



Tech City Aotearoa: Auckland's path to becoming a **Global Tech Hub**

Prepared by: Auckland Tech Council



2024



Deloitte.

Tech City Aotearoa: Auckland's path to becoming a Global Tech Hub



Foreword

Aotearoa New Zealand needs Auckland. As New Zealand's most populous and most diverse city, and the place where the largest proportion of immigrants land and tourists enter, a successful Auckland provides opportunities for all New Zealanders. Auckland is New Zealand's economic powerhouse, and it's crucial for future prosperity that Auckland is a thriving and connected global city.

Technology is a growing sector in New Zealand. It underpins the growth, development, and sustainability of many other large sectors, including agritech, cleantech, and sustainable transportation. The breadth of the technology sector creates significant opportunities across all New Zealand.

Auckland has a set of unique attributes including population, access to education and talent, agglomeration of key business communities and global connectivity that align to three key sectors, Creativetech, Fintech and Healthtech, that we've identified where Auckland is particularly well-suited to take the lead within New Zealand and to become a globally recognised technology hub. These sectors all have strong international growth potential.

Conversely, there are other cities across the country that have a unique set of attributes that allow them to take a leadership role in the creation of new technology hubs. When taking a closer look at world-class technology hubs in cities across the globe, there is a clear and deliberate set of choices and focus. This report creates an aspiration for Auckland built on these three sectors where Auckland can compete and win globally. We encourage central government, local government and Auckland businesses to demonstrate leadership and to support the growth of these. Intent and action will transform Auckland into a global technology hub built around CreativeTech, FinTech and HealthTech.

This report has been written and sponsored by Auckland Business Chamber members from across the technology sector who are deeply committed to the success of Auckland and New Zealand as a tech hub. Auckland businesses are ready to drive this agenda. What is required is a set of enablers, powered by central and local government to achieve tech hub status.

Our intention is to spur commitment from central and local government, from the private sector and the wider community to a joint ambition to make Auckland an even greater place to live, work and play, to drive New Zealand's economic growth, and to join other global tech hubs as a recognised city of innovation in the near future.

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Contents

Foreword	2
Executive summary	4
Auckland as part of the global technology story	5
Nurturing Auckland's Creative Technology Sector	8
Accelerating Auckland's Financial Technology Sector	13
Growing Auckland's Health Technology Sector	17
Supercharging Auckland's Digital Infrastructure and Telecommunications	22
Auckland: Where tech talent wants to live	27
Conclusion	32
Acknowledgements	32



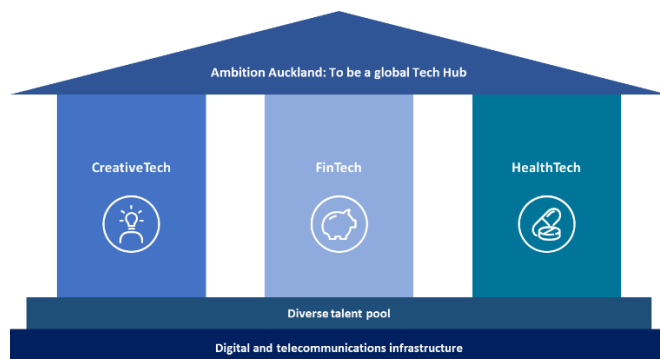
Executive summary

The global technology sector has seen continuous and rapid growth, and with continued developments in GenAI and digitalisation, technology will continue to generate innovative answers to the world's biggest and most pressing challenges. After a long period of inflation, productivity becomes even more crucial. The decarbonisation of the economy and the gradual reduction of reliance on dairy and tourism highlights the need to explore global opportunities for exporting high-value and weightless products. Technology plays a crucial role in leading this endeavour.

The tech sector is an increasingly significant contributor to New Zealand's economy. The number of companies operating in the sector has nearly doubled in the last 20 years, employing over 110,000 people, and generating over \$17 billion (NZD) in revenue.¹ Tech is showing promising signs of not only meeting but beating global competition.

Auckland is already a hub for technology and there is an opportunity for bold thinking which includes improving liveability, digital infrastructure, a unique talent pool and talent concentration in specific sectors.

To grasp the potential of technology in Auckland, we propose an intentional approach to growing three technology sectors - CreativeTech, FinTech and HealthTech, powered by investment into broadband services, cloud computing, and leveraging the diverse talent that exists within Auckland.



The ambition for Auckland is to become a globally competitive tech hub for CreativeTech, FinTech and HealthTech, built on the foundations of talent and infrastructure.

The digital infrastructure that supports Auckland and connects New Zealand to the world has seen significant investment. The COVID-19 lockdowns in Auckland gave us a glimpse of the capacity and capability of our enabling digital infrastructure when much of Auckland's workforce had to pivot to a work from home model.

With a bold ambition, leadership alignment, coordination across sectors and a mix of private and public investment, Auckland can become a global tech powerhouse. In this report, we outline an aspirational five-year plan for each of the sectors identified and provide recommendations to support these plans. We look forward to refining these plans with the incoming Government and actioning them together.

¹ NZ Tech – "New Zealand Tech Key Metrics 2022", 2023.

