Aotearoa EdTech Excellence

TRANSFORMING EDUCATIONAL EXPERIENCES, DIGITAL INNOVATION AND ECONOMIC OUTCOMES

An analysis of the New Zealand education technology sector and its impact and benefits for the economy and society.

EdTech in New Zealand 2021

New Zealand's EdTech sector includes companies working on products and technologies to help improve our lives and our planet, plus supporting services. The EdTech sector is highly innovative, and research and development intensive and is constantly evolving with new companies. This graphic will be regularly updated, so please contact us with your suggested additions: **info@edtechnz.org.nz**

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www.edtechnz.org.nz

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About EdtechNZ

Education is the foundation on which all of New Zealand will prosper and grow.

The Education Technology Association of New Zealand (EdTechNZ) is the voice of EdTech in New Zealand, supporting the growth of the sector.

Our mission is to improve the lives of people and increase the access to, quality and impact of education through innovative technology, for the benefit of educators and learners in Aotearoa New Zealand and around the world.

Our members share a passion for the potential that education technology can bring for New Zealand's prosperity. Members include EdTech companies, educators and training providers. Together, we provide an independent voice for the EdTech ecosystem.

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FOREWORD
EdTech New Zealand

There has never been a more exciting time to be involved in EdTech. As the pace of change in society continues to accelerate, education becomes increasingly critical to our success, both individually and as a country.

The COVID-19 pandemic has been a "forcing function" driving the uptake and better deployment of technology in education, as the traditional face-to-face mode of education has been disrupted by the need to work and learn remotely.

Learners' and educators' expectations of how learning can be made more efficient and enjoyable has been driven by the transformation of communications, retail, entertainment, and just about every other industry by the internet. Why shouldn't education be as easy to consume as your email? Or as enjoyable as your favourite streaming platform? Or as connective as social media? Or as efficient as applying for a passport?

Addressing these challenges is driving huge growth in EdTech. Aotearoa New Zealand has already generated high profile international success stories like Education Perfect, Kami, and Hapara. We believe that building on New Zealand's international reputation in education, combined with our core Kiwi values of innovation, excellence, caring for people, and teamwork, EdTech could become one of New Zealand's iconic industries.

But there is much work to do to seize this opportunity.

This report outlines our kaupapa, our history, the present state of play, and the opportunities.

Shane Kerr
Chair, EdTechNZ

It makes recommendations for the government and the industry to ensure that we equip our citizens – young and old alike – for the ever more rapidly changing future. It champions technology as a key tool in how we engage in meaningful lifelong learning and educate ourselves and each other.

EdTech can bring us closer together and better connect Aotearoa to the world. This report shows us how.

FOREWORD
New Zealand Government

Tena koutou katoa,

In every aspect of our lives, technology is transforming how we live, how we communicate with each other, and the very impact we have on the planet.

It is also a key component of New Zealand's International Education Strategy which envisages international education contributing to a thriving and globally connected New Zealand through world class education.

Today, in the face of unprecedented challenges, our business and education environment has been fundamentally transformed. New Thinking is required to overcome these challenges and Education New Zealand was very happy to provide funding for this joint initiative from the sector's COVID recovery Future Focussed Programme which supports initiatives to identify innovation, priority projects and opportunities.

Across the sector new strategies have already been developed to build resilience and diversity in our products and service offers. Partnerships of value between like-minded governments and education institutions have been increasingly sought out. Exchanges of cultural and academic learning are now taking place across the internet as well as the traditional in-person forums, and the awareness of how technology can overcome the tyranny of distance has been brought into sharp relief by the events of the past two years.

Importantly, our EdTech industry offers a powerful 'first contact' for global learners, parents and educators to experience our unique combination of collaborative learning environments, respect for diversity and indigenous cultures and international best practice.

Young learners around the world will be learning English on New Zealand made apps and platforms and participating in New Zealand te ao

Grant McPherson
CEO
Education New Zealand

THINK NEW®

NEW ZEALAND EDUCATION
Manapou ki te Ao

Māori experiences such as indigenous coding camps in Papua New Guinea and Japan. These early experiences with New Zealand Education technologies will lay a foundation for later engagement and study with New Zealand. They will also continue to build the global network of New Zealand alumni whose lives have been irrevocably changed by the light touch of the free exchange of ideas.

This report is an important and timely addition to the ongoing dialogue on how New Zealand can build its technology excellence to ensure future success.

As we transition from studying in New Zealand to studying with New Zealand, we are moving into an exciting future. One that can only be achieved if we work together, and through this cooperative process achieve the success for New Zealand's education sector that we all seek.

Executive Summary

New Zealand's education system has sought to provide affordable access to education for learners for nearly 150 years.

In 1877, the Education Act established a free, compulsory, and secular school system. The country has an excellent international reputation in pedagogy and academic excellence as borne out by: good university rankings and PISA scores; a high-trust environment that has fuelled our COVID-19 response as a country; a respect for Te Ao Māori values; and a vibrant multicultural society that brings the best the world has to offer into our motu. Aotearoa has a unique opportunity to overcome historical inequity, and bring the best possible effect to Te Tiriti o Waitangi as a kaiārahi (guide) for equity in education, both for our ākonga (learners) here and those around the world.

Today, the education sector, from early childhood through tertiary to vocational study and lifelong learning, represents the third largest area of government expenditure. Education is a major contributor to the New Zealand economy, and prior to COVID-19, the fourth largest export earner. By promoting our country as a great destination to live and learn, brand New Zealand attracts a large number of foreign tertiary-level students.

Aotearoa also has a small, successful, and growing EdTech sector that is gaining global traction. Spanning all levels of educational attainment, our specialist expertise covers interactive content, artificial intelligence (AI), virtual reality, educational games, research support, and administration.

Our spending on education software alone was NZ$173.6 million in 2020, a figure that is set to reach NZ$319.6 million by 2025. This exponential growth will be driven by the need for education to keep abreast of digital transformation occurring in wider society – particularly the recent accelerated adoption of digital tools and online learning solutions in the wake of COVID-19. Education helps us adapt to, and take advantage of, the opportunities presented by a rapidly changing world.

Global EdTech digital expenditure was

US$164 billion
in 2019 and is set to reach
US$404 billion
by 2025.

Globally, the adoption of EdTech software-as-a-service (SaaS) is experiencing strong growth. Global EdTech digital expenditure was US$164 billion in 2019 and is set to reach US$404 billion by 2025. EdTech is lifting learner outcomes, enabling new types of learning, and is a major export opportunity.

New trends in education are driving learner demand. Tertiary degrees, while still valuable, are losing their status as the primary gateway to employment. Micro-credentials for specific skills recognition and a greater appreciation of lifelong learning are becoming increasingly important in the digital world.

COVID-19 has permanently changed the way New Zealand – and the world – delivers education.

That said, New Zealand's burgeoning EdTech sector faces challenges entering international markets. These challenges are exacerbated by a diffuse domestic market and the prevailing school-by-school approach to technology procurement.

At this inflection point, Aotearoa has a huge global opportunity. But more work and resources are required to seize it. Government agencies, industry bodies, educators, students, learning institutions, and technologists must cooperate to transform this opportunity into a working reality. Ultimately, education is the key to future prosperity and EdTech is a force-multiplier. EdTech exports and foreign student numbers will grow on the back of improved outcomes and experiences in New Zealand's domestic education market. Together we can make this happen.

Summary Recommendations

The Aotearoa EdTech Excellence study has reinforced the critical role that technology has to play in the educational outcomes of all New Zealanders.

To best enable the education technology sector to reach its potential and maximise its positive impact for New Zealand the following recommendations have been developed, based on research insights.

THEME 1: A NATIONAL EDTECH STRATEGY

1

The Goal: Coordinate our collective efforts to improve educational outcomes through the application of local innovation and technology.

Recommendation:

1.1   Create a national EdTech Strategy as a collaboration between Government (Ministry of Education, Education New Zealand, New Zealand Trade and Enterprise, and NZQA) and Industry (EdTechNZ).

THEME 2: OVERCOMING CHALLENGES WITH THE SMALL DOMESTIC ADDRESSABLE MARKET SIZE

2

The Goal: Improve the addressable domestic market for EdTech vendors.

Recommendations:

2.1   Increase government funding and support for schools and other educational institutions to use EdTech.

2.2   Increase introduction and use of micro-credentials in New Zealand.

THEME 3: IMPROVING EDTECH PROCUREMENT IN NEW ZEALAND

3

The Goal: Take steps toward centralising procurement strategy and processes to reduce burden on schools, improve pipelines for EdTech vendors, and improve the value learners get from schools' EdTech investments.

Recommendations:

3.1   Develop a more centralised education technology procurement model.

3.2   Industry/Government collaboration on innovation to solve local issues.

THEME 4: IMPROVING DIGITAL TRAINING FOR EDUCATION PROFESSIONALS

4

The Goal: To improve access to, and content of, Professional Learning and Development (PLD) to support educators to more seamlessly integrate digital tools into the classroom to improve learning outcomes.

Recommendations:

4.1   Increase PLD options for digital upskilling of teachers.

4.2   Increase PLD funding for digital upskilling of teachers.

THEME 5: STRIVING FOR DIGITAL EQUITY IN EDUCATION

5

The Goal: To increase confidence and make digital learning equally available to all learners and educators through better access to digital equipment, networks, tools, skills, and training.

Recommendations:

5.1   The EdTech sector should play a role in enabling and supporting digital equity.

5.2   Government should fund basic digital equipment and internet access.

THEME 6: SCALE AND SUPPORT FOR EDTECH EXPORT TO THE WORLD

6

The Goal: To make it easier for New Zealand EdTech companies to successfully export their services and solutions.

Recommendations:

6.1   EdTech companies must improve their collaboration domestically and internationally.

6.2   Government and industry should collaborate to develop a cohesive EdTech Export Growth Plan.

Key Highlights

NEW ZEALAND INVESTS WELL IN EDUCATION

$17.6 billion
spent by the New Zealand Government on education in 2020.

New Zealand ranked 2nd
in the OECD for Government spend on education as a proportion of GDP.

New Zealand ranked 3rd
in the Economist Intelligence Unit's (EIU) Worldwide Educating for the Future Index 2019.

New Zealand spent **$173.6 million** alone on education software in 2020, a figure that's set to reach **$319.6 million** by 2025.

NEW ZEALAND EDTECH IS STILL IN ITS INFANCY

US$404 billion
spent on EdTech globally in 2020.

US$18.66 billion
invested in EdTech firms globally in 2019.

6%
of NZ EdTech firms earning over $20m in revenues a year.

65 percent of New Zealand's local EdTech companies were established in the last ten years.

EDUCATION TECHNOLOGY PROVIDES MANY BENEFITS FOR NZ

Enhanced learning outcomes and experiences.

Improved educator outcomes and experiences.

Highly personalised instruction directed to individual learners.

Increased access to education.

Magnified economic benefits for the EdTech sector and all Aotearoa.

Ability to cater to students for whom traditional education models don't work.

Increased equity in education.

Greater choice for learners.

Greater resilience to deal with situations where face-to-face learning is not possible, or when teachers are not available.

NOW IS THE TIME TO TAKE ADVANTAGE OF THE OPPORTUNITY EDTECH PRESENTS TO AOTEAROA

Our EdTech sector is starting to gain significant success in overseas markets

We can no longer rely on reliable flows of offshore students coming to New Zealand; EdTech can help us bring the New Zealand education experience to offshore students.

The COVID-19 pandemic is driving digitisation of education.

The "standard model" of education is changing from a rigid model of high-cost certifications and degrees to a more flexible model of lifelong learning and micro-credentials.

If we don't support our local EdTech sector we run the risk of being completely overrun by large international players.

Learners have heightened expectations for the quality of education.

Introduction: Education in Aotearoa

Learning and education have always been human-centred and future-focused. Societies have built on their knowledge and understanding of the world since prehistoric times.

Generations handed down essential life skills and wisdom. Later came formal education systems, starting around 2000 BC in societies such as the Middle East, India, and China. In medieval times, the first universities developed, mainly in European countries. Education and learning in Aotearoa has a long, complex, and multicultural history.

Mātauranga Māori was the first education system in Aotearoa. Mātauranga Māori is the knowledge of a Māori way of being and engaging in the world.[1] Prior to European contact, whānau, hapū and iwi controlled Mātauranga Māori. Māori developed and brought complex knowledge systems to Aotearoa including technology for food preservation, farming, navigation, engineering and defence (pā), and plant-based medicine.[2]

European settlers arrived in New Zealand with guild experience in crafts and trades. Learning passed down informally until settlers established community-based, and later, government-based, education systems.

Schools in New Zealand were initially set up by churches and provincial governments. The Education Act 1877 created New Zealand's first secular, compulsory, and free primary education system for children ages 7 to 13. Māori did not receive the same opportunity until 1894 and even then not all children could attend school. Some families needed their children at home to help with labour.

Secondary schooling was mostly for children of affluent families. The Education Act of 1914 allowed children to receive free secondary education, provided they passed a proficiency test.

The test requirement was removed in 1944 and a core curriculum developed. This was the start of School Certificate and University Entrance. Streaming and subject choice limitations by gender were common.

At a tertiary level, the University of New Zealand, opened in 1874, was disestablished in the 1960's. This resulted in the arrival of four independent universities and two agricultural colleges. There were also a number of polytechs and technical schools for students to learn trades. Reform meant volume-driven funding for tertiary education to increase participation, and later, the introduction of the student loan scheme in 1992. This was almost too successful, with one report noting the tertiary sector experienced over-enrolment, creating issues for government expenditures.[3]

In 1989, the Government's 'Tomorrow's Schools' programme brought education reform to the compulsory sector that survives today. Proponents said devolving some functions would create flexibility in how schools were run, leading to educational improvement. Some of the changes included:

- Creation of school boards of trustees to control school management.
- Principals took on financial management, legal issues, managing property and employment.
- Establishing the Education Review Office (ERO) to evaluate and report on education.
- Establishing the New Zealand Qualifications Authority (NZQA) to manage qualifications.

A 2007 report showed the reform had not resulted in a measurable improvement of achievement.[4] Conversely a Post Primary Teachers' Association (PPTA) report showed secondary learning outcomes improved with the introduction of the National Certificate of Educational Achievement (NCEA) in 2002.[5] Primary school outcomes improved when the Ministry of Education (MoE) revised professional development, provided new assessment tools to identify learning gaps, and resources to meet those identified needs.[6]

Education in Aotearoa Today

Aotearoa's Education System has Global Recognition

New Zealand performs well in many facets of education according to the OECD. In 2020 the Government spent NZ$17.6 billion on education. This figure is set to increase over the next five years to NZ$18.6 billion – a compound annual growth rate (CAGR) of 1.2 percent.[7] New Zealand spent 6.3 percent of its gross domestic product (GDP) on education in 2017, ranking it second within the OECD countries.[8]

New Zealand ranked third in the Economist Intelligence Unit's (EIU) Worldwide Educating for the Future Index in 2019. Moreover, the nation achieved a top score in the index's socio-economic environment category, where it ranked among the top five countries in the 'education policy environment' category.

In 2019, 97 percent of children who started primary school had prior participation in early childhood education (ECE).[9] Currently there are around 4,500 early childhood education centres in New Zealand.[10] Participation has increased since 2007 with the introduction of 20 hours free ECE per week for eligible

children. New Zealand also sits above the OECD average for rates of early childhood enrolment for children under the age of three.[11]

There are a total of 2,536 schools covering Year 0 to Year 13 in New Zealand.[12] The majority, 1,943, are primary schools, with 378 secondary schools and 178 composite schools. New Zealand is above the OECD average for students completing upper secondary school within the expected duration of three years.[13]

In 2020, 22,391, or 2.7 percent of all students, were enrolled in Māori medium education, where students are taught curriculum subjects in Te Reo Māori for at least 51 percent of the time.[14] Kura Kaupapa Māori are immersion schools which incorporate Te Reo and Tikanga Māori in the classroom. These include Kira Tuatahi for primary school aged students and Wharekura

New Zealand spent

6.3% of GDP
on education in 2017
2nd highest in the OECD.

