, with publishing being the likely outcome. There were specific outcomes and outputs required from the PreSeed project that had to be commercially orientated. It wasn't just about developing a piece of research – the intent was to develop the technology to a point where it could go to market, and make cash out of it”.

Darren Harpur, CEO of Aduro Biopolymers

ADVOCACY



Collaborating with the research community, research organisations, Government stakeholders, Callaghan Innovation, our CPN partners and stakeholders from the private sector, including investors to create the best supportive environment for commercialisation of publicly-funded research.



ADVOCACY

ACTIVITIES

GOVERNMENT AGENCY ENGAGEMENT

KiwiNet engages with government departments and agencies who are working in similar and complementary areas.

COMMERCIALISATION PARTNER NETWORK ENGAGEMENT

Identifying new commercial opportunities in research organisations, including individual projects and platforms.

SEEDING RESEARCH COMMERCIALISATION WITH THE NEXT GENERATION

Inspiring the next generation of entrepreneurial researchers.

PROMOTION & EXTERNAL ENGAGEMENT

Building awareness around the activities of KiwiNet, technology transfer professionals and the research organisations to encourage people and make it easier for them to engage.

INNOVATION EVENT CALENDAR

The Kiwi Innovation Event Calendar provides a one-stop-shop to locate events in the innovation space. It highlights all the events aimed at driving science and innovation forward.

KIWINET STAFF ACTIVITY

KiwiNet's team works in partnership with research organisations and commercialisation professionals across New Zealand to deliver KiwiNet's strategic objectives.

2016 OUTCOMES

KiwiNet has been working closely with MBIE to provide a clear picture of research commercialisation activities in New Zealand. Reports provided to MBIE include:

- An annual report on KiwiNet's PreSeed portfolio.
- An annual report of Commercialisation Partner Network outcomes.

KiwiNet is working with our fellow Commercialisation Partner Network (CPN) organisations Return on Science and Canterbury Development Corporation to accelerate our common goal of achieving better economic outcomes from the commercialisation of publicly funded research in New Zealand.

- KiwiNet and Return on Science have worked with Knowledge Commercialisation Australasia to bring the KCA conference to New Zealand in September, 2017.
- Return on Science is supporting KiwiNet in celebrating the 2017 KiwiNet Research Commercialisation Awards.

KiwiNet creates awareness of the value of research commercialisation amongst students:

- KiwiNet CEO, James Hutchinson, delivered an inspiring keynote address about pursuing commercialisation of science as a career path at the Chiasma Synapse event in Auckland. KiwiNet also had a booth at this event and fielded many questions from students excited to learn more.
- KiwiNet mentored a team of 6 high school students from Waikato Diocesan School for Girls in Young Enterprise Scheme – they were crowned the winners of the Waikato region 2016.
- KiwiNet mentored teams at the Innes 48 Start-up competition in April 2016 and 2017.

KiwiNet has produced 15 press releases in the past 12 months. There have been 161 media publications about KiwiNet projects and activities during this time.

The Kiwi Innovation Event Calendar continues to be a very popular tool used by stakeholders. In 2016 it featured 220 events and was viewed 2802 times.

KiwiNet's core staff of 6 are currently supplemented with 2 student interns from the University of Waikato. Our staff run the investment committee, work with our partners to prepare business plans for PreSeed investment and run events and initiatives to support research commercialisation.

RESEARCH COMMERCIALISATION AWARDS

In 2016 KiwiNet ran the fourth New Zealand Research Commercialisation Awards. The KiwiNet Awards celebrate the ability for science to drive business innovation, putting the spotlight on those who successfully commercialise clever Kiwi ideas.




5
AWARDS
CATEGORIES




12
FINALISTS

This **PREMIER EVENT** is now highly anticipated on New Zealand's innovation calendar, raising the profile of research commercialisation nationwide.