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Auckland as part of the global technology story

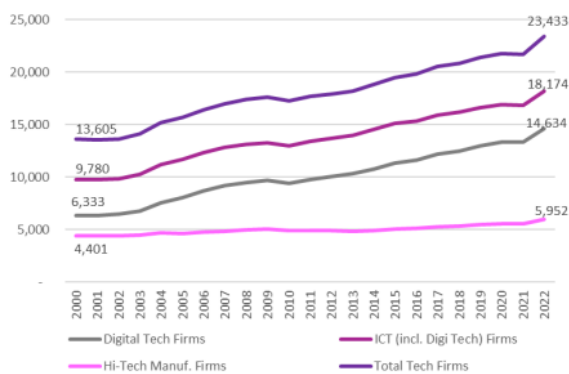
Technology's market growth has been rapid, and research suggests global tech spend will be \$10 trillion (USD) by 2026.² With continued developments in GenAI and digitalisation, technology will continue to generate innovative answers to the world's biggest and most important challenges.

Tech hubs play an important role in harnessing this growth and as such are found at the centre of many global tech trends. Cities equipped with the right mix of digital infrastructure and talent, but most importantly, a unified strategic direction, have successfully created the conditions to incubate and grow technology-enabled innovation. More recently, city and government leadership has been shifting focus to accelerating the formation of tech hubs in smaller cities. The United States designated 31 tech hubs across multiple smaller cities to build on the success of Silicon Valley which is globally recognised as the world's leading tech hub. The driving rationale for this is twofold – new places harbour new ideas and the potential for technology investment to revitalise smaller cities.³

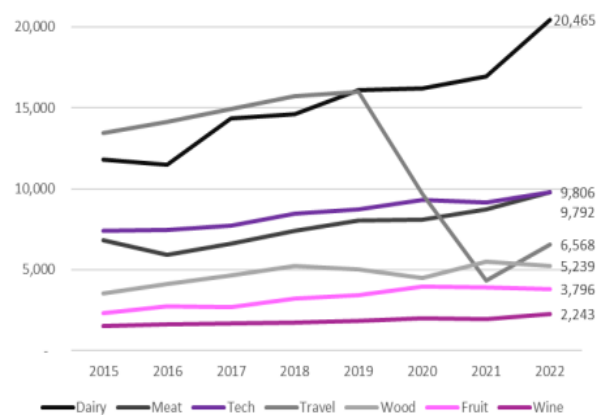
The tech sector is a significant component of New Zealand's economy, with the number of companies in the sector nearly doubling in the last 20 years and employing over 110,000 people, generating over \$17 billion (NZD) in revenue. New Zealand's tech sector is showing promising signs of not only meeting but beating global competition. The tech sector is the second largest contributor to New Zealand's export earnings, shadowed only by the dairy sector.

In 2022, more than 1,700 new tech companies were registered in New Zealand, representing a remarkable year-on-year growth of 8.1%, despite challenging economic conditions. Of those 1,700, 1,300 identified as a digital business, reflecting New Zealand's continued innovations in software - a segment of the tech sector that has grown exports twenty four percent per year for the last decade.

Tech Sector Firms, 2000-2022



Source: Statistics NZ 2023



Source: Statistics NZ 2023

² MGI Research – “The Global Tech Market Is Bigger Than You Think”, February 2023.

³ Brookings – “Commentary – What the new Tech Hubs designations mean for boosting innovation across the US”, October 2023.

Tech City Aotearoa: Auckland's path to becoming a Global Tech Hub

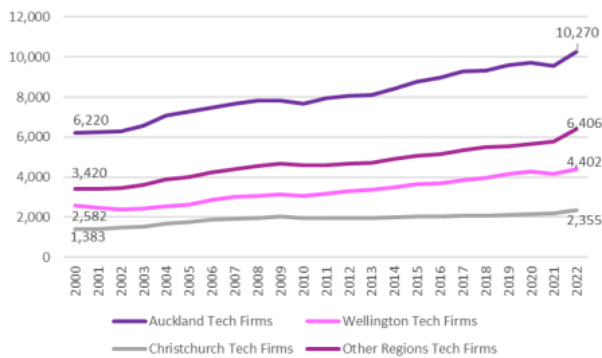


Auckland itself is home to over 11,000 tech companies, 120 of which have been recognised as a part of New Zealand's top 200 tech companies. Auckland's tech industry contributes \$13.6 billion (NZD) to Auckland's GDP and projections suggest it will create 3,500 new jobs by 2025.⁴

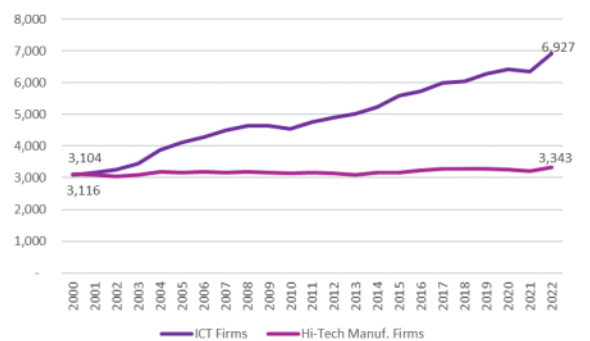
The need to further accelerate this growth through a strategically coordinated effort is clear. The ever-increasing demand for productivity after a prolonged period of inflation, as well as the pressure to decarbonise the economy, both point to the same conclusion – we need to be viewed by the world as a destination for high value weightless exports. Growing Auckland into a tech hub is a necessity rather than a 'nice to have.'