New Zealand ranked

3rd
in EIU Worldwide Educating for
the Future Index 2019.

for secondary school aged students. A 2021 report by Stuff News showed the rate of students with whakapapa Māori who are awarded NCEA Māori language scholarships has been steadily increasing over the last decade.[15] The report also asserted that Kura Kaupapa Māori were responsible for a majority of this growth.

In 2020 some 380,255 students were enrolled in domestic tertiary institutions including universities, institutes of technology, polytechnics, wānanga and government-funded private training establishments (PTE's).[16] A quarter of 25-34 year-olds have a vocational certificate as their highest qualification, which places New Zealand above the OECD average.[17] Furthermore, unemployment rates of 25-34 year-olds with vocational certificates are lower in New Zealand than the OECD average.[18]

Pre-COVID, there were around 34,000 international students enrolled in New Zealand university programmes. In 2018 international students made up about 20 percent of all diploma level and above students in New Zealand, while the OECD average was 6 percent.[19] International students generated at least NZ$1.25 billion per year for the New

Zealand economy.[20] Universities' earnings from export education equated to 1.2 percent of the country's total goods and services exports.[21]

This is an area of success for New Zealand but also an area of over-reliance. Closed borders due to the COVID-19 pandemic have all but decimated the international study industry. It remains to be seen how much this will recover to previous levels after the pandemic.

Aotearoa's Education System Aspires for Equity, but There is Work to Do

As noted by Axford Fellow Sarah Bolton, "an equitable education system is one where all students, regardless of their ethnicity, socioeconomic status, or abilities, can succeed."[22] Research from Fulbright New Zealand shows that while New Zealand's education system performs well overall, there are large gaps in equity for Māori, Pasifika and low-socioeconomic status students.[23] The same report notes that the Government says a moral imperative exists to better support and engage with Māori communities under the Treaty of Waitangi. This extends to providing an education that allows Māori students to excel.

The Government's review of Tomorrow's Schools in 2018 found that the school system does not work well enough for New Zealand's most disadvantaged learners.[24] The review called for a cultural and structural transformation; it included recommendations for:

- changes to governance
- better schooling provision
- limiting unhealthy competition between schools for students
- more support for students with disabilities or learning support needs
- improving quality of teaching
- improving how school leaders are appointed, mentored, and supported
- school resourcing, and the problems with the decile system
- reconceptualising and reconfiguring central education agencies.

Several programmes are underway to address these recommendations. For example, the school decile system is to be replaced with an equity index. This will deliver better resource allocation to provide more equitable chances of success among all learners.[25]

The Government says it is moving education from a highly devolved, largely disconnected, and autonomous set of institutions, to a much more deliberately networked and supported system that is more responsive to the needs of ākonga and their whānau.[26]

The Ministry of Education is working with partners to develop an education workforce strategy.[27] This will support New Zealand to have a strong, culturally competent education workforce for the 120,000 people employed in the compulsory sector. The strategy aims to equip this workforce with the right skills and disposition to help every learner reach their potential.

There are many community organisations working to improve education equity, particularly when it comes to engagement in science, technology, engineering and mathematics (STEM) subjects.

For example:

- Digital Future Aotearoa is a charity that provides digitally focussed education programmes for New Zealand children. Its community based programmes utilise 3,500 teachers and volunteers and include: clubs to teach computer programming, 'Electric Garden' – mixing digital tech with growing vegetables, and 'She Can Code', which focuses on improving the visibility of girl, women, and non-binary coders.

- The Greater Christchurch Schools' Network (GCSN) works to bridge the digital divide by providing schools and students opportunities to learn more about, and experience, digital technologies.

- Te Awakairangi Access Trust (TAKA) is a charitable trust providing access to the internet and digital services for children in Lower Hutt.

- IT Professionals New Zealand delivers 'TechHub Talks', which involves tech professionals going to schools to teach students what it's like working in a tech firm. These lessons are also delivered via Zoom to better reach rural schools, and include translated material that takes a Māori worldview and encompasses kaupapa Māori.

- Te Whare Wānanga o Awainuiārangi (TWWoA) creates solutions to address the low participation of Māori in technology-based subjects. Through programmes including Robopā, they show western methods of computing and identify their applicability and connection to Te Ao Māori.

A Changing World, a Changing Future of Education

Rightly, the Treasury's Budget Economic and Fiscal Update 2021 said that COVID-19 is changing the demand for education and training.[28] The pandemic has created uncertainties around unemployment, net migration, school leaver transitions, and tertiary participation rates. International students can no longer study and live in Aotearoa due to border restrictions.

Global trends suggest an increased focus on micro-credentials and lifelong learning. The nature of work and the skills employers demand is shifting. Education providers recognise the need to enable all students to succeed. Some are pursuing innovative methods of teaching and assessing. Data and information is becoming critical for students, parents, teachers, educational institutions, and government to make well informed decisions around education.

Our world is rapidly changing, and with it, how we teach and how we learn. The Education Review Office says that, "to lead innovation in schools, teachers need to have growth mindsets and work collaboratively, and personalise curriculum and pedagogy to individual learner needs."[29]

Digital technology is a key enabler of improved outcomes in today's educational environments. Through EdTech, we see New Zealand's education sector using innovative solutions to overcome inequity, increase access, improve learner outcomes and research, develop teachers, design lesson plans, and better manage and administer learners and schools.

EdTech is key to Aotearoa's education future."

PART ONE:

The EdTech Landscape

What is EdTech?

From the abacus and slate boards of 12th century China and India, to the model steam trains of 19th century Britain, and the infamous video projections of 1950's classrooms – history shows us that technology and education are one in the same.

Fast forward to, and through, the computer age and quite naturally, education and become enmeshed with information technology. This is where the term EdTech derives its meaning – as the practice of introducing IT tools to support the experiences and outcomes of learners, educators, and educational institutions.

Today there are several categories of educational technology; these can broadly be defined as:

- Knowledge and Content
- Education Management
- Traditional Models
- New Delivery Models
- Experiencing Learning
- International Education
- Learning Support
- Assessment and Verification
- Workforce and Talent
- Skills and Jobs[30]

EdTech is a key feature of formal and informal learning environments. It spans academic disciplines and the full range of ages and levels of educational attainment.

❞ EDTECH

Technology that supports the experiences and outcomes of learners, educators, and educational institutions.

In New Zealand, these include:

1. Early Childhood Education (pre-school learners aged 3-4).
2. Compulsory Education (primary, intermediate, and secondary school learning for learners aged 5-18, and compulsory for learners aged 6 to 16).
3. Tertiary Education (university and other post-secondary education).
4. Continuous Education (adult, personal development, and professional education and training).

EdTech software platforms and programmes are now a key branch of New Zealand's EdTech ecosystem. Though still a nascent industry, the EdTech sector will be shown to have huge potential for New Zealand as a harbinger of new jobs, export opportunities and improved learning outcomes, both at home and abroad.

EARLY CHILDHOOD

STORYPARK
Documenting children's' learning together

Storypark helps educators, early childhood centres, and families maintain progress portfolios and track children's learning journeys on a centralised platform. Storypark strengthens communication and engagement between teachers and whānau. It builds strong connections around each child to support better educational outcomes. The Storypark platform aims to build a greater understanding and personalisation of early learners' education journeys through family engagement and learning journey planning and visibility.

www.nz.storypark.com

TERTIARY EDUCATION

ADRI
Localising knowledge in Arabic

The Arabic Digital Reform Institute (ADRI) strives to improve the digitalisation and accessibility of Arabic academic content around the world. This removes barriers for communities and researchers to access to use this information. The institute uses artificial intelligence, automated translation, machine learning, cloud technologies, and optical character recognition to publish, translate, and provide greater access to Arabic scientific research. ADRI also uses these technologies to translate research from English to Arabic.

www.adri.nz

COMPULSORY EDUCATION

LEARNCOACH
Fast and simple NCEA study

LearnCoach is a platform that provides digital tutorials for NCEA courses. It is one of most used e-learning platforms for secondary students, supporting 150,000 students every year and delivering over 1 million lessons. LearnCoach is the first Government-approved online tutorial provider for the New Zealand curriculum. LearnCoach coaches students to improve their performance in NCEA exams. Throughout the COVID-19 period, LearnCoach Classroom enabled teachers to conduct their classes remotely and offered free subscriptions.

www.learncoach.com

PROFESSIONAL EDUCATION

SKILLS VR
Immersive VR training solutions

SkillsVR provides immersive VR training solutions aimed at professional learners. SkillsVR uses 3D virtual reality and mobile content to provide industries, employers, employees, and future talent with immersive training simulations. This is a safe, transformative, and cost-effective way to make sure employees have the hands-on, practical skills and training they need.

www.skillsvr.com

PROFESSIONAL EDUCATION

SHARP READING
Resources for quality reading programmes

SharpReading's literacy resources and programmes support teaching of reading and literacy outcomes. SharpReading integrates mental text decoding strategies into young learners' minds through simple, repetitive tasks. Through this, students develop strong, transferable techniques to understand different texts.

www.sharpreading.com

PROFESSIONAL EDUCATION

ENROLLER
Student recruitment for education providers

Enroller is an enrolment processing software for international students studying in New Zealand. Enroller provides a SaaS-based marketplace to schools and education agencies around the world. Enroller's digital platform simplifies and automates international student enrolment, from initial enquiry, to the application process, to the student's arrival at school. The company partners with more than 60 schools and over 500 education agencies across 50+ countries. The company was built on two founding ideas. First, to make international education more accessible for young learners; and second, to make operations within busy institutions and education agents simpler and more efficient through digital transformation.

www.enroller.co.nz

Organisational Sectors

- 🔴 Assessment & Verification
- 🟠 Experiencing Learning
- 🔵 Knowledge and Content
- ⚫ New Delivery Models
- 🟢 Workforce & Talent
- 🔴 Education Management
- 🔵 International Education
- 🔵 Learning Support
- 🟤 Skills & Jobs

EdTech in New Zealand

Today, New Zealand has a young, growing, and highly innovative EdTech sector. Evolving from a focus on 'technology' as a subject, Edtech has become a key facet and enabler of contemporary learning, where digital initiatives and technology are fully integrated into learning.[31]

THE EVOLUTION OF AOTEAROA EDTECH:

- **1993:** Ministry of Education publishes a draft technology curriculum for New Zealand primary and secondary schools.

- **1993:** University of Waikato offers the first post graduate technology education courses.

- **1995:** Ministry of Education publishes an official 'Technology Curriculum Statement'. This is categorised into three strands: technological knowledge and understanding; technological capability; and technology and society.

- **Mid-1990's:** The Ministry of Education works with research groups including the University of Waikato and the Auckland College of Education to implement initiatives for teacher development and resources to enable technology education. For example, in 1997 the Ministry of Education published a video-based professional development package, *Towards Teaching Technology: Know How 2*.

- **1997:** TENZ (Technology Education New Zealand) is established. TENZ is a professional network supporting technology education in Aotearoa.

- **1999:** Full implementation of New Zealand's Technology Curriculum.

- **1999:** Ministry of Education publishes the Hangarau (Māori technology) Curriculum, which aims to use Māori knowledge to support the technological literacy of Māori ākonga.

- **2000-2005:** Some of Aotearoa's first EdTech companies are founded. Many of these early innovators are publishers, who were able to 'productise' Aotearoa's pedagogy and set the standard for future EdTech innovations.

- **2006:** NZQA adds technology to the list of approved subjects for University Entrance.

- **2007:** Ministry of Education publishes an updated New Zealand Curriculum. This update prioritises technology literacy and the notion that technology will shape the country's future. New learning strands include technological practice, the nature of technology and technological knowledge.

- **2010-2011:** New Technology Curriculum fully implemented for all schools, including NCEA-level learners.

- **2012:** The Government establishes Network for Learning (N4L) as a crown company to provide secure internet and network connectivity to Aotearoa's schools and kura. Fast, secure, connectivity is enshrined as a key driver of growth in the EdTech sector.

- **2013:** Education New Zealand, Grow Wellington, and Learning Media sponsor and organise New Zealand's first conference on 'EdTech for Export'.

- **2014:** New Zealand's first education-focused 'Startup Weekend' is held in Wellington.

- **2015:** Tablets and laptops become commonplace in the classroom. A 2015 Network for Learning survey found that around 70% of secondary schools and 50% of primary schools have a Bring Your Own Device (BYOD) policy.[32] This opens up opportunities for local EdTech innovation.

- **2017:** Ministry of Education updates the Digital Technologies/Hangarau Matahiko Curriculum in New Zealand. The new curriculum introduces two new strands: computational thinking and designing digital outcomes. These strands signal a transition from 'user' orientated learnings to digital 'innovation and creation' based learnings.

- **2017:** EdTechNZ founded with the aims of driving creative and innovative use of technology in all education settings and raising the profile of New Zealand's EdTech sector domestically and internationally.

- **2020:** New Digital Technologies and Hangarau Matihiko curricula fully implemented in schools.

- **2020:** The COVID-19 pandemic forces learning institutions to rapidly shift to online instruction.

Source: Dates up to 2010: Development of Technology Education in New Zealand Schools 1985-2008, Don Ferguson, 2009.

PROFESSIONAL EDUCATION

WENDY PYE PUBLISHING
Literacy resources in digital and print

Wendy Pye Publishing Limited is an educational literacy publisher in New Zealand, founded in 2005. The company publishes literacy and English language materials in print and online form. The Wendy Pye Group has spent the past 20 years specialising in digital courseware, to overhaul its print publishing business. The organisation is a pioneer in digital content for early learning in English and mathematics. Wendy Pye's current and previous archive constitutes 2,500 titles, with over 300 million copies sold globally.

Subsidiary Sunshine Online, founded in 2008, is a leading early literacy and numeracy program used in New Zealand schools. There are now over 890 new book titles available on the platform, as well as a game zone with over 2,000 quizzes, and a complete phonics program.

www.sunshine.co.nz

Aotearoa's EdTech Sector Today

New Zealand has a growing EdTech sector that is gaining global traction in a number of areas and disciplines. As noted earlier, spending on education software alone was NZ$173.6 million in New Zealand in 2020, and is set to reach $319.6 million by 2025.[33] There is undoubtedly a clear market opportunity for New Zealand EdTech companies domestically and internationally.

In mid 2021, and with assistance from 90 domestic EdTech companies, EdTechNZ undertook research to better understand local trends and insights in Aotearoa's maturing EdTech sector.
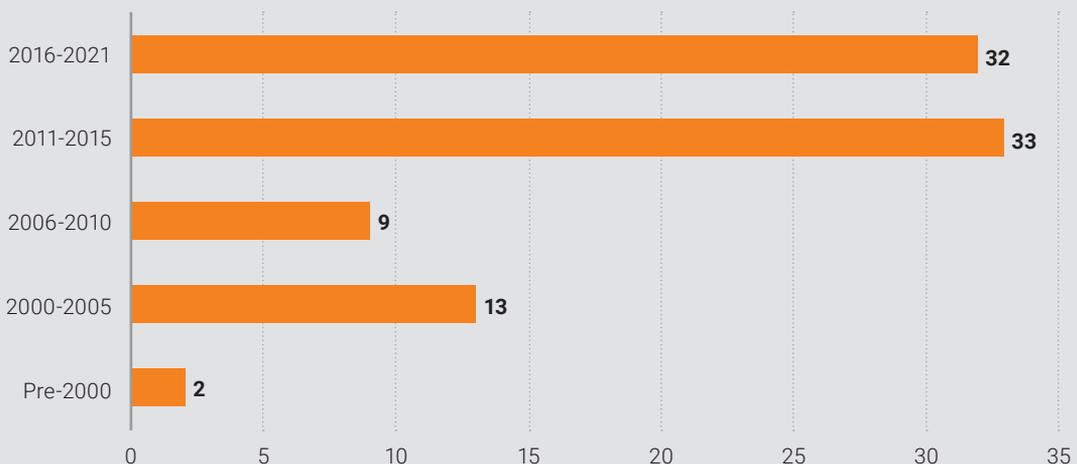
Sector Sizing and Demographics

Aotearoa's EdTech industry is relatively young. Around 60 percent of New Zealand EdTech companies surveyed describe themselves as a startup; two thirds have under ten employees.