271
ATTENDEES



Where:
Auckland,
Viaduct Events Centre
When:
Thursday 30th June,
2016



2016 KIWINET AWARD WINNERS



Winner of the BNZ Supreme Award and the Baldwins Researcher Entrepreneur Award

ENGENDER

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wananga o Tāmaki Makaurau

The MacDiarmid Institute
for Advanced Materials and Nanotechnology

Associate Professor Cather Simpson from University of Auckland, The MacDiarmid Institute, and Engender

FROM SENSORS TO SPERM SORTING - LIGHTING UP NZ'S ECONOMY WITH LASERS

Associate Professor Cather Simpson is a physicist and chemist at the University of Auckland, with specific expertise in lasers and photonics. While photonics can be a very high-tech domain requiring a formidable understanding of fundamental science, Cather also has a deeply entrepreneurial streak that has led to significant commercial outcomes over the past 6 years. In 2010 she founded the Photon Factory, which has attracted over \$2.5m of commercial contracts. This has more recently led to the formation of two new startup ventures: Engender Technologies Ltd, which employs 6 staff and has attracted significant private investment, and Orbis Diagnostics Ltd, which has also attracted investment.

Engender Technologies Ltd is a spin-off company commercialising the use of microfluidic and photonic technology to improve sorting of sperm by sex for the dairy industry. Cather is the founding scientist and chief science officer. The new technology will improve both efficiency of sorting and performance of sex-sorted sperm by avoiding electric fields and reducing shear stress on the sperm membrane during processing. Orbis Diagnostics Ltd is developing exciting new technology for the dairy industry - to carry out "point of cow" analyses of milk composition in the milking shed. With such an impressive track record of commercial engagement, Cather demonstrates how University researchers can use cutting edge science to power business innovation and grow the economy.





(L-R) Dr Daniel Holland, Dr Carla Meledandri, John Smith - Norman F. B. Barry Foundation

Joint Winners of the Norman F. B. Barry Foundation Emerging Innovator Award



Dr Carla Meledandri – University of Otago

Harnessing silver nanoparticles to treat and prevent dental disease Carla Meledandri received her PhD in Chemistry at Dublin City University in 2009 specialising in nano-materials. Since completing her PhD, Carla's career has focused on pushing the frontiers of science to solve real world problems. The result is a rapid accumulation of commercial opportunities, including a technology licenced to a multinational dental company. Having achieved such great progress so early in her career, Carla is certainly an inspiration to other early career scientists and is well on the way to transforming her science into excellent economic outcomes for New Zealand.

Dr Daniel Holland - University of Canterbury

Dr Daniel Holland has a strong track record of applying novel measurement and mathematical analysis techniques to improve efficiency in the chemical industries. He graduated with a BE(Hons) with First Class honours from the University of Canterbury. Since completing his PhD in Chemical Engineering at the University of Cambridge in 2006, he has worked with major international companies as well as specialist technology companies. Measurement techniques he developed for Oil and Gas Measurement in the United Kingdom led to the production of a new sampling product to measure the water distribution in flows of oil and water. Since returning to New Zealand in 2015, he has actively pursued opportunities to drive business innovation within New Zealand companies, building on his overseas success. He has recently established a new programme of research with Magritek, a developer of cryogen-free, compact Nuclear Magnetic Resonance (NMR) and Magnetic Resonance Imaging (MRI) systems that work on the benchtop. He is also working with Eko360, a company specialising in innovative environmental products for growing plants, and seeks to use a mathematical model and novel measurements to rapidly prototype controlled release fertilisers. Cost-effective controlled release fertilisers have the potential to improve nutrient use efficiency especially with nitrogen fertilisers giving greater agricultural productivity while reducing leaching from the dairy and forestry sectors in New Zealand and internationally.

2016 KIWINET AWARD WINNERS



(L-R) Richard Wells, MinterEllisonRuddWatts and Jeremy Warnes, Scion

Winners of the MinterEllisonRuddWatts Research & Business Partnership Award



Scion & Sonae Industria: Woodforce

WORKING WITH AN INTERNATIONAL PARTNER TO COMMERCIALISE HIGH PERFORMANCE WOOD FIBRE-REINFORCED PLASTICS.