Auckland's liveability, digital infrastructure, unique talent pool and concentration in specific sectors provide favourable conditions for bold and innovative thinking. Year-on-year, tech companies grew three times faster than general employment in Auckland, and tech is one of Auckland's most economically productive industries, generating more than \$250,000 in revenue per employee – 81% higher than Auckland's other sectors generated per employee.⁵

Tech Sector Firms - By Region, 2000-2022



Tech Sector Firms - Auckland, 2000-2022



⁴ Tātaki Auckland Unlimited – “Tech Tāmaki Makaurau”, 2023.

⁵ TIN, Tātaki Auckland Unlimited – “Auckland Tech Sector (TIN200), Insights Report and Industry Summary”, 2023.



Nurturing

Auckland's Creative Technology Sector



Nurturing Auckland's Creative Technology Sector

Creative technology (or CreativeTech), often referred to as creative software, is the merger of art, design, media and content creation with digital software tools and services. The estimated global market size of the CreativeTech sector is over \$1.5 trillion (USD) in 2022 and is projected to grow by 7% p.a.⁶

New Zealand's creative industries are not only a source of national pride but also substantial contributors to the country's economic wellbeing. As a nation, we already have a reputation for producing some of the world's best games, films and creative software, and the CreativeTech industry plays a pivotal role in generating revenue, creating a knowledge economy, creating employment opportunities, diversifying our economic base, and growing our export earnings.

As of 2023, Auckland is home to more than 300 software companies that create digital production tools for a range of industries, and has an international reputation for creativity in design, media, and advertising.⁷ Auckland is already home to nearly half of the country's creative workforce and contributes \$7.8 billion (NZD) in GDP – the result of steady growth in the last decade. Forecasts suggest there will be more than 6,800 new job openings in the region's creative industries from 2023 through to the end of 2027.⁸

Te Puna Creative Quarter in Henderson is an example of an aspiring hub for creative work. Te Puna is an integration between multiple entities and physical spaces such as Henderson village, Corban Estate Arts Centre and Auckland Film Studios.⁹ Drawing a close connection to West Auckland's historical heritage and leveraging the area's cultural diversity, Te Puna demonstrates how other parts of Auckland can grow its creative capacity by leveraging diversity and utilising strategic coordination.

Opportunities and challenges to Auckland becoming a global CreativeTech hub

As we look to the future, the creative sector's significance is expected to grow further. It has a role to play in maintaining job growth and economic stability for New Zealand. It is therefore imperative to prioritise the growth and sustainability of the creative economy and support the talent who are driving it. With continued advancement of digital technologies, including AI, creative capital will be equally as important to New Zealand as financial and natural capital.

However, there are still challenges faced by the sector. To effectively promote, grow, and sustain the digital creative economy for the future, there is a need for a leadership to connect the various facets of arts and culture, economic development, export support, skills and talent development, and Māori and Pacific development programmes.

⁶ UN Conference on Trade and Development – "Creative Economy Outlook 2022"

⁷ Stats NZ – "Business demography statistics, geographic units by region and industry 2023" – ANZSCI06 J542 Software Publishing in the Auckland region.

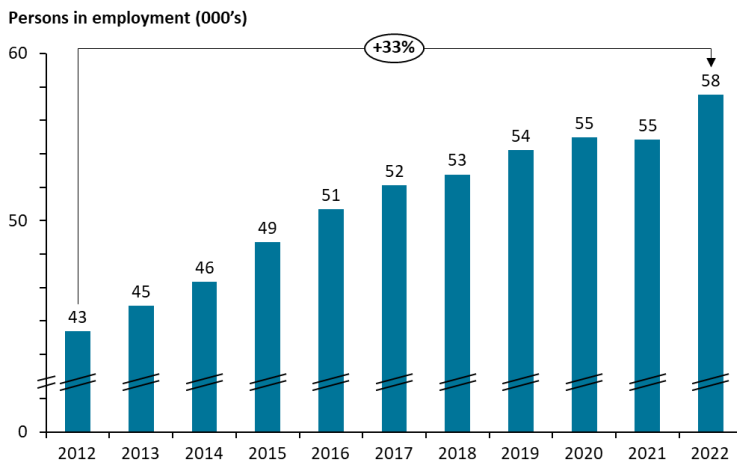
⁸ Tātaki Auckland Unlimited – "Create Auckland 2030", 2023; Infometrics Arts & Creative Sector profile for Manatū Taonga/Ministry for Culture & Heritage as at March 2022

⁹ Ibid.

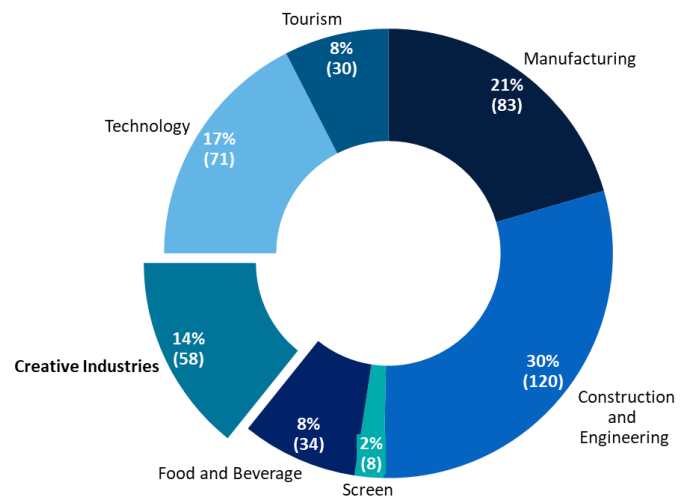
Nurturing Auckland's Creative Technology Sector