65 percent of New Zealand's local EdTech companies were created in the last ten years (see figure 1). Drivers of this recent growth include:
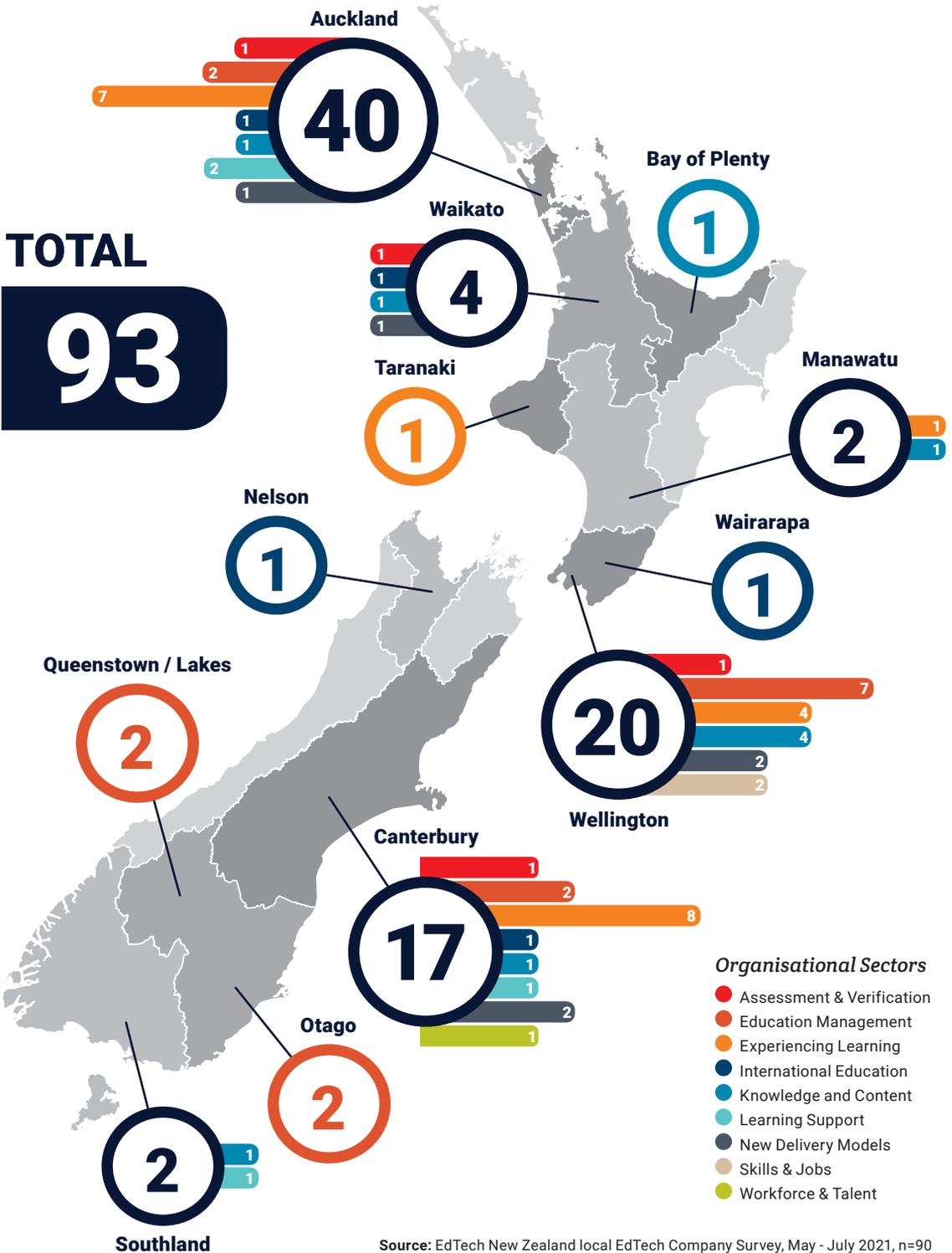
- Greater range, availability and lower cost of devices and technology, e.g. the introduction of low price Chromebooks.
- School policies that improve student access to devices.
- Greater availability of quality internet connectivity at schools and in homes, driven by the Government's UFB programme and enhanced by N4L's cohesive approach to school and kura connectivity.
- Greater recognition of the transformative potential of EdTech in learning.
- The breadth and quality of services learners consume such as retail, banking, and entertainment raise expectations around contemporary learning solutions.

FIGURE 1: Age of Aotearoa's EdTech Companies

Source: EdTech New Zealand local EdTech Company Survey, May - July 2021, n=90
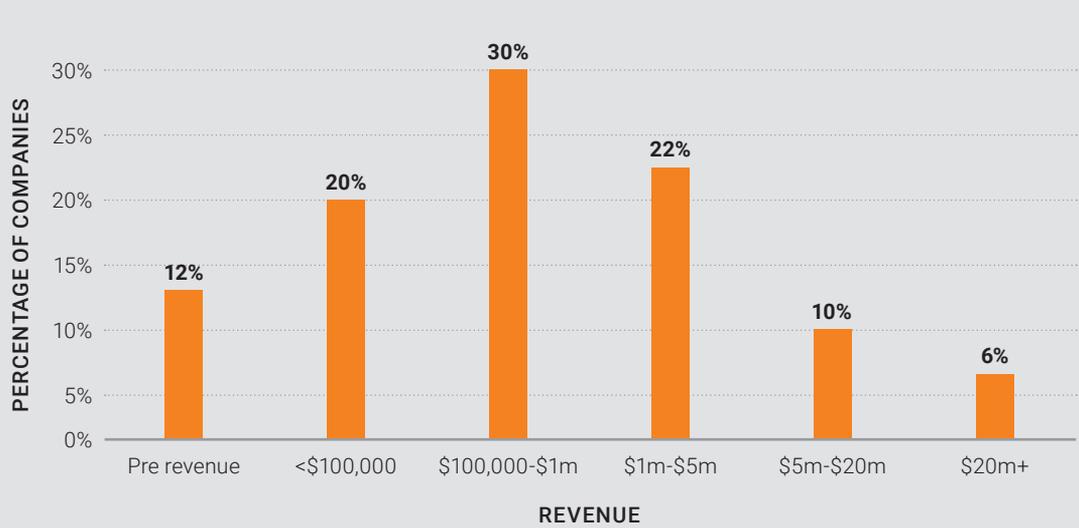
FIGURE 2: Location of EdTech Companies in Aotearoa

TOTAL

93

Auckland

40
- 1
- 2
- 7
- 1
- 1
- 2
- 1

Waikato

4
- 1
- 1
- 1
- 1

Bay of Plenty

1

Taranaki

1

Manawatu

2
- 1
- 1

Nelson

1

Wairarapa

1

Queenstown / Lakes

2

Wellington

20
- 1
- 7
- 4
- 4
- 2
- 2

Canterbury

17
- 1
- 2
- 8
- 1
- 1
- 1
- 2
- 1

Otago

2

Southland

2
- 1
- 1

Organisational Sectors
- Assessment & Verification
- Education Management
- Experiencing Learning
- International Education
- Knowledge and Content
- Learning Support
- New Delivery Models
- Skills & Jobs
- Workforce & Talent

Source: EdTech New Zealand local EdTech Company Survey, May - July 2021, n=90

FIGURE 3: Annual Revenues of Aotearoa's EdTech Companies

Source: EdTech New Zealand local EdTech Company Survey, May - July 2021, n=90

The vast majority of domestic EdTech companies are located in urban centres with access to large addressable markets. Key questions remain as to how this impacts rural schools and those will higher levels of disadvantaged students.
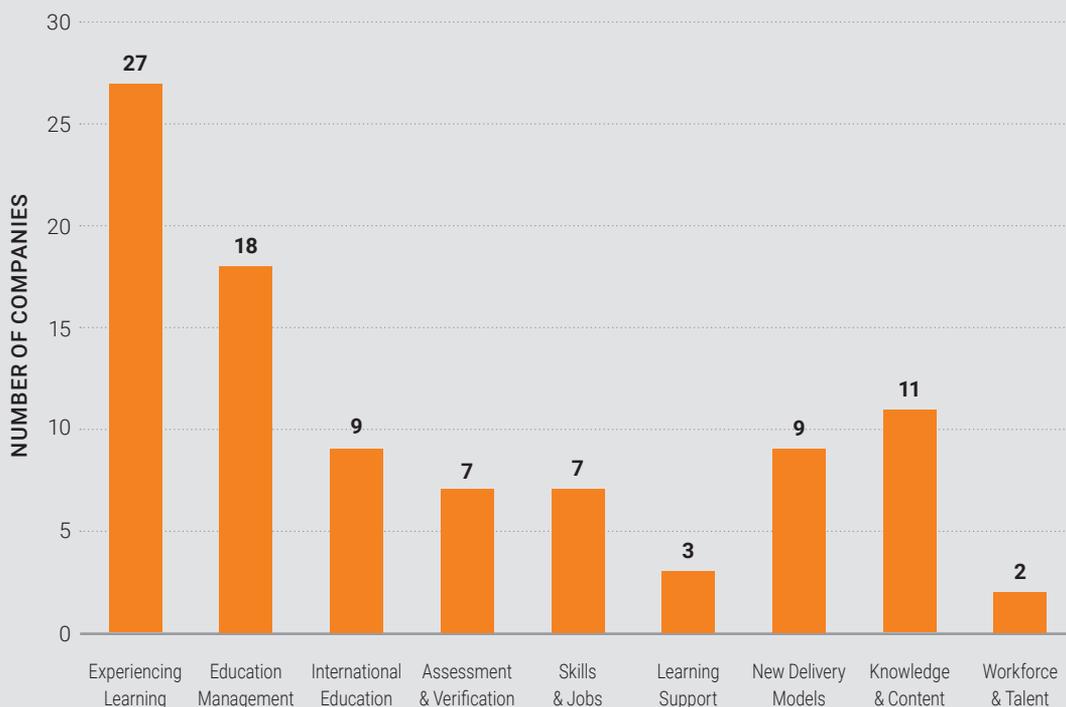
Despite its modest size, New Zealand's EdTech sector performs well when it comes to industry revenues. As shown in Figure 3, while 60 percent of companies identified as startups, over two thirds are earning annual revenues over NZ$100,000.

Industry Trends and Specialisations

Aotearoa's EdTech industry spans interactive content, artificial intelligence (AI), virtual reality (VR), educational games, research support and administration amongst other applications. This variety supports a healthy local tech ecosystem that's improving the classroom experience for teachers and learners alike.

Key areas of innovation in Aotearoa's EdTech include:

FIGURE 4: Top Areas of Specialisation in Aotearoa's EdTech Sector

NUMBER OF COMPANIES

Experiencing Learning	Education Management	International Education	Assessment & Verification	Skills & Jobs	Learning Support	New Delivery Models	Knowledge & Content	Workforce & Talent
27	18	9	7	7	3	9	11	2

Source: EdTech New Zealand local EdTech Company Survey, May - July 2021, n=90

Gamification

Gamification or game-based learning helps increase student engagement by including game-like elements in learning activities. Effective games typically feature a series of goals or progressions, clear rules, elements of story, high interactivity, and some kind of reward. Studies show game based learning can enhance student focus, motivation, and can provide the freedom for students to try, fail, and explore.[34]

MONEYTIME
Financial literacy for schools and home

MoneyTime is a financial literacy program for children aged 10 through 14. In the program, young learners engage with financial simulation games comprising 30 self-taught modules. Throughout the learning modules, children familiarise themselves with financial concepts, such as income, savings, interests, loans, donations, and investments. In keeping with the modules' interactive nature, learners solve problems in simulated real-life scenarios. Correct answers are rewarded with virtual money to spend on avatars and investments within the program. This helps children build confidence in exercising self-agency to make their own financial decisions. MoneyTime also has modules designed for children to complete with their parents.

www.moneytime.co.nz

Data: Driving Artificial Intelligence (AI) and Personalised Learning

With increasing use of EdTech comes a plethora of learner data which can be used to personalise learning experiences. Personalised learning helps educators maximise student success and increase student inclusivity.[35] AI uses data to tailor content to a learner's level, prior experiences, preferences, and strengths in ways that would be impossible without high student-to-teacher ratios. Moreover, intelligence tools can help save time in repetitive, manual work such as marking tests and assessments. Teachers can now use AI to identify and assist students with additional needs by mapping their individual behavioural cues.

Cloud

Cloud computing gives students with an internet connection the ability to access school work remotely. Moreover, teachers can now easily and instantly upload learning materials, collaborate with administration and access back office staff. Flexibility, security, and the ability to scale up and down are the main benefits for cloud in EdTech.

> The New Zealand Schools' Cloud Transformation Project was established by the Ministry of Education in 2016 to enable all schools to move to the cloud. To support this project, the Ministry created a tool that helps school communities move information from locally stored servers to the cloud.

Augmented Reality (AR) and Virtual Reality (VR)

AR and VR are part of a larger Extended Reality (XR) concept that is gaining traction in EdTech. AR enhances real-world environments with text,

EDUCATION PERFECT
Customisable learning management platform

Promoting self-learning, curiosity, and confidence, Education Perfect enables highly personalised learning which is self-paced and responsive to learners' feedback. Gamified elements and effective learning strategies are supported by Education Perfect's spaced-repetition algorithm. The Education Perfect platform is highly rich in data and insights into students' learning and progress. This enables learners and educators to respond and tailor activities to students' strengths and areas needing improvement.

The Education Perfect platform hosts over 40,000 subject-specific lessons aligned with school curricula. Subjects include Maths, Science, English, Health and Social Sciences, and Digital Technology. Its Language Perfect courses are offered in 9 languages, including English as a Second Language (ESOL) and Te Reo Māori. The program is currently incorporated in 4,500 schools across 55 countries, including New Zealand.

www.educationperfect.com

sound effects, graphics, and multimedia. While VR creates a fully simulated environment and places the user within it. AR and VR deliver enriched versions of student surroundings by layering digital content on top of graphic representations of the real world.

Aotearoa's EdTech Sector Beyond New Zealand's Borders

With a small domestic market, local EdTech companies need to tap export markets to scale their businesses. 92 percent of EdTech vendors surveyed have target export markets, with Australian and North American markets being preferred destinations.