The Scion and Sonae partnership has successfully established a commercial value chain for wood fibre-reinforced plastics. Plastics with wood fibre are stronger and stiffer than plastics alone, but, until recently, handling the bulky fibre has not been commercially feasible. Scion's patented process forms wood fibre into "dice" that can be made in existing MDF plants and easily added to a range of plastics. With most opportunities for composite plastic manufacture being outside New Zealand, Scion looked for an MDF manufacturer with a global reach who could be key party in a complex and unfamiliar value chain. European MDF manufacturer Sonae Industria was granted an exclusive licence for the technology in North America and Europe. Sonae owns and has developed the Woodforce brand. The commitment of both partners working with the full value chain has led to the optimisation of Woodforce and the compounding process, putting the partners in a strong commercial position. End products that meet demands for lighter weight, thermal stability and sustainability are being trialled and approved by major automotive manufacturers. The wide exposure to companies along the value chain has also led to relationships with other manufacturing industries to develop new products.



(L-R) Scott Kerse, PwC, Dr Gregory Bryan and Dr Nick Roberts, ZeaKal

Winner of the PwC Commercial Deal Award

AgResearch - ZeaKal

INTERNATIONAL SPIN OUT SUPPORTS THE COMMERCIALISATION OF PLANT BIOTECHNOLOGY IN NEW ZEALAND.



Improving New Zealand's most important crop, perennial ryegrass, has led two enterprising scientists Dr Nick Roberts and Dr Greg Bryan on an exciting journey of discovery and innovation. Born out of their world-leading science is their latest venture, a biotechnology startup called ZeaKal. Their company utilizes the technology and skills polished while leading the forage improvement teams at AgResearch. Their next-generation biology focuses on increasing plants' intrinsic photosynthetic capacity. The plants can therefore harvest more sunlight, fix more carbon dioxide and do so with less water. For farmers, this means better seed and grain yield with yield improvements forecasted to be as much as 20 percent.



NURTURING TALENT

Inspiring, incentivising and empowering researchers to pursue commercialisation of their discoveries, alongside more traditional academic routes.

ACTIVITIES

COMMERCIALISATION TRAINING

Training programmes ranging from practical commercialisation workshops for researchers through to advanced professional development for commercialisation staff.

EMERGING INNOVATOR PROGRAMME

The KiwiNet Emerging Innovator programme aims to discover, inspire and nurture Kiwi scientists with entrepreneurial DNA and fast-track them to commercial success.

2016 OUTCOMES

201 researchers from 27 organisations and 59 tech transfer professionals from 16 organisations received KiwiNet commercialisation training last year. KiwiNet also ran 3 GetFUNDED workshops, 3 GetFUNDED-X workshops, GetINVESTED for Emerging Innovators and 2 Smarten Up Your Ideas workshops for staff at Lincoln University and GNS Science.

A GetFUNDED handbook for researchers was disseminated at the GetFUNDED workshops.

The Programme has been generously supported by the Norman F. B. Barry Foundation with an additional \$125,000 this year, taking their total support to \$375,000 to date. To date, 15 Emerging Innovators have participated in the programme, with some now attracting private investment.



EMERGING INNOVATOR PROGRAMME

The KiwiNet Emerging Innovator Programme was launched to strengthen entrepreneurship and nurture commercial aspiration in our scientists. This is essential in order to transform scientific discoveries into new business that will drive prosperity for New Zealand. The Emerging Innovator Programme aims to inspire and empower Kiwi scientists with entrepreneurial DNA, fast-tracking them to commercial success.

The objectives of the programme are to:

1. Nurture entrepreneurship and develop the commercialisation skills of Emerging Innovators as they progress along their commercial journey.
2. Raise the profile of the Emerging Innovators, both nationally as commercial success stories and as entrepreneurial champions within their respective organisations.
3. Support the Emerging Innovators to identify and develop an appropriate commercial opportunity with strong fundamental features for commercial success, while likely to deliver appropriate commercial learnings.
4. Celebrate the commercial success of the Emerging Innovators as they progress on their commercial journey.
5. Establish and develop a cohort of Emerging Innovators who are well-networked and self-actualising, and who are actively working alongside private-sector stakeholders to create new business for New Zealand.

\$375,000

from

NORMAN F. B. BARRY FOUNDATION

\$20,000

from

CallaghanInnovation

15 EMERGING INNOVATORS.

In-kind support from

MinterEllison
RuddWatts **Baldwins** intellectual property



“We’re delighted to see our donation making such an important difference to a wide range of amazing research projects with real commercial potential.”