Employment in Auckland's creative industries 2012 – 2022



Employment in Auckland by sector 2022



Source: Tātaki Auckland Unlimited 2023

New Zealand's creative and technology sectors have experienced significant growth, but the talent shortage challenge persists, requiring preparations for current and future workforce needs. Groups such as Māori, Pacific peoples, and women are underrepresented in the sector, yet present a significant untapped talent pool and opportunity. Transferable skills and entrepreneurial skills are in demand, in addition to technical and creative qualifications.

Addressing these challenges requires a shift in education, greater collaboration between employers and employees, and incentives for businesses to train and retain their staff, as well as, a stronger focus on diversity and inclusion. Many CreativeTech workers may be self-employed, work in the 'gig economy,' or work for SMEs, and are unable to provide these opportunities themselves.

New Zealand has a huge addressable global market for digital creative products and services. However, private sector investment is essential to scale and target export markets. While government funding can mitigate some risks, the majority of available funding and investment has a domestic arts and culture focus, which is often not aligned with developing a commercial value proposition. Greater internationalisation of our creative industries will not only drive growth but also attract tech businesses and scalable intellectual property ventures.



Five-year CreativeTech hub roadmap

In order to achieve the full potential of the CreativeTech sector and to turn Auckland into a global CreativeTech hub, we recommend the following five-year roadmap. These initiatives address issues around leadership and coordination, talent attraction and retention, internationalisation, incentives, and regulatory reform.

YEAR | 1

- Support New Zealand's CreativeTech exports by removing barriers to international distribution, including through working with the major digital distribution platforms to secure improved access and visibility for New Zealand content.
- For leadership and coordination, we recommend the establishment of a dedicated government position, such as a Minister for the Creative and Cultural Economy, responsible for leading efforts to support and grow the creative and cultural economy.
- To further build the talent pipeline, we recommend expanding initiatives like "Creatives in Schools" to improve equity of access to opportunities for creative education, and shift from STEM (Science, Technology, Engineering and Math, to STEAM (Science, Technology, Engineering, Arts and Maths) education in schools, integrating arts (creativity) into the curriculum, following global trends in this direction.

YEAR | 2

- Develop an internationalisation strategy for New Zealand's creative industries, emphasising digital distribution and broad market access.
- Strengthen intellectual property protections and enforcement for creators in digital content and digital IP sectors to encourage innovation and attract investment.
- Focus on addressing representation issues, such as the underrepresentation of Māori, Pacific peoples, and women in the IT and creative sectors, through targeted initiatives and programmes.



YEAR | 3

- Further build the talent pipeline by introducing apprenticeships tailored to the creative and IT sectors, providing hands-on experience and clear career pathways.
- Foster private sector investment in creative and technology industries, with a focus on film, interactive media, and publishing.
- Promote the benefits of the Game Development Sector Rebate and the New Zealand Screen Production Rebate to attract foreign direct investment.

YEAR | 4

- Establish dedicated innovation spaces and programmes for young people by leveraging existing facilities such as the Te Puna Creative Quarter in Henderson, and sourcing others to foster creativity, collaboration, and innovation across tech sectors, with a focus on supporting underrepresented groups.

YEAR | 5

- Support businesses, especially in the creative and IT sectors, to invest in training and upskilling employees.



Accelerating

Auckland's Financial Technology Sector

Accelerating Auckland's Financial Technology Sector



Accelerating Auckland's Financial Technology Sector

FinTech is the intersection of emerging tech and financial products and is the key growth area within the financial services sector. The global FinTech market was estimated at \$220 billion in 2022 and is expected to grow at 18.5% each year. By region, APAC holds the second largest market share after North America, signalling opportunities for Australia and New Zealand to take charge in a growing part of the global tech economy.¹⁰

FinTech hubs have popped up across the world, including in Tel Aviv, Singapore, and Stockholm. These three cities have purposefully identified the opportunity of FinTech for their cities and have built deliberate plans of action around these goals. The FinTech opportunity opens potential to build new products and services to improve efficiency and generate better outcomes for customers. Recent developments in FinTech like AI and open banking/finance presents numerous opportunities. These include supporting financial inclusion for citizens and better services for New Zealanders, offering opportunities including AI-driven payment automation, blockchain-enabled financial solutions, IoT-powered analytics, and building new products and services for export to other financial hubs.

Auckland is home to 27 registered banks including overseas-incorporated banks operating in New Zealand, as well as a number of insurers, brokers and tech companies.



Overview of FinTech in numbers. Source: TIN 2022 FinTech report and Infometric Auckland regional profile 2023

New Zealand has often been described as a testbed for new technology, with most of the innovative activities concentrated in Auckland. Notable projects have been undertaken by Google, Volvo and LinkedIn, but there are also home-grown players emerging in the FinTech space, including JavIn, Unimarket Holdings and 9 Spokes.¹¹ 19 FinTech companies recognised in the TIN200 category generated over \$1.4 billion (NZD) in 2020 and \$1.8 billion (NZD) in 2023 and employed over 7,600

¹⁰ Industry ARC – “FinTech Market – Forecast (2023 – 2028), 2022.