Factors driving EdTech exports to Australia and North America include:

GEO AR GAMES
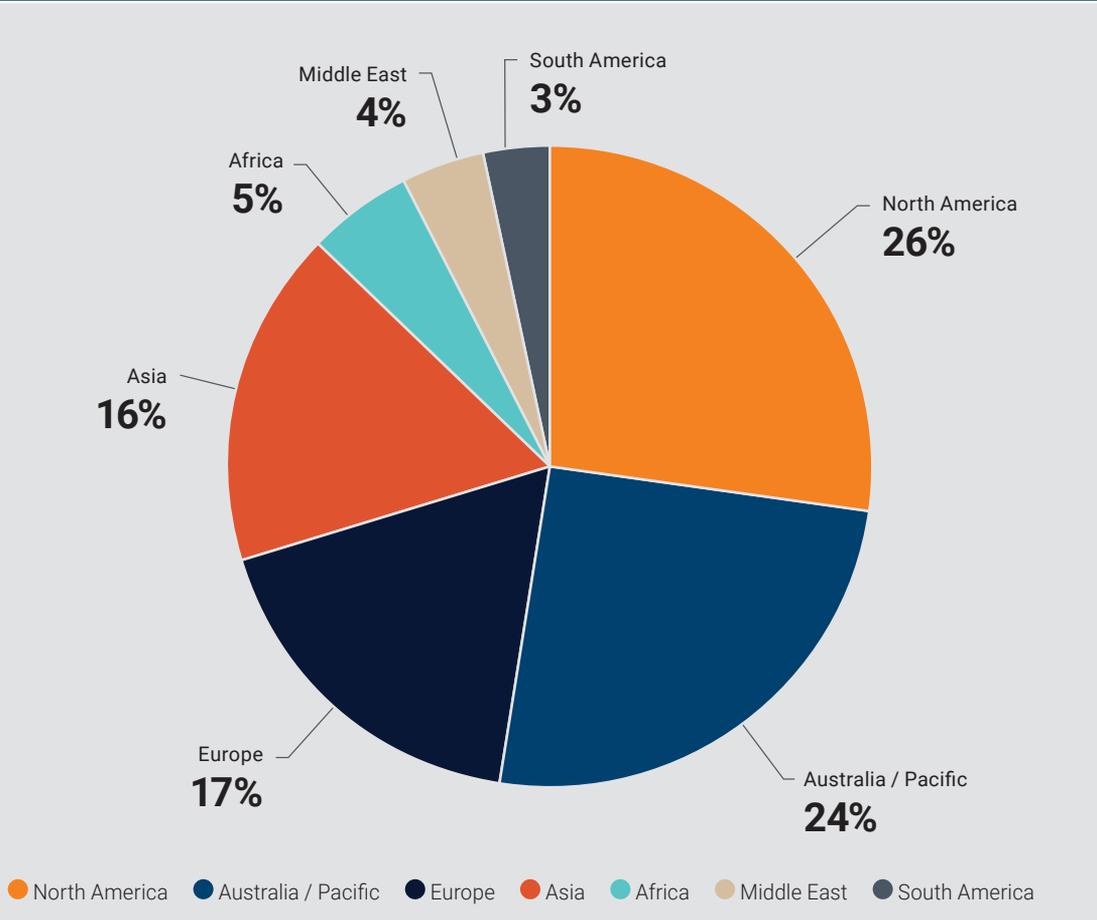### Get kids off the couch and active outside

Geo AR Games is pioneering Geospatial Augmented Reality by merging mobile gaming with the great outdoors. Geo AR Games' mobile applications encourage young learners to stay active and enjoy learning outside the classroom. All mobile games are accessible via smartphone or tablet. Users can learn and complete games and activities on various topics, such as the solar system or architecture, expanding the horizons of 'learning outside the classroom'. Geo AR Games aims to stimulate the mind and body through outdoor learning overlayed with Augmented Reality. The company has partnered with several New Zealand councils to promote use of Aotearoa's parks and to educate children around environmental concepts through games.

www.geoargames.com

- English-speaking markets without a potential language barrier.
- Synergies with New Zealand's education system and curriculum.
- Proximity and existing connections with Australia.
- High levels of digital maturity and adoption.

Aotearoa's EdTech sector has strong global aspirations. While almost all local industry actors are already exporting, ten percent have ambitions to export right across the world. Fortunately homegrown EdTech is well positioned to take advantage of global trends and momentum.

FIGURE 5: Target Export Markets by Region

Middle East 4%
South America 3%
Africa 5%
North America 26%
Asia 16%
Australia / Pacific 24%
Europe 17%

Legend: North America · Australia / Pacific · Europe · Asia · Africa · Middle East · South America

Source: EdTech New Zealand local EdTech Company Survey, May - July 2021, n=90

Globally, EdTech is Accelerating

EdTech's global growth trajectory is accelerating. With a predicted total EdTech market worth US$404 billion, EdTech startups are on the rise all over the world.[36]

Spending on software by the education sector was US$4.1 billion across Asia Pacific in 2020 and is set to reach US$6.9 billion in 2025.[37]

This growth is driven by the need for education to keep up with the digital transformation occurring in wider society. COVID-19 is accelerating adoption of digital educational tools and online learning solutions.

Prior to the pandemic, the EdTech market was heating up; investors were keen to get on board as investments hit US$18.66 billion in 2019.[38] Combined with 2018 investment, that is more than the cumulative total investment of the previous 20 years. Notable investments from 2019 included:

- Multinational EdTech company BYJU'S, based in Bangalore, raised US$513 million in its Series F funding round.
- Colorado based Guild Education provides adult education for upskilling corporate workforces. The company raised US$157 million in a Series D funding round.
- Beijing based education platform company KnowBox raised US$150 million in Series D funding.

That said, in July 2021 the Chinese Government banned the after-school tutoring industry from making profits, raising capital or going public. Other restrictions include a ban on foreign teachers of online courses.

These measures are designed to make China's education system more equitable, which the government hopes will encourage population growth.

Global EdTech market worth

US$404 billion

OUTSCHOOL
Over 140,000 online classes for kids

Outschool aims to enable young learners to gain insights and experiences in areas of interest through a diverse range of online classes. The key to Outschool's success is its host of independent, vetted, and experienced educators.

The platform offers over 140,000 live online courses to over 900,000 learners worldwide. The platform has generated US $97m in teacher earnings. Throughout the COVID-19 pandemic, the platform's outreach rapidly expanded as families sought new ways to keep their children learning and socially engaged. As of April 2021, Outschool was valued at US $1.3bn, four times higher than its approximately US $320m valuation set in late 2020.

www.outschool.com

The global EdTech market contains a growing number of unicorns: private startups valued over US$1 billion. For example: Articulate, GoStudent, Masterclass, Handshake, Outschool, and Yunxuetang. EdTech unicorns that have gone public via an IPO include global heavyweights Duolingo, Zhangmen, and Coursera.

Prior to COVID-19, EdTech Growth Was Driven by Fast-Evolving Educational Focuses

Prior to COVID-19, the education industry was developing rapidly at a global level. In Europe, after years of focus on regulatory compliance, education providers started allocating substantial resources to transformation and innovation. Key stakeholders recognised the long-term importance and prospects of education for national economies. The European Union began funding transformational EdTech projects. Similar funding at the national level included the €5 billion German DigitalPakt Schule initiative.[39]

Governments were also developing EdTech strategies for the compulsory education sector. For example, the United Kingdom's (UK) 2018 EdTech Strategy 'Realising the Potential of Technology in Education' and the New South Wales Schools' Digital Strategy 2019 to 2025.[40] [41]

Asia Pacific education providers were placing increasing emphasis on skill sets and adopting innovative technologies. Educators throughout the region were looking to technology to improve teaching outcomes and staff efficiency.[42] Building secure IT environments and deploying cloud apps for better learning outcomes were a key focus.

By 2019, EdTech solutions had moved beyond self-paced e-learning modules to embrace emerging technologies. These include big data and AI, augmented and virtual reality, and a rising interest in blockchain for academic records management. The industry saw the rise of gamification, tech coaching solutions for teachers, apps for social and emotional learning, and EdTech that supports self-directed learning.
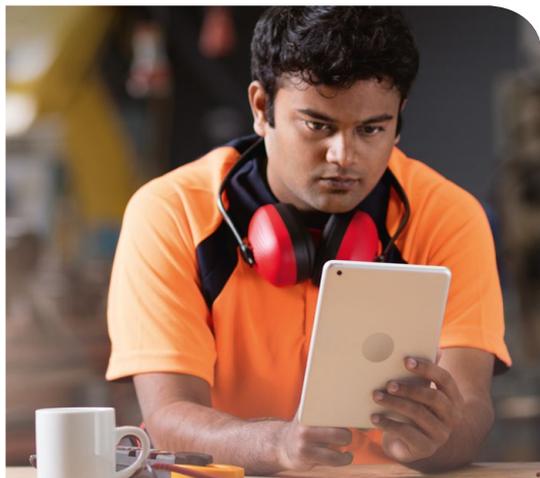
Common challenges across countries include the selection and procurement of EdTech solutions. For example, the 2020 Bett conference highlighted that UK schools' top three issues were:

- EdTech solutions look good 'on paper', but may be too generic to fit the classes' specific needs.
- A lack of evidence that an EdTech solution will have a real impact.
- Schools failing to discard EdTech that doesn't deliver because they are stuck in a contract.[43]

Schools around the world also faced challenges integrating new technologies. This was/is often due to a lack of in-school expertise in deploying technology solutions.

Globally, governments and education providers were recognising the need to improve digital equity for students. In the United States (US), the number of students entering the tertiary sector (known locally as Higher Education) was in decline from 2010 through 2019.[44] Education providers had to compete harder for students, in turn driving innovation in the sector.

Cost pressures in US higher education were increasing, and this was likely a common theme in other countries.[45] Fixed costs were growing and despite tuition fee increases, the deficit gap was widening. As consumers lean towards real-time microskills learning, the relevance of expensive, three to five year degrees is waning, leaving some higher education providers with products no longer fit for purpose. Higher education providers were turning to technology in areas like intelligent space planning, workforce utilisation, connected facilities maintenance, and predictive supply chain management.

The international student population was becoming more mobile and flexible. A Deloitte report noted there were 5 million students studying abroad in 2017, and that this number would increase to 8 million by 2025.[46] The tertiary sector was looking to invest to attract and retain these lucrative students.

In New Zealand, from 2018, government and industry collaborated to pilot extending school internet into homes that lacked appropriate broadband access.

For example, in North East Lower Hutt, only 46 percent of students had access to suitable home internet. The Rata Street School pilot connected 177 whānau to school internet at no personal cost.

The project also provided each student with an appropriate device. A similar pilot in Christchurch provided no cost Wi-FI mounted on telephone poles to 360 Haeata School students. Building trusted community relationships was key to each pilot's success.

COVID-19 Changes Everything

The COVID-19 pandemic fundamentally changed education provision everywhere. It brought about the swift rollout of nationwide digital education ecosystems in mere weeks. In April 2020 there were over 1.3 billion students (or around 75 percent of learners – preschool, compulsory and tertiary) affected by COVID-19.[47]

Many primary and secondary educators had no prior experience with virtual learning. The greater adoption of learning management systems (LMS) in the tertiary sector made the situation less difficult for tertiary education organisations. However, universities were hard hit financially. Many have returned tuition fees, lost international students, some are even being sued or closing down.[48] Research grants, executive programs, and summer programs were stalled, causing millions in lost revenues.[49]

COVID-19 has raised important conversations about the sustainability of current higher education business models. The pandemic has instigated a shift to demand for, and expectation of, blended learning environments – incorporating physical and digital elements. There is growing demand for high-quality online learning experiences.

The number of students affected by COVID-19 changes on a weekly basis, as countries or districts go in and out of local lockdown.

Today, many tertiary education providers in the US and around the world have shifted out of crisis response mode. Many are making strategic tech investments, maturing their digital capabilities and becoming more digitally resilient in the process. Key areas of new investment include AI and machine learning, customer engagement applications, collaborative platforms,

> **The key question for schools everywhere has shifted from "How can we teach online?" to "How fast can we pivot to a hybrid model?"**

cloud applications and services, remote work connectivity, and productivity tools.[50]

Research shows the EdTech market for the Higher Education industry in North America is growing rapidly.[51] Startups, midsize companies, and large enterprises are investing in EdTech to bolster their market positioning. While Edtech startups are the target of significant capital and angel investment, established firms are increasing vertically aligned investments. In the first half of 2021, US$10 billion in investment was spread across 568 EdTech funding rounds. This compared to US$7 billion total EdTech investments in 2019.[52]

Market research suggests schools will increasingly focus on new digital pedagogies, campus safety, and increasing personalised well-being and counselling digital counselling services. This in addition to backroom applications such as administrative automation, digital data governance and trust resilience.[53]

Invested in 568 EdTech firms 2021H1

US$10 billion

Trends Towards Anytime, Anywhere, Accessible Learning

Other global education trends provide opportunities for EdTech providers, for example:

Inclusive Learning Models

There is a slow global shift to a more inclusive model of higher learning. The job market, and the world at large is competitive, fast paced, and uncertain. Due to skills demand, employers are accepting a wider range of qualifications and types of learning.[54] In New Zealand and internationally, some companies now state that traditional tertiary qualifications are not a fixed requirement for skilled roles.[55] This makes education, particularly post-compulsory education, more accessible and inclusive. Massive Open Online Courses (MOOCs), online learning, and global collaborations between universities and EdTech solutions now offer supplementary access to tertiary education and skills in demand.

BYJU'S
Online learning programmes and classes

BYJU'S is an Indian EdTech company headquartered in Bangalore. Its online, video-based learning and tutoring platform offers content for a range of learners, from pre-school learning to preparing students for university entrance exams or scholarship tests. BYJU'S has over 40 million users and is expanding its content to a range of regional Indian languages. It is one of the most valuable EdTech companies globally with a June 2021 valuation of US$16.5 billion. BYJU'S massive range of accessible information at varying learning levels has established the company as an international learning hub for any student with a device and internet connection.

www.byjus.com

Empathy and Wellbeing

Focus on students' social and emotional wellbeing is increasing.[56] COVID-19 has emphasised how crucial it is for learners to have strong support through their learning environments, whether in person or online. Likewise, education providers are becoming more aware of the importance of setting and maintaining the right culture in a learning environment. EdTech can help institutions better fulfil their duty of care.

Micro-Credentials, Nano-Learning, Bite-Sized Knowledge

Micro- or nano-learning involves students acquiring snippets of new skills or knowledge.

AMY.APP
Personalised AI Math tutor

Amy.app is an artificial intelligence-based private math tutor. Amy is designed to adapt to students' strengths and knowledge gaps, providing feedback as they learn and creating unique activities and assessments for each learner. The data generated provides insights to parents, teachers, and learners themselves. Amy.app illustrates a fully individualised learning model designed to maximise learning and student engagement.

www.amy.app

KOMODO WELLBEING
Proactive, tailored wellbeing for schools

Komodo Wellbeing is a New Zealand-based startup which focuses on student wellbeing and support. Schools across Australia and New Zealand use Its web and mobile applications to monitor students' wellbeing and mental health. Komodo incorporates psychologist-designed surveys and questions for students on topics around bullying, relationships, or periods of transition such as preparing for university or changing schools. Schools can use the data-rich insights from these surveys to see wellbeing trends and identify and intervene early for issues.

www.komodowellbeing.com

This helps participants fit in schooling around extracurricular commitments like employment or childcare. These small, bite-sized parcels of learning are a growing facet of 21st century digital learning within both school-based, corporate and professional environments.

Personalised and Learner-centred Education

A growing trend toward more personalised education sees learners taking a greater stake in their own highly customisable curriculum. The idea is to expose learners to a wider range of learning opportunities, and to assist in developing self-confidence. AI insights are particularly useful in this context, and are ideal for identifying key strengths, interests and weaknesses that require attention. Systems can automatically tailor content, assessment, and support to match individual student needs at critical times.

PART TWO:

An Educational and Economic Opportunity

EdTech's Benefits

EdTech has the power to transform educational experiences for learners and educators alike. In Aotearoa and across the world, all types of learners and education institutions stand to reap the benefits of EdTech adoption.

There is not just a strong *business* case for increased domestic adoption and international exports of Aotearoa's EdTech products – there's an equally strong educational and social case. EdTech provides multi-faceted benefits for New Zealand like:

- Enhanced learning outcomes and experiences.
- Increased access to education.
- Increased equity in education.
- Improved educator outcomes and experiences.
- Magnified economic benefits for the EdTech sector and all Aotearoa.