JOHN SMITH, CHAIRMAN OF THE NORMAN F. B. BARRY FOUNDATION

The Programme has been generously supported by the Norman F. B. Barry Foundation to the tune of \$375,000 in 2016, with additional funding and support provided by KiwiNet. John Smith, Chairman of the Norman F. B. Barry Foundation sees the Emerging Innovator Fund as an ideal way to leverage combined resources and connections.



To be eligible, scientists must be working within a publicly funded research organisation in New Zealand. In addition to \$20,000 of funding, each recipient is allocated a commercial mentor, and has access to in-kind expert legal support from MinterEllisonRuddWatts and Baldwins.

MEET THE EMERGING INNOVATORS



CloudSpec has potential applications in a wide range of industries including quality assurance for food, beverage, and water, plus enhancement of forensics testing.

DR BRENDAN DARBY

Dr Brendan Darby from the Raman Lab at the School of Chemical and Physical Sciences in Victoria University of Wellington has been awarded \$20,000 from the KiwiNet Emerging Innovator fund to assess the impact of CloudSpec, a new technology that has the potential to change the way industry analyses 'cloudy' solutions.



viclink

Dr Brendan Darby and the team at the Raman Lab are experts in spectroscopy - a technique used to identify the chemicals that make up a substance. Together they are developing CloudSpec, a next generation spectroscopy instrument that allows cloudy or opaque liquids to be analysed quickly and efficiently. Cloudy liquids typically require multiple steps to analyse via traditional spectroscopy techniques. CloudSpec promises a transformational impact in substance analysis by significantly simplifying the process.

CloudSpec has potential applications in a wide range of industries including quality assurance for food, beverage, and water, plus enhancement of forensics testing.

Conventional absorption spectroscopy works by shining a spectrum of light through the sample and monitoring which colours get transmitted, and which are absorbed. This traditional spectroscopy technique becomes ineffective when a sample solution is cloudy or opaque and contains large particulates that scatter light in all directions. This makes it very difficult to discern the absorption spectrum and little information can be extracted about the sample

In addition to funding, KiwiNet provided Brendan with a mentor, Clive Seymour formerly of Bruker Daltonics, who shared his expertise in scientific instrumentation, invaluable industry contacts and significant experience working with multinational companies.

Brendan's business acumen has been displayed in subsequent pitches of CloudSpec to the KiwiNet Investment Committee which have secured him and the CloudSpec team an additional \$188,000 of PreSeed Accelerator investment to help transform CloudSpec's cutting edge science into commercial reality.

DR VLATKO MATERIC

Dr Vlatko Materić, a researcher at Callaghan Innovation and founder of Hot Lime Labs, is developing a CO₂ capture material which can significantly boost glasshouse vegetable and flower yields.

His work is rapidly advancing due to a \$25,000 grant to demonstrate the technology. Vlatko's Hot Lime system will help growers to enrich the greenhouse atmosphere in CO₂, allowing them to boost yields by up to 20% in a glasshouse environment, in a sustainable and more cost effective way than existing methods. This will help growers to operate at optimal yields, which can be up to 20 times greater than those achievable in an open field. After identifying the commercial opportunity for his research, Vlatko met with greenhouse horticulture industry contacts and growers to understand their needs before developing the technology in detail.

By enabling access to renewable and low-cost CO₂, Vlatko's innovation can save an average size commercial grower \$30-50k per annum per hectare in running costs over using other sources such as natural gas or liquid CO₂, if available. Growers will be able to either purchase the system outright, or pay per tonne of CO₂ generated at a significantly lower rate than any other option.

The success of the project has enabled Vlatko to attract an additional \$95,000 of funding through the KiwiNet PreSeed Accelerator Fund, which has been matched by Callaghan Innovation to build a lab scale prototype. He has also taken unpaid leave to progress this project and has started a spin-off company Hot Lime Labs to serve as a vehicle for its commercialisation.

CallaghanInnovation

SEAN MACKAY

Final year PhD student Sean Mackay from the University of Otago has received a \$25,000 grant to aid the development of 'Squish', a targeted treatment for strawberry birthmarks which affects approximately 1 in 10 infants.