¹¹ New Zealand Trade & Enterprise (NZTE), 2021; TIN – “TIN2022 FinTech Report”, 2023.



employees. The numbers show that FinTech is maintaining its position as the fastest growing segment of New Zealand's tech sector, driven by increasing demands from Europe and Australia.¹²

Challenges and opportunities to Auckland becoming a global FinTech hub.

Becoming a recognised FinTech hub depends on the ability of Auckland to pull a range of key levers that encourage growth, innovation, and mobility within the FinTech sector. Each growth lever is underpinned by a series of enablers which contribute to developing a successful FinTech hub, including liveability and critical infrastructure, innovation ecosystem and access to capital, vision, policy, and regulation, attracting and developing talent and encouraging uptake and customer demand.

New Zealand has a unique international role as a global indigenous business centre. For Auckland to thrive as a FinTech hub there must be a prioritisation of data sovereignty and Te Tiriti o Waitangi values at the core to build trust in the market. There is a need for further innovation and regulatory change. Some of this is already underway but more testing is needed, including government support to create regulatory sandboxes for controlled testing, which will play an important role in fostering trust. Like the other sectors, there are challenges in attracting and retaining international and local talent, and clear talent pathways need to be developed for the sector.

Five-year FinTech Hub roadmap

By strategically addressing these levers and making these big bets, Auckland can position itself as a thriving FinTech hub, driving innovation, collaboration, and sustainability in the industry.

YEAR | 1

- Foster trust and confidence by emphasising data sovereignty and Te Tiriti o Waitangi values at the core of Auckland's FinTech hub. This will build trust among stakeholders and create a foundation for responsible and trustworthy FinTech innovation.
- Enhance regulatory frameworks for the sector. This includes creating a more supportive regulatory environment, implementing regulatory sandboxes, and exploring mechanisms to allow New Zealanders to engage with global FinTech businesses while ensuring security and competition.

YEAR | 2

- Invest in talent development by prioritising the establishment of educational pathways from high school to university that focus on FinTech.

¹² TIN – "TIN2022 FinTech Report", 2023.

Accelerating Auckland's Financial Technology Sector



- Build an innovation ecosystem by investing in the development of incubator programmes and hubs that facilitate collaboration and innovation within the local FinTech community. These programmes can provide essential support, mentorship, and access to capital for budding FinTech ventures.

YEAR | 3

- Create incentives for offshore talent to come to New Zealand and bring their talent and skill to contribute to the growth of Auckland's FinTech sector, ensuring a sustainable and diverse workforce.
- Promote international collaboration through the establishment of channels for knowledge exchange and collaboration with other global FinTech hubs. Learning from their experiences and avoiding past mistakes can accelerate Auckland's growth in the FinTech sector.
- Strengthen consumer education through the development of campaigns and initiatives to educate consumers about the value and benefits of FinTech solutions. Modernise digital touchpoints to make FinTech services accessible and easy to understand for both sellers and customers.

YEAR | 4

- Encourage investor participation by attracting local and international investors to the Auckland FinTech ecosystem by showcasing its potential and providing attractive incentives for investment

YEAR | 5

- Further build out public-private partnerships to foster collaboration between government agencies, industry players, and educational institutions to create a cohesive ecosystem that supports FinTech innovation.



Growing

Auckland's Health Technology Sector



Growing Auckland's Health Technology Sector

Leveraging emerging technologies like telemedicine, wearables, and data analytics, HealthTech promises to improve healthcare access, patient outcomes, and operational efficiency. The global digital health market size is expected to grow at 27.7%, reaching \$1.5 trillion (USD) by 2030.¹³

In an era where healthcare demands often exceed available resources, technology stands as a pivotal solution. For example, through telemedicine, patients in remote areas can gain access to quality healthcare, bridging the gap caused by limited physical infrastructure. Advanced diagnostic tools and AI-driven analytics can enable quicker and more accurate diagnoses, optimizing the use of medical professionals' time and expertise. Technology can act as a lever to maximize healthcare delivery within the confines of limited resources, transforming challenges into opportunities for innovation and improved patient care. New Zealand, and in particular Auckland, have the opportunity to be a global leader developing new solutions, in collaboration with health sector organisations, and taking these to the world.

New Zealand's HealthTech sector has evolved into a robust industry, now valued at \$2.1 billion (NZD). This sector encompasses over 200 homegrown companies specialising in medical devices, digital health solutions, and health information technology. To appreciate the magnitude of this growth, it is worth noting that in 2010, the sector's value was a mere \$770 million, comprising 40 to 50 companies, and digital health was virtually non-existent. Two dominant entities, Fisher & Paykel Healthcare, and Orion Health, continue to play a pivotal role in the industry's landscape.



Overview of NZ HealthTech in numbers. Source: TIN 2022 HealthTech report and Infometric Auckland regional profile 2023

There are approximately 180 startups and emerging companies, with the majority (70%) founded by private entrepreneurs. Universities contribute significantly, with 24% of these companies originating from academic institutions, while the remaining 6% originate from other sources, including from within Te Whatu Ora and Crown Research Institutes (CRIs).