Changing dynamics in the education sector, accelerated by the impacts of COVID-19, have put Aotearoa in a position to maximise these benefits.

EdTech can Enhance Learning Outcomes and Experiences

EdTech contributes to improved outcomes and augmented experiences for learners across the education spectrum. It's impact on learners is felt across achievement, engagement, motivation, as well as connections to whānau and the world at large.

A Positive Impact on Learners

Experience of digital tools and EdTech solutions in learning environments shows that in many instances, EdTech has a positive impact on learners. Research spanning four decades has consistently identified performance-based benefits for learners.[57] In general, research finds

MATHS ADVENTURES
Games and puzzles that make maths fun

New Zealand company Maths Adventures contains a series of educational games designed to empower young learners in mathematics. Maths Adventures aims to make learning mathematics a fun and engaging experience. The company has created several iPad applications and digital games, generating over 11 million downloads globally. It also integrates storylines and illustrations into gamified maths activities.

www.mathsadventures.co.nz

that well-integrated digital learning programmes see benefits of higher learner engagement, increased collaboration and interactions between learners, teaching that is more centred on learners, and improved connections between learners' whānau and schools/places of learning.[58]

Full Integration of EdTech into Learning Environments and Teaching Practice is Key

It's important to note that EdTech devices and technology do not alone account for negative or positive achievement outcomes. Rather, they are digital classroom tools that, when used correctly, can augment, enhance and transform learning. In this sense, they are best thought of as a key piece of the learning puzzle, pieces that are most effective when properly integrated into the learning environment and pedagogical practice.

A New Zealand study observing the impact of iPads on primary students' individual and collaborative literacy showed significant positive impacts. However, the study also found that the

GAMEFROOT
Game development platform for kids

Gamefroot is a web-based games development platform where younger learners can learn to code, and use their coding skills to develop, test, and publish their own online games. Users learn creative coding, problem solving, and design thinking skills through simple Gamefroot tutorials. Gamefroot also provides training and tutorials for teachers. Gamefroot is aligned with the New Zealand curriculum, with its partners including the Ministry of Education, the New Zealand Qualifications Authority (NZQA), and Te Puni Kōkiri.

make.gamefroot.com

pedagogical actions of teachers, as well as more varied and active learning experiences, had the greatest impact on student learning.[59]

In fact, research has found that if we consider the holistic experiences of learners (rather than just their achievement levels or measurable learning outcomes), EdTech has definitive positive impacts on learning. New Zealand research conducted through the Manaiakalani Outreach programme notes that students' engagement and the involvement of their parents and whānau in their learning improved when introducing EdTech technologies.[60] As noted by Falloon in his 2004 analysis of the impact of an e-classroom environment on the social, cognitive and affective elements of student work practices, "students learn about, with, and through technology."[61] This has a positive impact on their social and cognitive engagement. An earlier report for the Ministry of Education concluded that, alongside increased motivation and engagement, benefits that digital technologies afford students include:

- Greater support for learning that is personalised and autonomous.
- Improved critical thinking skills.
- Greater access to more varied sources of information and expertise.
- Increased opportunities for collaboration.[62]

EdTech Affords Greater Connections to the World Around Our Learners, and Greater Preparedness for the Future

New Zealand's National Education and Learning Priorities (NELP) statement recognises that collaborative partnerships between places of learning and learners' whānau or wider communities lift learner wellbeing and outcomes.[63]

CELADON
The fun and easy way to learn times tables

Celadon is a free app for learning times tables, designed to make maths more enjoyable for young people. The program incorporates psychological research and AI technology to make learning more effective and personalised. Because Celadon is created for children, gamification is an essential feature to increase enjoyment, reduce maths anxiety, and remove the negative stigma associated with learning mathematics.

www.celadon.ai

CASE STUDY

youthhub

Professional networking platform Youth Hub is bridging the gap between education and employment for young people. Their unique technology creates a wraparound support system where the young person is guided, mentored and inspired through a vested ecosystem of stakeholders.

Youth Hub's creative new approach to personal branding allows young people to showcase their complete selves. By visually representing their social and emotional skills, experiences, milestones, and academic achievements, employers and employees can find each other based on holistic talents rather than only their qualifications or experience. Founder Senthil Perumal says this approach helps humanise the employment process and increases their employment chances.

Since its establishment five years ago, Youth Hub has forged various partnerships, including the New Zealand Government, 'The Warehouse' and 'Trade Me' to empower youth into employment. The company is now rapidly expanding into the APAC market and is welcoming valued partners to empower young people.

www.youthhub.co.nz

> *"The learners, ākonga of Aotearoa today are our future leaders. The education they receive and the tools they use must prepare them to thrive in a rapidly transforming digital world."*

EdTech's positive impact on learning is a key enabler of our country's future prosperity. As recently noted by The World Education Forum: our world "require[s] learning mechanisms that more closely mirror the future of work, and that take full advantage of the opportunities offered by new learning technologies."[64]

EdTech Can Increase Access to Education

New methods of education remove physical or financial barriers to access, for example, online education, blended learning, and micro-credentialing. EdTech democratises education by enabling increased access and inclusion.

A 2012 EdTech study in the US found that piloting their EdTech project "levelled the playing field" by enabling students to connect to the world. Students could access online content and tools indiscriminately, which helped to overcome barriers to learning for students with special education needs and those who are second language learners.[65]

In today's world, learners, regardless of geographic location, can access education with the click of the mouse in a way that was impossible a decade ago. Online universities or MOOCs (massive online open courses) offer educational courses or credentials at highly reduced costs compared with traditional formal education establishments. For a tertiary undergraduate degree, New Zealand domestic students pay an average of over NZ$7,000 per

HĀPARA
Classroom management for K-12

Hāpara is dedicated to providing teachers, students, and parents greater visibility into digital learning experiences, online or in the classroom. Hāpara's Teacher Dashboard is an innovation that highlights the company's commitment to people and communities. In 2007, Hāpara collaborated with the Manaiakalani Cluster, a cooperative schools group in East Auckland, to create the Dashboard based on the pedagogy "Learn, Create, Share". Whānau are also given visibility into their child's learning journey, such as learning performance, teacher expectations and feedback.

www.hapara.com

year. If university accommodation is required, costs are typically over NZ$16,000 per year. Many MOOCs are free, with others costing on the order of tens of dollars per course. Compared with the costs of attending formal tertiary education on-campus for three (or more) years, online or blended forms of education remove significant financial barriers to accessing education.

Formal education institutions are aware of this trend; some are moving to partner with EdTech vendors to offer more accessible education

options. For example, open online course provider Coursera delivers degree-level courses online in partnership with universities such as the University of London. These courses come at a small percentage of the cost of traditional, in-person education. Globally, learners from developing countries can now access education from overseas providers.

UK research from 2020 found that increased access was a key education trend driven by the impacts of COVID-19.[66] This research found that women could access education, including STEM subjects, at higher rates than prior to the outbreak of the pandemic. This was also true for populations living in poverty, people with accessibility needs, and people living with disabilities or learning differences. These previously underserved groups benefit from the removal of physical and financial barriers in new forms of education. FutureLearn's report also highlighted the benefits of privacy, flexibility, and individually tailored courses to enable these groups to take education courses and subjects they might not otherwise be able to. Personally tailored courses and activities also broadens educational experiences for neurodivergent learners. EdTech can enable education institutions to be more inclusive in learning techniques and pathways.

COURSERA
Courses from world leading universities

Coursera offers online courses, certifications, and degrees from world leading universities through its online learning platform. It also offers a range of guided online courses and job-based learning programs for tertiary and professional learners. Coursera's content for training development enables businesses to up-skill employees at lower costs than traditional training.

Coursera uses a modular learning system that allows students to customise their learning journey. Students can learn skills for new careers or bridge gaps in their current skill set. Coursera helps make higher education more accessible around the world for any student seeking professional growth.

www.coursera.org

EdTech can Increase Equity in Education

Despite its reputation, New Zealand's education system continues to fail significant groups of learners. Students from disadvantaged or lower socio-economic backgrounds are far less likely to thrive in their learning.[67] This is particularly true for Māori and Pasifika ākonga, learners from migrant or refugee backgrounds, and those with additional learning needs.[68]

The quality of New Zealand's schools and learning institutions varies widely. According to OECD PISA reports, Aotearoa's most disadvantaged students have a significant performance gap compared with their socio-economically advantaged peers. For example, 25 percent of the highest socio-economic cohort of students in New Zealand were top performers in reading, compared with only 5 percent of lower socio-economic cohort students.[69]

KARA TECHNOLOGIES
Sign language avatars

Sign language is the first, and sometimes, the only means of communication with the Deaf community. Kara Technologies provides greater access to sign language materials, improving accessibility for deaf and hard-of-hearing people. The company developed a hyper-realistic AI avatar, Niki, who interprets customer-facing content such as video, audio, or text into sign language. Kara Technologies has an online library for the Deaf community in collaboration with Kelston & Van Asch Deaf Education Centres NZ and the New Zealand Sign Language Board.

www.kara.tech

EdTech can help combat these trends. Research from the Ministry of Education shows that learners thrive when they experience teaching that honours their identity, language, and culture.[70] EdTech is critical to preserving and increasing access to Te Reo Māori. Aotearoa's indigenous-founded EdTech startups provide education tools that are grounded in Te Ao Māori; they undertake valuable work that empowers students and workforces across a range of subject areas.

EdTech can Improve Educators' Outcomes and Experiences

Teachers and kaiako have increasing administrative requirements, resource constraints, and often lack necessary systems of support

The Manaiakalani Education Trust

The Manaiakalani Education Trust was founded in 2007 by a community of learners, whānau and educators in several disadvantaged suburbs of Auckland. 95 percent of learners in these suburbs are Māori or Pasifika. The programme aims to raise learning outcomes and engagement through digital technologies and teaching practice.

A key focus for the trust is digital learning and digital citizenship for students and their whānau. To that end, the trust supports community investment in learning devices, internet connectivity at home and at school, and the use of innovative teaching methods involving technology. With the involvement and support of whanau, Manaiakalani is helping disadvantaged students access personalised, anytime/anywhere and variable pace education solutions.

Students of the programme have increased their attendance levels, behavioural outcomes, and learning engagement. For example, at Tāmaki College between 2010 and 2016, the NCEA level 2 pass rate for Māori and Pasifika students doubled, the NCEA level 3 pass rate tripled, and the number of students entering university increased. The Manaiakalani programme has been so successful the Ministry of Education recognises it as a model for socioeconomically disadvantaged schools and communities across Aotearoa.

Manaiakalani
the hook from heaven

and development. Recently, the Education Hub surveyed nearly 200 primary and secondary teachers to uncover significant challenges faced by New Zealand educators. The top 'problems of practice' identified were:

- Using student data to inform teaching and support improvement.
- Designing coherent curriculum that is interesting and challenging, and that develops student content knowledge and skill.
- Developing and using culturally sustaining practices.[71]

PLINK SOFTWARE
Tech with tikanga

Plink Software aspires to connect Māori with their identity through language (te reo Māori) and whakapapa (genealogy). Plink acts to promote te reo Māori learning through the use of technology. Plink works with schools to offer opportunities for students to learn te reo Māori via its free app, Tipu. The company employs a games-based learning approach to make the language learning process more enjoyable.

Plink Software also assists Iwi organisations to maintain connections with their whakapapa. The company designed Te Ao Hunga that helps Iwi manage and collate genealogy information and data from its members. Iwi members can access information to learn about their whakapapa.

www.plink.co.nz

Educators identified 21st century skills, wellbeing, digital technologies, and whānau engagement as being additional priority areas.

Effective use of student data was the most significant priority for the educators surveyed. Education professionals are required to collect and track student data on performance, achievement, and progress across a large number of indicators. Moreover, they must be able to synthesise, analyse, and gain insights from the data to measure and report on student progress.

Using data effectively to support teaching interventions and student improvement is complicated. It requires expertise and data fluency – skills that remain inconsistent across New Zealand schools and educators. At present, many teachers lack the digital competency to use student data for anything more than surface level insights. This is compounded by issues with tools and infrastructure.[72]

However, local EdTech solutions can help. For example, the TANZ eCampus learning initiative employs analytics in a way that enables tutors, course designers and students to participate in a constant feedback loop. The initiative also supports tutors with early interventions and allows courses to be tweaked to best serve a learner's unique ability and circumstances. Other products such as 'Amy' provide teachers with fine-tuned analytics and feedback on student achievement and areas in which they need human assistance.

Nearly half of all new educators in New Zealand leave teaching within five years. A study by the New Zealand Education Institute (NZEI) surveyed nearly 400 teachers who left the profession in 2018.[73] Results showed the main reasons for leaving the profession are burnout from high workload, lack of work/life balance, and low pay.

Quotes from survey respondents highlighted issues with workload, expectations on teachers, and how EdTech might contribute to alleviating some of these problems:

"Having worked at senior [management] level and come back to a full teaching load, I have come to realise that the working conditions of teachers today [are] just not sustainable. It is not just a matter of pay, but the acceptance by the ministry that if teachers today are now expected to track and shift achievement levels of all their students there [are] simply not enough hours in the day."

"When I started teaching [over 15 years ago], we spent about 70 percent of our time working with children. The growth in paperwork, statistical exercises and professional documentation has reduced this percentage to less than 50 percent. Until this is addressed, and technology is used to lessen workload, rather than come up with more ways to waste teachers' time, you won't see me back in the classroom."

LINC-ED - HERO
Data sharing platform for schools

Linc-Ed is an online learning platform that enables teachers to overcome day-to-day communication and information barriers faced by educators. The platform, called Hero, integrates a live report system to aid the learning of each student while saving teachers' time. The Linc-Ed platform enables better communication, sharing, and reporting on student learning to all parties in the education process, from parents to board members. Hundreds of schools utilise Linc-Tech to cut down on teacher workloads. Linc-Ed's platform enables educators to streamline information, create learning portfolios, and streamline reporting to parents through data collection and visual progress indicators.

hero.linc-ed.com

By reducing time spent on administrative tasks and providing more in-contact teaching time, EdTech tools can help teachers to balance their workloads. EdTech also creates opportunities for educators to better target their efforts. Personalised learning, analytics, automated marking, plagiarism detection, and other automatic processes are helping deliver something akin to precision education.

However, without the necessary training, resources and balance, digital tools can be a hindrance for teachers. A US study of nearly 2,500 educators found that over 80 percent of respondents felt an increase in workload as the internet and other digital tools play a greater role in learning.[74] This highlights the importance of having a thought-out delivery strategy when it comes to EdTech implementation.

EdTech can Magnify Economic Benefits for the Sector and for Aotearoa

Adoption of Local Solutions Enables Growth of the Local EdTech Ecosystem

Widespread adoption of EdTech innovations benefits the sector itself. Local vendors have the interests of Aotearoa's learners embedded in their EdTech offerings and can create tools and solutions with a strong sense of responsibility to New Zealand learners. Investment in growing the local EdTech sector enables Aotearoa's younger EdTech companies to demonstrate their growth and find pathways to scale their business at home and through exports. This increases the sector's export revenue and ensures the economic benefits of growth are felt in New Zealand, rather than the pockets of offshore competitors.

SPRING.KIWI
Digital financial education

Spring is a digital financial education platform that builds financial resilience for working Kiwis. The company figures that employees do their best work when they are not worried about money. Its practical tools and guidance provides tailored financial education and skills. The platform supports employees to gain the financial skills they need to combat financial difficulties or reach financial goals.