Sean Mackay specialises in nanotechnology, where his main research interest is in developing innovative medical technologies which control the way that drugs are administered to patients, making them more effective with fewer side-effects.

Sean is part of a team of talented scientists and clinicians from the University of Otago, the Gillies McIndoe Research Institute, and the Centre for the Study & Treatment of Vascular Birthmarks based at Hutt Hospital in Wellington. They are working on a targeted drug delivery system to treat strawberry birthmarks, also known as infantile haemangioma.

Sean says strawberry birthmarks are a type of vascular tumor which is disfiguring, can affect bodily functions and are sometimes life-threatening. "The goal is to develop a more effective and safer approach to treating infants by delivering the drug directly into the tumours using nanotechnology to carry the drug directly through the skin, rather than administering it orally. We are literally trying to 'Squish' drugs through the skin, hence the name for the technology," he says.

The current treatment for this debilitating disorder is Propranolol, a beta-blocker, taken orally, but it can cause adverse side effects. Creams that go on the skin are also not effective as they don't penetrate the cells effectively to enable drug delivery as required.

Sean says it's fantastic to be awarded the KiwiNet Emerging Innovator Funding as it will be used to optimise the technology for stability and increase its ability to effectively transport drugs into the tumour.



STRENGTHENING TECH TRANSFER

Increasing the quality and quantity of commercialisation activity at New Zealand's publicly funded research organisations.

ACTIVITIES	2016 OUTCOMES
<p>PIPELINE COMMITTEE A joint committee of tech transfer and business development staff from research organisations, who assess new projects, provide input into KiwiNet initiatives and design initiatives to support commercialisation.</p>	<p>Over the 12 months to March 2017 three Pipeline meetings were held with an average of 13 attendees to each. Projects are discussed amongst the research organisation representatives, combining expertise and connections to help accelerate commercialisation.</p>
<p>TECH JUMPSTART COMPETITIONS Tech Jumpstart gives academic staff a chance to transform their innovative ideas into reality. Projects receive funding to help with technology development, as well as commercialisation support and possible access to additional funding sources for continued development.</p>	<p>KiwiNet supported two Tech Jumpstart Competitions in 2016, at Lincoln University and University of Canterbury. We are looking to build on the momentum in 2017.</p>
<p>PARTNER LED ACTIVITIES Encouraging research organisations to lead activities that leverage their core strengths but align with the collaboration principles of KiwiNet. Ensuring all public research organisations are included and can benefit from these activities.</p>	<p>KiwiNet encourages joint initiatives to deliver training and foster business engagement. Through partnerships with other organisations in the innovation ecosystem we achieve greater impact from our activities. Examples of active partnerships that we have in place include:</p> <ul style="list-style-type: none"> • Licensing Executives Society of Australia and New Zealand – KiwiNet partnered with LESANZ to run a LESANZ licensing and commercialisation workshop in Auckland on 22 March. There were 20 tech transfer professional attendees from 12 organisations. • CreativeHQ – KiwiNet partnered with CreativeHQ, Callaghan Innovation and MBIE to host 3 GetFUNDED training workshops. • Knowledge Commercialisation Australiasia – KiwiNet is providing in-kind support to KCA to help bring its annual conference to NZ in 2017. • Foundation North (Gulf Innovation Fund Together (GIFT)) – KiwiNet is providing GIFT support as part of their initial development programme. They are working towards a broader partnership to support the potential commercialisation of Auckland based projects.
<p>CORPORATE PARTNERS These partnerships provide additional funding, but more importantly, represent a group of large corporate supporters who are very keen to get in behind KiwiNet.</p>	<p>KiwiNet has secured sponsorship partnerships with BNZ, Norman F. B. Barry Foundation, MinterEllisonRuddWatts, PwC, Baldwins, and Sciencelens to provide funding and in-kind support to KiwiNet activities and projects.</p>
<p>CORPORATE PARTNER BUDDY PROGRAMMES In-kind advice and expertise through mentors for KiwiNet Partner projects, Emerging Innovators and for a number of KiwiNet training events.</p>	<p>MinterEllisonRuddWatts and Baldwins have provided significant in-kind expertise: MERW and Baldwins have supported 21 projects and provided training at 4 events. PwC provides consultancy for KiwiNet partner projects and lead support for the newly formed KiwiNet Advisory Panel and Deep Tech Leaders Programme.</p>
<p>RESOURCE LIBRARY A library of legal and process templates and case studies to support research commercialisation staff, reduce legal costs and improve commercialisation processes.</p>	<p>22 templates, guides, and forms now exist in the resource library. These were downloaded over 1021 times in 2016.</p>