Auckland emerges as a compelling choice for the HealthTech hub for several reasons. It is already home to key international HealthTech players, such as Fisher and Paykel Healthcare and Orion Health, fostering an environment conducive to industry growth. As a culturally and socioeconomically diverse international city, Auckland is an attractive location for HealthTech companies to thrive and innovate,

¹³ Bloomberg – “Digital Health Market to Hit \$1.5 Trillion by 2030: Grand View Research, Inc.”, October 2022.

Growing

Auckland's Health Technology Sector



serving as a crucial hub for transportation, finance, and technology, offering essential infrastructure and connections for HealthTech enterprises. The University of Auckland, New Zealand's highest-ranked university, is home to a prominent medical school, closely linked to the nation's largest public hospital. This academic powerhouse provides a rich source of talent and innovation. The Auckland Bioengineering Institute has been instrumental in incubating many recent success stories in the Digital Health and HealthTech sectors, further enhancing Auckland's standing in the industry.



Opportunities and challenges to Auckland becoming a global HealthTech hub

Within the HealthTech sector, there are obstacles to the sector reaching its full potential, including weak connections between local HealthTech businesses and the wider health ecosystem including providers, hospitals, clinicians, and education and research.

There are ongoing challenges around talent, including immigration settings, the nurturing of local talent and building a learning culture from what has and hasn't worked for hubs in the past and ensuring industry groups are heard.

There are also challenges around partnership and equity by ensuring that data governance is a priority as well as partnership with iwi, Māori, and Pacific health providers so the benefits are captured by all.

Five-year HealthTech hub roadmap

For Auckland to fulfil its ambition of being a HealthTech hub, there is a five-year roadmap centred around developing a robust digital health infrastructure, fostering public-private partnerships, enhancing data security, and promoting telehealth adoption.

YEAR | 1

- Supporting established and emerging HealthTech businesses to scale from local to national and international solutions is vital. Lessons learned during the COVID-19 pandemic, including the value of partnerships across public and private sectors and the use of non-traditional vendors and remote models, should be leveraged to facilitate this rapid scaling.
- HealthTech businesses should fully embrace the opportunity to be world-leaders in indigenous partnerships. This requires insisting on genuine partnerships with iwi, Māori, and Pacific health providers and recognising the commercial opportunities while making data governance a priority to honour Te Tiriti.
- Prioritise HealthTech businesses for support from government entities like the Ministry of Business, Innovation, and Employment (MBIE) and the Council of Co-Operatives (CoC).



YEAR | 2

- Connect with the wider health ecosystem by developing a HealthTech precinct. In the future, HealthTech businesses should be seamlessly integrated into the local health ecosystem, including providers, hospitals, clinicians, research institutions, and educational entities. Achieving this requires incentivising connections between local HealthTech businesses and the broader healthcare system.
- Leveraging the experience and expertise of established HealthTech companies and industry groups will empower emerging businesses. Collaboration can take the form of mentorship opportunities for startups and navigating the complex healthcare and regulatory landscape together.

YEAR | 3

- Ensure Auckland has the right talent through tailoring immigration policies that attract overseas talent and investing in local organisations fostering diverse HealthTech talent, such as Chiasma.
- Promote investment to ensure sustained growth of established and emerging HealthTech businesses. These businesses must be connected to investment and venture capital opportunities.

YEAR | 4

- To become a world class HealthTech hub, Auckland must leverage existing partnerships, like MedTech-iQ, and focus on building cultural diversity, modern infrastructure, and world-class education and research opportunities.

YEAR | 5

- Shift the paradigm towards future models of health that are patient and whānau-centred, accessible, affordable, wearable, and closer to home. Empowering HealthTech businesses to develop such solutions is crucial.



Supercharging

Auckland's Digital Infrastructure and Telecommunications



Supercharging Auckland's Digital Infrastructure and Telecommunications

For the CreativeTech, FinTech and HealthTech sectors to thrive in Auckland, they must be supported by robust and sustainable digital and telecommunications infrastructure. Over the past twenty years, there have been substantial investments in digital and telecommunications infrastructure which has enabled the city to foster a solid foundation for connectivity, both domestically and internationally.

Key success factors for this have been significant venture capital funding, continuous expansion of infrastructure, and the growth of data centres which speed up connectivity and connect New Zealand to the world. To maintain the momentum and to support the growth of the CreativeTech, FinTech and HealthTech sectors, Auckland must address the challenges of power and hardware limitations, energy grid augmentation, infrastructure expansion and talent attraction and retention.

Auckland has witnessed substantial investment in its telecommunications infrastructure over the past decade. Much of this investment has come from the private sector and created jobs and growth in the city. In 2021, Amazon Web Services (AWS) announced its plan to spend \$7.5 billion building data cloud centres for a new local AWS region set to open in 2024.¹⁴ Google's establishment of a cloud region in Auckland in 2025 underscores the city's potential as a global tech hub¹⁵. This growth is a testament to Auckland's attractiveness as a location for tech businesses, and it underlines the need for further infrastructure development to support the expanding tech sector and future ambitions.

Challenges and opportunities for Auckland's digital and telecommunications infrastructure

One of the most promising opportunities in the telecommunications sector is Generative AI. Auckland is well-positioned to lead in this field due to its existing infrastructure, data centres, and access to renewable energy. AI will lift productivity and drive further investment in infrastructure, particularly in data centres, where Auckland holds a unique advantage. Auckland is New Zealand's most tech connected city with data connectivity direct from Auckland to the USA.