Spring's platform is gamified, with users rewarded with SpringCoins and badges for different activities and modules. SpringCoins can be redeemed for vouchers at supermarkets, gas stations, and other stores. Spring also offers a variety of financial wellbeing workshops.

www.spring.kiwi

Greater Equity and Access to Education Creates Higher-Skilled Workers and More Prosperous Communities

Access and equity in education mean that more learners from all walks of life can succeed in their education. The Tokona Te Raki Māori Futures Collective estimates that if we can achieve education equity for Māori, there will be gains in the region of a NZD$2.6 billion boost to the economy each year.[75]

Government employment strategy recognises that the greatest opportunity for economic growth in the next five years is a skilled,

knowledgeable workforce.[76] Better education outcomes create higher-skilled and more readily employable workers.[77] Higher-skilled workers drive business innovation and growth, lift business competitiveness and profitability, and contribute to better social and economic outcomes.[78]

Improved Education in Aotearoa Makes Us More Attractive to International Students, Both Physical and Virtual

International education is an important part of New Zealand's education export strategy. According to New Zealand's International Education Strategy: "the high quality of education in Aotearoa is a key driver of international student attraction."[79] "Supported by technology, New Zealand can build and use our high-quality reputation for education provision to attract virtual and physical international students."

Prior to COVID-19, 2017 data valued the annual economic contribution of international education at over NZ$5 billion per year.[80] Nearly 50,000 domestic jobs were supported by the international education sector.[81] The fees and economic contributions of international students enable local education institutions to recruit more staff, invest in professional development, and offer a wider range of courses.[82] Aotearoa's international education sector strengthens the nation's global connections, research links, and education partnerships for domestic learners.[83]

COVID-19 has had a huge impact on the international education sector and its economic and social contributions to Aotearoa. International students can't physically enter New Zealand to study for the foreseeable future.

Growing New Zealand's EdTech sector and offerings will strengthen online and digital study options. Aotearoa has the potential to deliver education "offshore, onshore, online, or through a combination of these channels" through the local EdTech sector's innovative products, services, and solutions.[84]

EdTech enables the country's international student cohort to study with New Zealand digitally, from wherever they are in the world. This makes local high-quality education experiences more accessible to the rest of the world, which in turn, affords domestic students the ability to learn (digitally) alongside a diverse range of international students.

The Sum of these Benefits is Greater than the Parts

Aotearoa's EdTech industry can deliver huge educational and economic value. Improved equity, accessibility and experiences deliver benefits to domestic learners, international students and educators, and by extension, New Zealand's education system and society as a whole. Holistically, we see invaluable positive social impacts through these EdTech benefits.

These benefits are within our grasp provided investment and support for Aotearoa's EdTech sector is forthcoming. But there are domestic and international challenges for New Zealand's EdTech industry to overcome before we can fully reap these educational, economic, and societal rewards.

Challenges to Aotearoa's EdTech Sector Growth at Home

Despite global momentum in the EdTech sector and its educational and economic benefits, Aotearoa's EdTech market faces challenges.

Recent research by industry association EdTechNZ explored barriers to local EdTech vendors selling products and solutions in New Zealand and overseas. In Aotearoa, the EdTech industry consistently highlighted issues around market size, procurement, training, and digital equity.[85]

Aotearoa's Domestic Market is Constrained

The New Zealand market size is small, and so are schools' budgets. Schools, kura, and education providers have little funding or budget for technology purchases. Nearly a quarter of EdTech companies surveyed by EdTechNZ asserted that the limited budgets and resources of schools were their biggest obstacle to growing their EdTech business in Aotearoa.[86]

One respondent suggested tech-based financial resources in New Zealand schools were so limited, that "selling to them is pretty much impossible unless it's free." Some education providers rely on free versions of software from large international firms, exposing learners to advertising, questionable data collection practices and limited capabilities in the process.

Distribution and Procurement Issues Stifle the EdTech Sector's Growth

In New Zealand each school is responsible for its own governance, budget, and employment of teachers/kaiako.[87] This devolved system means that, in theory, schools can be more responsive to their own communities and learners' needs. However, in practice, school staff don't always have the skills and experience to operate in an environment where the principal is more CEO than educator. This problem is exacerbated in smaller schools, rural schools, or other disadvantaged schools. As each school is autonomous, there is competition between schools for students and funding, and it is there for difficult to share best practices and learnings.[88]

EdTech providers must approach, and sell to each school individually. This means:

- Sales pipelines for local EdTech products and solutions are slow.
- Procurement lacks wider strategy outside of one individual school.
- Educators have the burden of making strategic technology procurement decisions without centralised support or guidance.

Local EdTech Procurement is Time-Consuming and Costly for EdTech Vendors and for Schools

For EdTech vendors, developing a sales pipeline involves individual approaches vis-a-vis each school. Significant time and expense is involved in marketing and demonstrating products to stakeholders, teachers, and parents at each school. This is the number one barrier to sector growth highlighted in EdTechNZ's vendor research.

Key challenges include:

- Schools get flooded with vendors looking to speak with the budget holder.
- Learners missing out because it is too expensive for schools to buy EdTech software individually, and local EdTech vendors are missing out on potential customers.
- The sector struggles to scale domestically because it is costly for EdTech vendors to market and sell school-by-school.

Local EdTech Procurement Lacks Wider Strategy and Unfairly Burdens Educators

Educators are often overwhelmed with responsibilities and heavy workloads. They struggle to give full attention to responsibilities such as making decisions about purchasing EdTech solutions.

"The requirement for schools and educators to make their own strategic technology procurement decisions is a barrier for technology uptake and for New Zealand's EdTech industry." Research highlights that some schools need more centralised support for procurement decisions as staff struggle to access sources of information and support, at the right time[89].

Vendors say schools are often focused on operational matters. "Schools (leaders and teachers) are overwhelmed: it's difficult to have strategic conversations about new technologies."[90] Because of this, EdTech can feel like just another box to tick for schools, rather than a transformational aspect of a 21st century education.

A 2020 ERO report on Aotearoa's new Digital Technologies / Hangarau Matihiko curriculum found similar themes. This curriculum aims to develop learners' understanding and capabilities around digital technologies, computational thinking, and designing digital outcomes. It has important implications for EdTech use in New Zealand's formal education system. However, in ERO's evaluation of schools' readiness to implement this new curriculum, many schools lacked the capabilities and technology needed to deliver it. When surveyed in 2019, only seven percent of Aotearoa's schools felt staff had sufficient knowledge and/or skills to implement these digital competencies.[91] On purchasing devices and software to support learning, one senior school leader stated:

> *"It is nerve-wracking making decisions about which resources to purchase. These are expensive decisions and there is such a lot to consider in terms of how well they will be used, how they will interact with school infrastructure, and whether they will continue to be serviced and supported."[92]*

Because each schools' budget is locally managed, there is little opportunity to take a strategic approach to EdTech purchases in conjunction with the wider community, district, or region. These

groups would have greater power to drive forward-looking, long-term EdTech decisions and to reduce costs through scaling initiatives and purchases.

A lack of educational technology strategy may lead to schools becoming over-reliant on the brands, devices, and software they are familiar with.[93] This narrow lens limits the range of solutions a school could be using. It may also increase the impacts to the school and learners when a product or service is discontinued.

Some schools expect teachers to perform the role of 'IT leader' on top of their core responsibilities. Teachers and educational leaders are responsible for procurement decisions, cybersecurity, device resourcing, and IT policy. The recent Kaseya software attack, which affected dozens of New Zealand schools and kindergartens, illustrates that this is not sustainable in today's digital world.[94]

The disparate IT systems and processes used in New Zealand's schools complicated the response. Educators and leaders of affected schools have to manage the impacts of this and other sophisticated cyberthreats on top of teaching and administrative workloads.

Local EdTech Procurement Lacks Guidance and Support From the Ministry of Education

The Ministry of Education could provide greater guidance on EdTech procurement for schools and engage more effectively with New Zealand's EdTech industry. Without a streamlined engagement process or strategic procurement support, New Zealand schools are unable to fully realise the benefits of EdTech.

The Ministry of Education currently lacks a clear system for local EdTech vendors to

> **There is no clearly outlined pathway for engaging with Ministry of Education procurement."**

collaborate with the Ministry, or even discuss or market their products.[95] According to one respondent in EdTechNZ's recent survey, "there is no clearly outlined pathway for engaging with Ministry of Education procurement."[96] This creates the perception in the local EdTech industry that the Ministry might be struggling to deal with the digital transition in education. Internationally, many education ministries provide systems and platforms for local vendors to discuss and market EdTech solutions to schools – such as those described in breakout box 'Overseas Education Technology Procurement Models – The United Kingdom'.

Multiple New Zealand EdTech businesses discussed how government organisations appeared reluctant to use and promote local suppliers' solutions.[97] According to one survey respondent:

"The Ministry of Education [is the biggest obstacle to selling (more) EdTech products and services in New Zealand]. They promote overseas products, and I don't think they even know what is being made in New Zealand (or how good it is!)"[98]

In some cases, local EdTech companies feel undercut by the Ministry's promotion of free, often international software and services. This minimises the value and potential of the growing local sector. For example, at the time of this research, the Ministry currently funds and promotes software only from large international companies on its 'Software for your school' page.[99]

The likes of Apple, Google and Microsoft are important options for schools and learners to have. However, the Ministry of Education's current approach to procurement promotes international incumbents at the expense of the valuable and innovative work done within New Zealand's local EdTech industry. Ultimately, it's an approach that gives little visibility or product confidence to schools during the EdTech procurement process.

Overseas Education Technology Procurement Models – The United Kingdom

Wales, Northern Ireland, and Scotland each have a national digital technology platform available for compulsory education learners, teachers, and non-teaching staff.

Scotland's platform, Glow, is an ICT programme funded by the Scottish Government and managed by Education Scotland. Glow is a cloud-based service providing roles-based access to a suite of applications. The apps include Office 365, Google Workspace and Glow Blogs. Teachers can create school intranets or sites, develop their national peer network with Yammer, and access the National Professional Learning Community. Non-teaching staff tools include a content creator for school newsletters and online forms for approval for school activities. Glow was recognised in the UK EdTech50 list for 2018.

In Ireland, the Education Authority manages its C2K (earlier known as Classroom 2000) programme that brings infrastructure and ICT services to schools. The system supports many school functions including assessment, teaching and learning, and records management. The Education Authority is currently replacing the C2K programme with a new school network and services programme it calls Education Technology Services (ETS).

Wales' digital learning platform is Hwb. It focuses around curriculum resources and learning resources but includes national access to Google for Education and Microsoft Office 365.

These national digital learning services mean every student and staff member has one account through their education journey. Schools do not need to manage procurement of key digital tools. With a country-wide scale, the education authorities can provide central training and support for users, alleviating schools of these functions.

In 2018, the UK Department for Education released an EdTech strategy 'Realising the Potential of Technology in Education' for education providers and the technology industry.[100] The Department for Education found that technology projects in the education sector often failed to have a positive impact and/or didn't provide expected value for money. The strategy aims to address these challenges. It is specifically targeted at England, which lags behind Northern Ireland, Wales, and Scotland when it comes to effectively using EdTech.

The UK Government's strategy includes the following initiatives:

Commitment 8: Continue to improve our support for schools to access and use our pre-negotiated and recommended buying deals for schools, helping to secure cheaper products.

Commitment 9: Continue to work with the British Educational Suppliers Association to support a trial of the LendEd service, an online lending library for education technology software, so educators can try before they buy to help identify the 'right' products for them.

Commitment 10: Explore how to build on existing practice and facilitate a better online marketplace where schools, colleges and other providers can buy with confidence and sellers have an efficient and effective route to market.

Commitment 11: Trial an offer of independent Buying Hubs in the South West and North West regions, including testing a service to directly manage procurement for schools.

Lack of Support and Training Exacerbates these Issues

The New Zealand EdTech sector's local growth is also inhibited by a lack of appropriate skills, resources, and training difficulties for EdTech purchasers.

Digital training and skills development is a key challenge for education professionals in New Zealand and around the world. Research shows some New Zealand educators lack confidence in using and facilitating learning with digital tools and innovations.[101] A British Education Suppliers Association survey of UK schools in 2018 found that Training on their ICT resources is the largest ICT challenge faced by both primary (54%) and secondary (66%) schools.[102]
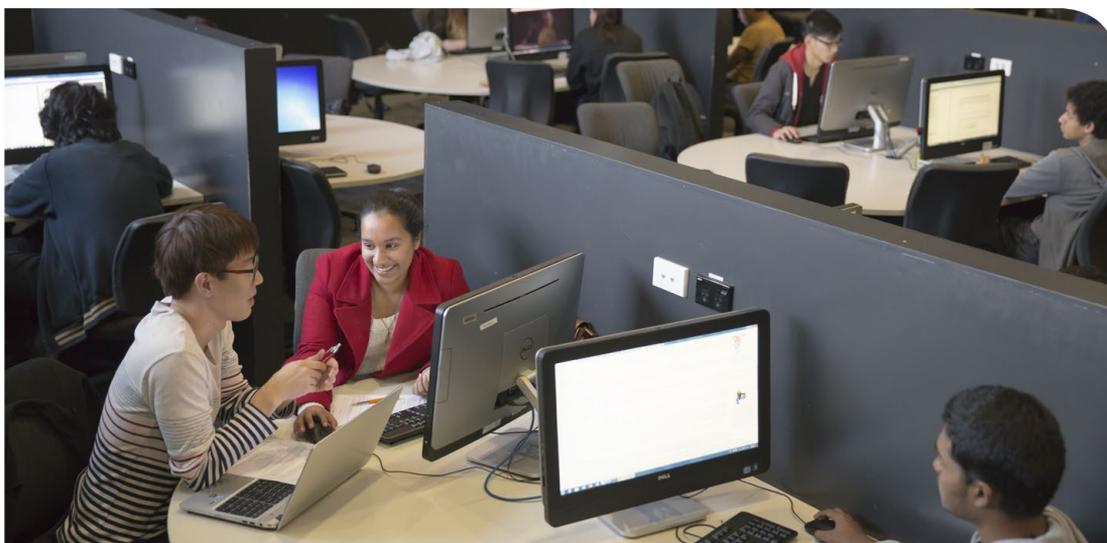
The Ministry of Education provides professional learning and development (PLD) to teachers, kaiako, and leaders to strengthen their capabilities throughout their career.

NETWORK FOR LEARNING
Safe reliable internet for schools and kura

Incorporated as a crown company in 2012, Network For Learning (N4L) has established itself as a key resource for the New Zealand education system. N4L's goal is to provide all schools and kura with a safe and secure connectivity. The company currently has more than 2,450 schools in New Zealand connected. The network provider also provides online tools, such as their free safety filter, that parents or education providers can install on student devices. Schools get better visibility of school wide browsing data, and avoid having to create and maintain networks.

www.n4l.co.nz

Currently, these focus on core curriculum capabilities including digital fluency.

ERO research has found that these PLD options do not adequately support educators to grow their digital skills and confidence. Teachers and kaiako have difficulty navigating online resources, and there are barriers to accessing support.[103] These barriers include a lack of availability of specialist providers, a lack of geographically available PLD for schools in some areas, and the lengthy application process for PLD. Both schools and PLD providers have indicated that this model of accessing PLD is too time consuming and over-regulated.[104]

Digital Inequality Remains Pervasive

EdTechNZ's research into domestic barriers to the local EdTech sector revealed an unhealthy digital divide in some schools, which disproportionately affects Māori and Pasifika learners.[105] This divide is a key factor in learning outcomes. EdTech vendors emphasised a lack of equitable access to quality tools, resources and support, and further, that disadvantaged schools and kura struggled to access expertise to help with this.

ERO research shows that schools employing educators with limited digital skills in areas with low digital equity are far less likely to be ready to implement digital curricula.[106] These schools are also more likely to defer decisions around EdTech services.