KIWINET COMMERCIAL MENTORS

KiwiNet's Commercial Mentor programme has expanded beyond expectations, with 51 connections created between commercial mentors and projects over the last 12 months. KiwiNet mentors support research organisations with everything from identifying new commercial opportunities to mentoring some very high potential projects. Commercial Mentors are driving significant pipeline growth while helping research organisations overcome limited tech transfer resources.



WILL BARKER

Commercial Mentor for Dr. Vlatko Materić, Callaghan Innovation

Dr. Vlatko Materić, a researcher at Callaghan Innovation and founder of Hot Lime Labs developed a CO₂ capture material which can significantly boost glasshouse vegetable and flower yields. The Hot Lime system will help growers to enrich the greenhouse atmosphere in CO₂, allowing them to boost yields by up to 20% in a glasshouse environment, in a sustainable and more cost-effective way than existing methods. This will help growers to operate at optimal yields, which can be up to 20 times greater than those achievable in an open field.

As part of Vlatko's Emerging Innovator experience, Will Barker (formally of Lanzatech), was assigned to mentor him to boost the commercial outcomes of Vlatko's discoveries. Working in conjunction with Will, Vlatko was able to put into practice the main commercialisation concepts: establishing a market pain, articulating a value proposition, devising a minimum viable product, identifying a unique selling proposition and developing an investment case.

Besides the immediate practical commercialisation experience gained through these activities, Will provided Vlatko with a new and greatly expanded perspective on how these individual components combine together in the technology commercialisation process. This has led to a step change in Vlatko's commercialisation capabilities. Vlatko comments, "Will's guidance has greatly increased my appetite for, and chances of, succeeding in this venture and hopefully future ones as well".

The project was subsequently granted PreSeed Tier 2 funding which allowed expansion of the scope of the initial project. It's on-track to reach an investor-ready stage in 2017.



MERV JONES

Commercial Mentor for ESR's Portfolio Review

With a rich history of scientific discovery, ESR had a wide range of projects at various stages of maturity and needed to quickly identify which ones should be fast tracked for commercialisation funding and support.

KiwiNet appointed Dr Merv Jones to assist in the evaluation of commercial opportunities. Merv is a company director and senior executive with wide experience in industrial science, commercialisation and governance, and a successful leadership record of growth and profitability in Australia, New Zealand and Asia. He also has significant experience working as a scientist within both the public and private sectors.

After an initial review of 32 projects, Merv and Hamish Findlay, General Manager - Commercial and Business Development at ESR, created a short list of 9 projects for deeper analysis. Merv, Hamish and other ESR team members, had face-to-face meetings with each project sponsor. Merv drafted a summary of each of the projects and provided preliminary thoughts on their commercialisation potential and their applicability of KiwiNet PreSeed funding.

Three projects were identified as having significant commercial potential: one as a candidate for the KiwiNet Emerging Innovator Programme, one ESR is running a workshop on it to help drive it forward, and one is progressing to Tier Two PreSeed investment.

ENERGISING THE MARKET

Engaging early and often with the private sector to build the best possible expertise around technologies to maximise chances of success.

ACTIVITIES

INDUSTRY ENGAGEMENT

Providing opportunities for researchers to connect with businesses to assist the development of disruptive solutions to industry problems.

EXPERT ADVICE & ENTREPRENEUR CONNECTIONS

Delivering the best possible advice and guidance for researchers and commercialisation staff.

INTERNATIONAL ENGAGEMENT

Connecting with similar organisations overseas to identify opportunities for collaboration and leverage their connections into foreign markets.