COVID-19 and its impacts on education require learners to have access to devices, tools, and robust connectivity in their place of learning (and at home). Despite the relative robustness of New Zealand's digital infrastructure, learners living in areas of deprivation are still disadvantaged. In 2019, Network For Learning (N4L) surveyed

450 schools on internet access. Most schools reported significant numbers of students that didn't have internet access at home. However, the figure jumps to 85 percent of schools in disadvantaged areas. N4L found that learners without internet access at home "are more likely to be left behind or under-served."[107]

Aotearoa must be careful not to produce two streams of learners – those who thrive with full access to applications, devices, and connectivity, and those without fit-for-purpose tools.

Challenges to Aotearoa's EdTech Sector Growth Overseas

Aotearoa's Domestic Challenges Inhibit EdTech Exports

New Zealand's addressable market for EdTech is limited. Aotearoa's EdTech companies are also looking to global markets to grow their business and benefit from international demand for EdTech innovations. That said, global growth opportunities for New Zealand EdTech vendors would be greatly improved if home market conditions were more favourable.

Highly distributed, school-by-school procurement processes mean local EdTech vendors miss out on capturing buyers in an already-constrained market. Lack of resources and budgets in schools coupled with lack of support from the Ministry of Education means New Zealand is unable to invest in its own EdTech industry. These domestic challenges stifle chances to refine and develop EdTech products with local audiences before penetrating global markets.

In EdTechNZ's research, EdTech companies were asked to identify their biggest challenges to selling EdTech products and services overseas. Around a fifth of responders highlighted the difficulty in creating sustainable growth and scale in local markets. One respondent noted that their "credibility" to international vendors was limited by not having "the backing of [their] own education system."

Some local vendors do not aim to export at all. This group typically develops highly localised Aotearoa-specific content. Recent research from NZTech found that this lack of a 'global mindset' was a common challenge for New Zealand tech startups.[108] These young companies often try to solve New Zealand-specific issues, rather than thinking globally from day one. This is indicative of an absence of support from wider industry bodies, which culminates in a lack of pathways to scalability and international penetration.

Multiple Barriers to Scale and Export

Despite huge growth and high demand in the global EdTech market, New Zealand EdTech exporters face numerous barriers to overseas market entry, including:

- **Lack of funding, investment or capital:** A fifth of local EdTech vendors flagged capital and resources as a barrier to their export growth.[109] Additional capital would enable local EdTech companies to enhance their go-to-market offerings and capabilities, invest in the resources they need to capture global demand, and compete with large, well-established, better funded global vendors.

- **Talent challenges:** Finding people with the right experience and skills, particularly in areas like overseas distribution, online marketing, and operations can be challenging for local EdTech companies.[110] Businesses are unable to scale because they are missing the people and skills required. It is an area of objection for potential investors and buyers and one that is exacerbated by closed borders.[111]

- **Difficulty marketing internationally:** Marketing was the number one challenge identified by local EdTech vendors exporting their products.[112] Many had trouble making decisions about marketing channels and the right partners to work with.

- **Complex international education environment:** The global market is a maze of education models, curricula, procurement models, regulatory models, cultural, legal, and tech barriers. Education systems are structured differently from country to country, and even regionally within countries. Many local EdTech companies, particularly startups, can have difficulty researching and selecting which markets to target and operate in.[113] Once these markets have been identified, cultural and regulatory understanding are hurdles.

An "International Bums on Seats" Focus Constrains the Sector

New Zealand's focus on attracting high-paying international students to study here has limited the education exports sector in other ways. The main measure of success for years has been how many offshore students – how many "bums on seats" – we physically attract to the country. COVID-19 has shown we should not put all our eggs in this basket.

The Government's International Education Strategy calls for the international education sector to diversify products and services.

Aotearoa's education exports may not have seen EdTech as an area of focus in the past, but the time has come to change this. EdTech is a huge opportunity for New Zealand. Now is the time to rethink our approach and capture this growth and success for the local industry."

Aotearoa's Global Market Opportunity – The Time is Now

New Zealand has several areas of comparative advantage when it comes to growing and supporting the EdTech sector.

These are two-fold. Firstly, we have the building blocks for success. New Zealand's world-class education system, unique Māori knowledge and perspective, digital expertise, and global connections form a strong foundation for our local EdTech sector. Secondly, we have momentum. COVID-19 and new trends in education are driving unprecedented global demand for EdTech solutions. Aotearoa's response to the pandemic has raised the country's profile on a global scale. The innovative local EdTech sector can rise to meet this global demand and spotlight on our motu.

Capitalising on these strong foundations and current momentum in EdTech will enable New Zealand to address global megatrends in the industry and develop – or better promote what we already have developed – world-leading EdTech innovations.

It's time to seize the huge economic and educational opportunity that the sector represents on an international and domestic scale."

MY MAHI
Supporting learner wellbeing and mentoring

MyMahi is a mentoring and connective application for secondary school learners. The program enables students to develop and self-manage their learning, well-being and future 'mahi' pathways. The application allows users to link their personal profile to a mentor dashboard where MyMahi monitors and records all student grades, qualifications, and individual achievements. This allows educators to track learners' progress and provide guidance. The app also features job opportunities, activities, and lessons to help user discovers strengths, interests, and work experiences. MyMahi aims to support Aotearoa's rangatahi through a major transition period in their lives.

www.mymahi.co.nz

It's time to seize the huge economic and educational opportunity that the sector represents on an international and domestic scale.

We Have the Building Blocks for Success

We have strong foundations for the success of New Zealand's EdTech sector. These building blocks have been developed and nurtured over time to form the foundation of what will propel the sector forward. The learnings of our past enable our future – kia whakatōmuri te haere whakamua.

We Have a High-Quality, World-Class Education System

New Zealand's high-quality curriculum, pedagogy, education policy environment, and academic achievements are illustrated by high university rankings, PISA scores, and an international reputation as an attractive study destination.

New Zealand was named the top English-speaking country (and 3rd overall) in the Economist Intelligence Unit's 2019 Worldwide Educating for the Future Index.[114] The award measures elements such as policy approaches, teaching conditions, and values to assess how effective a country's education system is in preparing its young learners for the rapidly changing world ahead of them.

We Have Mātauranga Māori to Help Guide Our Path

Aotearoa is uniquely blessed in having mātauranga and kaupapa Māori to inform our ways of being and engaging in the world. Māori systems of knowledge are complex and, as noted earlier, many are technologically innovative, such as navigation techniques, food

ARA JOURNEYS
Indigenous storytelling with XR

Auckland-based ARA Journeys is a 100 percent Māori-owned games development company. Through its award-winning interactive platforms, the organisation is reinventing the way we tell cultural narratives, protect and preserve indigenous knowledge systems, and revive interactions with whakapapa and (re) connections to the land. Central to this is the normalisation of indigenous languages. This includes te reo Māori in Aotearoa, and ARA Journeys' partners overseas for indigenous language revitalisation.

www.arajourneys.com

preservation, farming practices, design of pā and defences, and plant and medicinal knowledge.[115] Rangahau, a traditional Māori practice of inquiring, experimenting, and reflecting on discoveries has many similarities to Pakeha scientific and technological methods.[116]

Unique Māori values are part of what makes New Zealanders distinct in this world; they are at the heart of innovations in education. These include Aotearoa's connections to whānau and intergenerational thinking, kaitiakitanga or guardianship, sustainability, and interconnectedness.[117]

Championing these values helps New Zealand readily connect with countries that embrace

similar indigenous cultural frameworks. Mātauranga and kaupapa Māori underpins our international kaupapa and brand and helps us stand out amongst the crowd.

We Have Success in Other Digital Sectors and Recognition of the Aotearoa New Zealand Brand

New Zealand is recognised as a global leader in several digital niches. Many Aotearoa-born companies are globally recognised, highly innovative, and leaders in their fields. These include Xero, Datacom, SoulMachines, RocketLab, McCartyFinch, Fisher&Paykel Healthcare, PushPay, Gallagher, and Seequent. New Zealand's presence and pedigree in growing areas of innovation like greentech, fintech, agritech, spacetech, and creativetech sets us up for more success.[118] Leveraging this existing brand, profile, and expertise could enable us to become a recognised global leader in EdTech. The late New Zealand physicist Sir Paul Callaghan said New Zealand must be a smarter country where talent wants to live. Our success in these digital sectors embodies Sir Paul's vision of working smarter, not harder, to improve New Zealand's international standing.

We Have High Digital Connectivity

Aotearoa has a world-leading fibre broadband network and one of the highest rates of fibre adoption in the world.[119] As a result of government funded broadband programmes, 99.8 percent of New Zealand's population will have access to fast broadband by the end of 2023. 87 percent of New Zealanders will be able to access ultra fast fibre broadband, with the remainder able to access improved broadband via rural broadband initiatives. The adoption of fibre connectivity has far surpassed the Government's

original targets. Today, almost 65 percent of eligible households are connected and the telecommunications industry is working hard to encourage the remainder to connect to faster internet. The country's rural broadband initiatives ensure connectivity, access and options for New Zealanders regardless of location. In state schools, Network for Learning provides safe and secure internet connectivity. This is a foundation that supports the EdTech industry to expand and grow domestically.

We Have the Momentum, Right Now

COVID-19 has disrupted 'education as usual' forever. Aotearoa needs to capitalise on this opportunity to pivot our offerings, strategies, and investment. This is a critical period to capture global demand and cement the relevancy of New Zealand's EdTech industry.

We Have a High Global Profile Thanks to our Pandemic Response

The COVID-19 pandemic has shifted global perceptions of New Zealand.[120] The country's response and governance have raised the country's global profile and visibility. New Zealand is globally recognised as a safe place to live and study, and a capable, progressive, forward-looking nation.[121] This is a key competitive advantage that we can harness to create opportunities like strategic international education or export partnerships.[122]

New Zealand's management of the pandemic has enabled local businesses to operate without many of the restrictions faced by businesses internationally. That said, the recent country-wide foray back into Level four lockdown in August 2021 reinforces the importance of EdTech in the New Zealand curriculum.

GOSKILLS
Bite-sized business technology courses

GoSkills.com is an online learning platform that helps graduates and working professionals to gain essential business and technical skills. GoSkills offers short, self-paced online courses with badging and credentialing to enable learners to meet personal and professional development goals. Its courses cover key business skills such as Microsoft Excel skills, agile methodologies, and data analysis. GoSkills also provides customised courses for teams, and can help businesses to manage, track, and assign in-house and third-party training.

www.goskills.com

EdTech is not a learning supplement, but a central tool for continuity of teaching and learning through COVID-19."

We Have Huge Market Demand for Digital Innovation and New Forms of Education

Digital tools and solutions emerged as the key enabler of learning through periods of lockdown for Aotearoa's learners and educators. In New Zealand and abroad, we saw rapid investments into building digital capabilities and resources across all levels of learning – condensing years-long plans into a matter of weeks.[123] EdTech is not a learning supplement, but a central tool for continuity of teaching and learning through uncertainty. Aotearoa's EdTech sector can capitalise on this momentum in the industry.

Areas of learning outside of formal education, such as community education and personal development, are also growing in uptake.[124] Learners need new skills, knowledge, and insight in a world that demands 'anytime, anywhere' solutions.

Corporate learning and professional development are also in high demand. This demand is driven by businesses and learners who need to upskill following disruption to their careers. UK research in 2020 found that 74 percent of adults in the US, and 68 percent of Australians who had to move career due to COVID-19 reported being interested in taking an online course.[125] The main reasons identified were the desire to re/upskill for a new career/industry, and to get ahead in their career.

We Have a Small Local Market but Huge Global Reach

New Zealand's 'tyranny of distance' has been circumnavigated as workplaces and educational institutions have gone online. Geographical distance becomes much less relevant through remote working and learning.[126] The global market for New Zealand EdTech is more in reach than it has ever been. Our global connections are strengthened, and our perceived physical distance reduced.

We Have a Young, Agile, Innovative EdTech Sector to Respond to These Demands

Aotearoa's EdTech sector is young, agile, and innovative. A small market and domestic challenges force local EdTech companies to innovate. New Zealand EdTech successes like Education Perfect, Crimson Education and Kami illustrate this. This innovative environment enables New Zealand's EdTech sector to respond to the significant demand in the global market for EdTech solutions.

We Have the Chance to Rethink and Refocus our EdTech Efforts

COVID-19 has disrupted New Zealand's main education export earner – international education. This disruption is not a temporary blip on the radar. Tertiary Education Union (TEU) president Michael Gilchrist noted in a mid-2020 interview that "international students won't be returning in anything like the numbers that they were previously doing."[127] This creates a huge, ongoing shortfall of revenue for New Zealand's education export sector.

We now have the opportunity to respond to these market changes and decide the future direction of New Zealand's education exports. We can redefine how we create value in the education export sector, without relying on international students being physically present. We have the opportunity to move from high volumes of international education students, to high value tech exports underpinned by EdTech.

KAMI
Collaborative digital documents for education

Kami is a digital classroom application, founded in New Zealand and now used by over 27 million learners and educators in 180+ countries. It is designed as an all-in-one tool to transform classroom interactions by enabling collaboration, interaction with resources, and seamless educator workflows so teachers can spend more time with students. The app enables educators to use documents and learning materials as interactive experiences, including adding video or voice comments. Kami is fully integrated with other learning management systems, including Canvas and Google Classroom. It can also be used offline, ensuring accessibility for learners without reliable internet access. Kami has full functionality for educators using the app in the classroom, when teaching remotely, or for hybrid learning.

www.kamiapp.com

> New Zealand's 'tyranny of distance' has been circumnavigated as workplaces and educational institutions have gone online."

PART THREE:

Enabling Aotearoa's EdTech

Key Recommendations

Aotearoa's EdTech sector is young, growing, and innovative. COVID-19 has shone a spotlight on the possibilities for New Zealand's EdTech industry. EdTech is a significant and valuable segment of our education exports. We can maximise this value and take advantage of global momentum and demand.

This report illustrates the EdTech opportunity for Aotearoa. Our domestic and international learners, our educators, and our economy stand to benefit from the success of our local EdTech industry. We have homegrown success stories today and can accelerate and enable more success stories through the right support and action.

THEME 1: A NATIONAL EDTECH STRATEGY

1

The challenge:

Our world and education have changed rapidly since COVID-19. To take these changes into account, and to maximise industry growth and benefits for education, it is imperative to undertake a sector-wide rethink and refocus.

The Goal:

Create a national strategy specific to the EdTech sector to enable this.

A national strategy for the EdTech sector would support domestic uptake and international promotion of EdTech innovations from Aotearoa. It would inform goals and directions of the industry for all EdTech sector stakeholders. Aotearoa has important education export strategy documents already in place (such as the International Education Strategy 2018-2030), but it needs a refresh post COVID-19, and lacks a specific EdTech strategy. This strategy should be led by EdTechNZ and Education New Zealand in collaboration with government, education, research, and vendor ecosystems.

A national EdTech strategy document would enable better-informed collaborations across government, education, and technology. This strategy could ensure that EdTech innovations are underpinned by Te Tiriti o Waitangi and the education sector's aspirations for equity.

This strategy document should also consider the following recommendations that address the key challenges to EdTech adoption raised earlier in this report.

THEME 2: OVERCOMING CHALLENGES WITH THE SMALL DOMESTIC ADDRESSABLE MARKET SIZE

2

The Challenge:

For local EdTech vendors selling solutions in the New Zealand market, the addressable market is limited. It includes the Ministry of Education and teachers at state and independent schools. The New Zealand market size is limited, and so are schools' resources.

The Goal:

Improve the addressable domestic market for EdTech vendors.

Key recommendations:

2.1 Increase government funding and support for schools to use EdTech.

- Increased government funding and resources for schools and kura to acquire and maintain educational technology, both centrally and locally.