PSYCHOMETRIC PROFILING

Knowing and growing your team is the ethos behind KiwiNet licencing of Prevue. This psychometric profiling tool helps leaders to understand how to best support their teams their teams to maximise chances of commercial success.

2016 OUTCOMES

KiwiNet supported Massey University to bring together a network of applied mathematicians to be part of the Maths in Industry (MINZ) study group. Businesses pay \$6,000 to put up specific challenges and over 90 mathematicians from across New Zealand, Japan, Korea, Australia and Fiji converged in Wellington for one week to find solutions. The event was very successful with ongoing connections forged.

DEEP TECH LEADERS

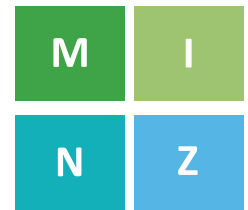
The Deep Tech Leaders initiative places experienced entrepreneurs alongside researchers to provide ongoing commercialisation advice for their projects, from inception to private-sector-ready stage. This initiative has proven exceptionally successful since launching in 2016.

KiwiNet is building collaborations with technology transfer partners in key countries. Connections and projects are now being exchanged with over five organisations across China and the Asia region.

- A China-New Zealand (Suzhou) Innovation Centre has been established with Suzhou Industrial Park (SIP), which will facilitate transfer of NZ technologies into markets in China. Viclink is leading the collaboration with the platform providing an opportunity for all KiwiNet partner organisations to participate.
- KiwiNet convened a half-day workshop for its partners to better understand how opportunities in China progress, structures available to organisations in New Zealand, the operation of SIP, and intellectual property considerations.
- Initiatives with Knowledge Commercialisation Australasia (KCA), are growing. Ten tech transfer staff from KiwiNet partner organisations attended the 2016 Knowledge Commercialisation Australasia (KCA) conference in Brisbane in September.

KiwiNet provides Prevue to our partners and Angel Investors enabling them to gain valuable insights into an individual's abilities, motivations, personality and approach to work. 47 assessments were completed in 2016.

MATHEMATICS IN INDUSTRY (MINZ)



Background

Mathematics-in-Industry NZ (MINZ) events offer a collaborative approach to industry problem solving, where mathematical scientists tackle real life problems shared by companies.

The combined power of New Zealand's best and brightest mathematicians was harnessed in week-long workshops, offering a collaborative environment to solve six industry challenges.

Emeritus Professor Graeme Wake was instrumental in facilitating industry engagement.

The Event

KiwiNet, with Victoria University of Wellington hosted the 2016 MINZ event. It was opened by Hon Steven Joyce. The challenges came from Transpower, Compac, Fonterra, Zespri, New Zealand Steel Limited and Japan Agency for Marine-Earth Science and Technology. Over 90 mathematicians from around New Zealand, Japan, Korea, Australia and Fiji attending MINZ 2016. There were also over 20 professionals attending the event. A Royal Society grant enabled an exchange between the New Zealand and Japan Study Groups following the main event and Transpower also took a challenge to the Japan Study group.

Find out more and watch the MINZ highlights video at www.minz.org.nz

Six challenges proposed by the companies:



CHALLENGE 1 Transpower

Inter-regional variability of irradiance and implications for future PV generation on the power system.



CHALLENGE 2 Compac Sorting

Designing a mathematical model for accurately estimating weight of a moving object from noisy and heavy biased signals involving both known and unknown sources of data contamination.



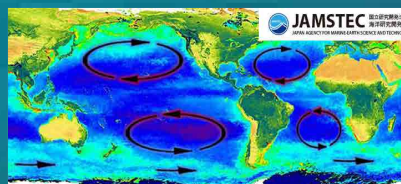
CHALLENGE 3 Zespri

Predicting fruit quality in the supply chain from harvest to market.



CHALLENGE 4 Fonterra

Can we predict how long we can store milk powders especially in elevated temperatures and humidities?



CHALLENGE 5 JAMSTEC

Achieving smoother probabilistic distribution of ensemble climate prediction output produced by global climate models.



CHALLENGE 6 NZ Steel

Improving the Finishing Mill Roll Gap Setup Model for the 4 Stand Hi Finishing Mill in the NZSteel Hot Strip Mill.



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