- Support for educational institutions to understand the value for the investment they make. For example, educating senior leaders and school Boards of Trustees about digital technology and what the future of education looks like.

- Undertake independent research that illustrates the value of EdTech in New Zealand classrooms.

- Showcase education providers that have had success with EdTech tools to help other schools understand the value of investing in these technologies.

2.2 Increase introduction and use of micro-credentials.

- NZQA to accelerate the use of micro-credentials and promotion of micro-credential study options in New Zealand or online.

- NZQA should take further action as soon as possible to promote, support, and give credibility to micro-credentials and micro-learning innovations in Aotearoa.

THEME 3: IMPROVING EDTECH PROCUREMENT IN NEW ZEALAND

3

The Challenge:

In New Zealand, each school is responsible for its own governance, budget, and employment of teachers/kaiako. This devolved system means that schools must understand and cater for their own technology needs, while EdTech providers must approach and sell to over 2,000 schools individually.

The Goal:

Take steps toward centralising procurement strategy and processes to reduce burden on schools, improve pipeline for EdTech vendors, and improve value learners get from the school's EdTech investments.

Key recommendations:

3.1 Develop a more centralised education technology procurement model.

- The Ministry of Education develops a more centralised procurement model that makes it simpler for schools to make good EdTech investments. This should include bulk discount negotiations, as well as support and maintenance contracts.

- Government should explore how to facilitate a centralised digital marketplace, directory, and/or try-before-you-buy library that brings together vetted vendor solutions with buyers.

- Government explores whether an independent organisation should manage EdTech procurement for schools.

- EdTech sector and associations should increase the volume and value of showcases, events, or expos that bring together the EdTech vendors and EdTech buyers.

3.1 Industry/Government collaboration on innovation to solve local issues.

- The Ministry of Education should work closely with EdTechNZ and the industry to increase innovation and address current local issues.

- The Ministry of Education could engage more with the EdTech sector to bring more experience and innovation into the Education sector.

- The EdTech sector could work more closely with educators, led by the Ministry, to design new services and solutions that are more education-led rather than tech-led.

THEME 4: IMPROVING DIGITAL TRAINING FOR EDUCATION PROFESSIONALS

4

The Challenge:

Digital training and skills development is a key challenge for education professionals in New Zealand and around the world. The Ministry of Education provides professional learning and development (PLD) to teachers, kaiako, and leaders to strengthen their capabilities throughout their career. ERO research has found that these PLD options do not adequately support educators to grow their digital skills and confidence. Teachers and kaiako have difficulty navigating online resources, and there are barriers to accessing support.

The Goal:

To improve access to and content of PLD to support educators more seamlessly integrate digital tools into the classroom to improve learning outcomes.

Key recommendations:

4.1 Increase PLD options for digital upskilling for teachers.

- Engage with education leadership, unions, and New Zealand's teaching workforce to communicate PLD options, help teachers and leaders navigate online resources, and more easily access support.

- Shorten and streamline the application process for PLD. The Ministry of Education should consider removing some of the onus on teachers and schools to individually prove their need for PLD. PLD applications must become less bureaucratic and time consuming to ensure their accessibility and efficacy.

- The Ministry of Education should explore options for permanent and ongoing advisory and PLD services. This will give teachers more certainty they will receive the PLD they need, and give PLD providers more certainty in pipelines of work, so they are able to invest in quality staff and development of their training programs.

4.2 Increase PLD funding for digital upskilling for teachers.

- The Ministry of Education should increase PLD funding and resourcing. Improve access to PLD for educators in rural or disadvantaged schools by ensuring end-to-end Ministry of Education support, including travel costs and relief teacher funding. The Ministry of Education should utilise the full resources of its regional offices to create learning hubs in Aotearoa's rural and more disadvantaged areas. This would increase accessibility and availability of a wider range of locally provided PLD for these places of learning.

- Include local solutions as case studies in PLD training.

THEME 5: STRIVING FOR DIGITAL EQUITY IN EDUCATION

5

The Challenge:

The digital divide remains a barrier for many learners and education providers to implement digital curricula and make decisions around EdTech services and solutions.

The Goal:

To support equitable learning outcomes for every learner by improving availability of and access to connectivity and digital tools, improving people's trust so they feel safe online, improving desire to participate online, and helping learners and educators gain the skills to do what they want to do online.

Key recommendations:

5.1 The EdTech sector should play a role in enabling and supporting digital equity.

- The EdTech sector should consider how it can play a supporting role to the many existing public or private initiatives already in play to improve digital equity in Aotearoa. This includes consideration of a universal basic internet subsidy, grass roots programmes that recycle digital devices to provide to learners, and a strong number of community led programmes that aim to improve community skills in using digital tools.

- The EdTech sector should consider its principles around treating learner data as taonga (treasure). To improve people's trust in digital solutions, EdTech vendors must safeguard the ethical considerations of collecting, storing, accessing, and using student data.

5.2 Government should fund basic digital equipment and internet access.

- Government funding should be made available to ensure all students have the basic equipment and internet access they need to participate in the contemporary education landscape.

THEME 6: SCALE AND SUPPORT FOR EDTECH EXPORT TO THE WORLD

6

The Challenge:

Despite huge growth and high demand in the global EdTech market, New Zealand EdTech exporters face challenges around a lack of support for overseas education market entry and a complicated global education environment. Barriers include lack of funding, talent shortages, difficulty marketing internationally, complexity in the international education environment (including regulatory models, education models, procurement models, cultural and legal barriers).

The Goal:

To make it easier for New Zealand EdTech companies to find success with exporting their services and solutions.

Key recommendations:

6.1 EdTech companies must collaborate better domestically and internationally.

- EdTech companies should work together through EdTechNZ to become a more cohesive and effective voice.

- Collaborating on overcoming the barriers and challenges in the domestic market will help enable EdTech vendors prepare/test/gain credibility to enter international markets.

- EdTech vendors should access and hook into existing work programmes underway to reduce the common barriers and challenges around Digital Technology exports. For example, the New Zealand Tech and Innovation Story (a marketing initiative designed to enhance New Zealand's international reputation for delivering world-class solutions and present New Zealand as a compelling place for tech talent and investment), and other workstreams in the Digital Technologies Industry Transformation Plan (Digital ITP).

- EdTechNZ should facilitate bringing investors together with the EdTech sector in New Zealand.

6.2 Government and Industry should collaborate to develop a cohesive EdTech Export Growth Plan.

- Education New Zealand should provide specific services to help EdTech providers in their quest for overseas expansion, using their network of overseas offices.

- EdTech vendors should consider an approach where they think 'Global from Day one'. Often NZ startups try to solve New Zealand-specific issues rather than thinking globally. Thinking globally from inception also means companies must consider challenges such as scale, size and remoteness early on.

- Agencies such as Education New Zealand should make it easier for EdTech startups to learn about and access government support for start ups, such as coaching around readiness reviews, understanding markets, sales tools, and accessing support through organisations such as NZTE and Callaghan Innovation.

- Government could support trade delegations and market tours (perhaps in a virtual environment while borders are closed).

Appendix

APPENDIXES
Our EdTech Ecosystem

Despite the international spotlight on EdTech and Aotearoa, New Zealand's EdTech sector remains fragmented.

Sector scoping undertaken for this report shows that New Zealand's EdTech industry needs greater support, visibility, and mapping. In 2017, the foundation of not-for-profit membership body EdTech New Zealand (EdTechNZ) was a milestone for representation and organisation of the sector. EdTechNZ today has nearly 50 member organisations and supports collaboration and innovation in New Zealand's EdTech industry. There is work to be done building and promoting the New Zealand EdTech brand, and bringing Aotearoa's EdTech community together to foster collaboration across the sector and achieve collective goals.

MAHARA
Open Source e-portfolios

Mahara is an open-source project, founded in Aotearoa in 2006. An electronic or e-portfolio system, Mahara aims to support virtual learning by keeping a digital record of learning, skills and development, and achievements accessible online and able to be shared. The e-portfolio becomes an online personal learning environment that is user-centred and completely personalised. Because it is an open-source resource, Mahara encourages innovation, collaboration, and development input to improve the e-portfolio system for users and the community.

www.mahara.org

The Mind Lab

Founded by Frances Valintine in 2013, The Mind Lab was created with the core goal of addressing the skill gap of what students were learning in schools compared to the skills that the future requires. The Mind Lab now functions as a learning platform that encourages collaboration, creativity, problem-solving, and hands-on digital discovery. It aims to increase access to education, build personal confidence, and address skill gaps while challenging traditional education practices.

The Mind Lab offers courses and products for adult learners. These include post-graduate certificates for educators that build skill sets for digital and collaborative teaching. The Mind Lab also aims to provide individuals and small businesses with increased digital skills, online confidence, and hands-on experience, as well as courses aimed at helping small businesses transition to the digital environment.

THE MIND LAB®

The New Zealand Education, Export, and Research Ecosystem

Education agencies and government bodies play a key role in the growth and development of Aotearoa's EdTech industry. These range from government ministries, educator and teaching associations, and research bodies. Deep coordination and collaboration between these organisations will enable the local EdTech sector to seize the present global opportunity.

- **Ministry of Education:** The Ministry of Education (MoE) is the education system's lead agency, responsible for policy setting and national direction. MoE sets curricula, allocates school funding, and generally manages the nation's school network. Its ten regional offices provide support and advice to schools where needed.

- **Education New Zealand:** ENZ is a crown agency which undertakes marketing and business development activities to build New Zealand's international education sector. ENZ promotes studying with New Zealand and supports the delivery of NZ education products and services offshore or online.

- **Ministry of Foreign Affairs:** MFAT provides support for New Zealand businesses exporting overseas. For education exports, this includes negotiating market access for education providers delivering offshore, promoting and supporting education exports through its network of posts, and engaging with overseas governments to manage any diplomatic issues or risks.

- **New Zealand Trade and Enterprise:** NZTE supports Aotearoa's exporters and is the country's main international business development agency. It also facilitates investment opportunities with capital and with international connections and networks.

- **Ministry of Business, Innovation and Employment:** For the education sector, MBIE is responsible for oversight over the performance and impact of ENZ, and administers trade regulatory systems including tariffs.

- **Education Review Office:** ERO reviews and evaluates the performance of schools in their education and care for students. It also carries out national evaluations on education topics.

- **Teaching Council of Aotearoa New Zealand:** New Zealand's Teaching Council guides and directs the country's cohort of teaching professionals, and grants and renews teaching practicing certificates. It also sets standards for training new teachers and kaiako.

Aotearoa has several research bodies producing valuable insights on the future of education. These include:

- **New Zealand Council for Educational Research:** The NZCER conducts education research and provides advice, assistance, and recommendations as an independent education research body. It aims to provide thought leadership and future-focused education research to support and inform learning and teaching.

- **Learning Sciences Research Cluster at the University of Otago:** This research group aims to advance understanding of academic and professional learning using digital and sensor-based technologies for new methods of quantifying and qualifying the experience of learning.

- **CORE Education Tātai Aho Rau:** CORE is a not-for-profit, future-focussed educational research and development organisation, committed to honouring Te Tiriti and innovation in education. Alongside research and innovation, CORE offers professional learning solutions, mentoring, and content design and development services.

The New Zealand Funding Ecosystem

New Zealand has a robust funding and investment ecosystem. Capital investment in New Zealand technology companies grew by over 100 percent in the past 12 months. In 2020 alone, over NZ$2.4 billion in private equity and venture capital funding was invested in New Zealand tech businesses. This capital and funding investment enables early-stage and innovative companies to grow and scale their business in Aotearoa.

> **Accelerators and incubators are an important part of any innovation ecosystem. Accelerators enable quick, intensive product or service development for early-stage startups over a period of weeks or months."**
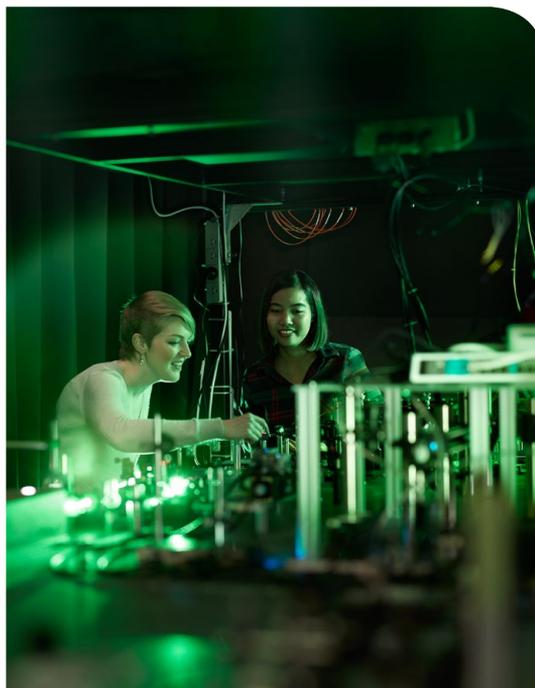
Many EdTech startups will begin their funding journey as side hustles, funded organically alongside family and friends, and supported by the government's Research and Development Tax Incentive.

The investment ecosystem is currently undergoing rapid transformation as the value of startups as an asset class is starting to be fully realised by New Zealand institutional investors, and the arrival of offshore capital in bulk from Australia, North America, and further afield. Combined with 'recycled capital' from exited founding teams, there has never been more startup and growth capital available in Aotearoa. With the rising relevance and success of EdTech, there are also opportunities for strategic investment by local and offshore education and technology companies.

Callaghan Innovation manages the Scale-Up New Zealand portal which lists over 140 active investors as of the writing of this report. Investors include 'High Net Worth' individual investors, investment syndicates such as angel clubs, local and offshore venture funds, private equity firms, and the government-run New Zealand Growth Capital Partners' Aspire and Elevate funds.

There are also a number of nascent impact investment funds which have launched in the last year, some of whom see EdTech as a valuable area of creating social impact.

Accelerators and incubators are an important part of any innovation ecosystem. Accelerators enable quick, intensive product or service development

for early-stage startups over a period of weeks or months. Tech incubators encourage and support commercialisation activities for high-value export. Tech accelerators and incubators available in New Zealand include Flux, Kōkiri, Startmate, Lightning Lab, WNT, and BridgeWest.

However, Aotearoa lacks an EdTech-specific incubator or accelerator programme. This would help EdTech companies rapidly validate product ideas, scale initiatives, or achieve investments in an environment specifically tailored to the unique EdTech space.

The Research Team

EdTech

The Education Technology Association of New Zealand (EdTechNZ) is the voice of EdTech in New Zealand, supporting the growth of the sector.

Our mission is to improve the lives of people and increase the access to, quality and impact of education through innovative technology, for the benefit of educators and learners in Aotearoa New Zealand and around the world.

Our members share a passion for the potential that education technology can bring for New Zealand's prosperity. Members include EdTech companies, educators and training providers. Together, we provide an independent voice for the EdTech ecosystem.

EdTech New Zealand project managed, analysed and edited the research.

NZTech

NZTech is the voice of the New Zealand technology sector. NZTech represents over 1,000 organisations across the technology landscape in New Zealand, from startups and local tech firms to multinationals, and from ICT to high tech manufacturing. NZTech's goal is to stimulate an environment where technology provides important productivity and economic benefits for New Zealand.

NZTech provided analysis, peer review and design for this study and report.

IDC

IDC is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide.

IDC conducted primary research and wrote the core of the report.

Think Tank

Think Tank Consulting provides governance, strategy, technical, research, and consulting services to government, SOEs, NGOs, funders, and innovative startups in Aotearoa New Zealand, with a focus on EdTech, Deep Tech, philanthropy, and Te Ao Māori.

Think Tank Consulting provided project leadership for this research.

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