¹⁴ AWS – "AWS to Open Data Centres in New Zealand", September 2021 (<https://press.aboutamazon.com/2021/9/aws-to-open-data-centers-in-new-zealand>)

¹⁵ Newshub – "Google announces cloud region for New Zealand", August 2022.

Supercharging

Auckland's Digital Infrastructure and Telecommunications

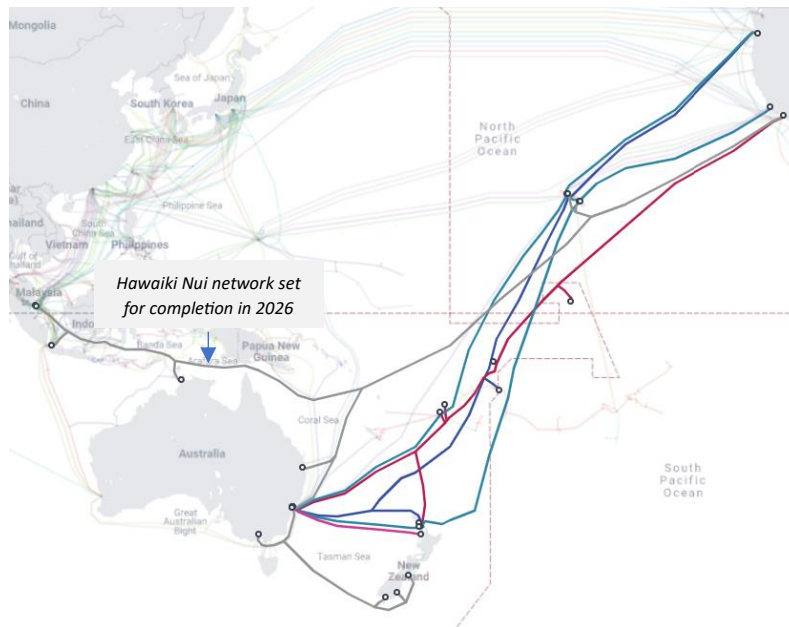


Image showing Auckland's internet connectivity to the world. Source: TeleGeography, showing all submarine connectivity cables from

To be a world class tech hub, we need world class enabling infrastructure. Fast, reliable, internet is vital to the three sectors identified. Despite the significant progress, there are challenges that must be addressed to realise Auckland's telecommunications potential. As demands on the energy grid grow, investment in grid augmentation to accommodate increased consumption is vital. The utilisation of solar power and peak consumption offset technologies will play a crucial role in meeting these demands. To stay ahead, Auckland must focus on unconstrained wireless coverage and fibre networks. Ongoing investment and adoption of 5G and beyond is required to support emerging trends such as IoT, autonomous vehicles and a “business anywhere” approach. A robust national and international fibre network is integral to accommodate the anticipated surge in AI cloud and AR/VR traffic demands.

Within this report we have positioned telecommunications as a critical enabler. Simply put, without continued investment and innovation from the telecommunications sector, Auckland will not be able to realise the ambition to become a global tech hub.

Supercharging

Auckland's Digital Infrastructure and Telecommunications



Five year digital and telecommunications infrastructure roadmap

A five-year roadmap of digital enablement must be established to support the three tech sectors.

YEAR | 1

- Continue to nurture a tech-friendly environment through favourable immigration policies, infrastructure initiatives to cultivate a skilled talent pool in software development and data-related roles.
- Develop initiatives to attract foreign investment and make it easier for global tech companies to establish their presence in Auckland.

YEAR | 2

- Offer incentives for small businesses entering Auckland's telecommunications ecosystem, such as free power, broadband, mobile services, and FinTech software. This package can scale as the business grows.
- Create a turnkey solution for large global cloud providers coming to Auckland, offering pre-lit buildings, 5G sims, and preconfigured Starlink for remote satellite requirements to simplify their entry into the Auckland market.

YEAR | 3

- Support the introduction of a local compute presence in Auckland, enabling digital and AI sovereignty and encouraging the emergence of new markets.

YEAR | 4

- Continue to invest in unconstrained wireless coverage, fibre networks, and emerging wireless technologies to support IoT, autonomous vehicles, and the "business anywhere" approach.
- Leverage local compute capability to begin work on a digital twin of Auckland to accelerate development and productivity for the city.

Supercharging

Auckland's Digital Infrastructure and Telecommunications



YEAR | 5

- Scale the energy grid to meet growing demands of the telecommunications sector, investing in renewable energy sources and peak offset technologies.



Auckland:

Where **tech talent** wants to live

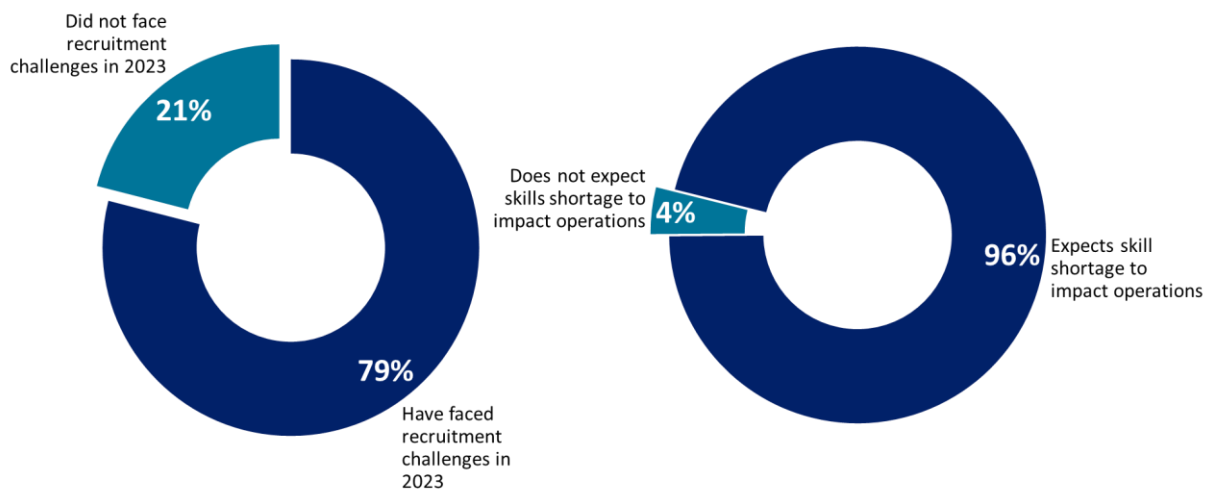


Auckland: Where tech talent wants to live

In order to realise Auckland’s full potential as a CreativeTech, FinTech and HealthTech hub, attracting, retaining and growing homegrown talent is a vital part of the pathway to success. Immigration can only be part of the solution as global demand for tech talent increases. It will become increasingly important for Auckland to train and retain homegrown tech talent.

Talent is raised as an issue throughout this report across all sectors. In a 2021 survey, 40% of tech firms indicated they experienced critical worker shortage which prevented taking on new work or going to market with their products.¹⁶ While easing border restrictions in the past two years has alleviated some pressure, gaps in skills and diversity will need to be addressed for Auckland to sustainably operate as a tech hub.

Currently, the New Zealand tertiary sector is not delivering enough graduates to fulfil current and future demand. Total enrolments in technology fields over a ten-year period between 2013 and 2022 grew from 12,635 to just 12,945.¹⁷ Māori are estimated to represent 1% of employees in the tech sector and Pasifika at 0.8%. This inequity could increase as more jobs and roles are affected by technologies like artificial intelligence.



Out of 159 respondents, 79% responded they faced challenges recruiting for their organisation, with 96% of the respondents who expected the skills shortage to impact their operations. **Source:** Aotearoa’s Digital Priorities in 2023, TUANZ.

However, there are bright spots in this story. For example, IBM has partnered with the Manukau Institute of Technology and Media Design School to launch the PTECH programme in nine secondary

¹⁶ TIN, Auckland Tātaki Unlimited – “Auckland Tech Sector (TIN200) Insights Report and Industry Summary”, 2023.

¹⁷ Education Counts: enrolment data by level of study between 2013 and 2022



schools in Auckland. These two tertiary providers work with IBM to provide tertiary skills development and company internships to students. However, the funding for this is limited.

A new model is needed to break out of the current static education model to supply Auckland tech companies with the brightest talent they need to grow and thrive.

Challenges and opportunities for Auckland to attract and grow tech talent

There are challenges that must be addressed to realise Auckland's potential to be the tech hub of New Zealand. These include investing in education and training programmes to foster and nurture local tech talent and ensuring a sustainable pipeline of skilled workers and implementing favourable immigration settings to attract and retain tech talent, specifically in software development and data-related roles. We need new models of education given that tertiary IT skills training has remained unchanged for years and still consists primarily of diplomas, bachelors, and postgraduate qualifications. Micro credentials have emerged but are limited in scale and are not a panacea or long-term solution. The existing rigid post-school education model does not provide incentives for employers to train or redevelop staff.

Innovative initiatives inside the education model such as PTech, are inadequately funded and supported, and rely on the goodwill of providers. The PTech programme is currently in effect in six high schools, but with adequate support, could deliver to a wider reach and create greater impact. The sector is not diverse, with many communities locked out of participating in the technology sector's potential through traditional educational models and uninformed decision influencers, such as parents and school careers advisors, are having an adverse effect on the development of future tech talent.



The five-year roadmap for talent attraction and retention

A five-year roadmap of a talent attraction, retention and development strategy is advised to support the three tech sectors.

YEAR | 1

- Develop Auckland as an education pilot region focused on tech. This will allow Auckland's experience to inform the necessary government and regulation change in a controlled setting before any national policy change follows. This pilot region should also have a specific focus on further developing Māori and Pasifika tech talent for Auckland. Auckland could also be the AI tech education hub of New Zealand.
- Develop programmes with providers focussed on building participation in the Creativetech, Fintech and Healthtech sectors.

YEAR | 2

- Build closer integration between tech employers and tertiary providers. This is needed to create more graduates, attract more students, and provide better equipped graduates. A new model is needed with more balance between classroom time and time connected with employers. For example, an ICT degree apprenticeship that incorporates a balance between academic endeavour with practical exposures may address identified challenges.
- Integrate ICT tertiary training programmes in high schools. This will require a shift in education model – from a cost recovery basis to a TEC 'SAC' (Tertiary Education Commission, Student Achievement Component) funding to push tertiary education providers to leap beyond current frameworks.
- Find ways to develop greater industry convergence and co-sponsoring of programmes that are designed to engage under-represented communities and groups in the tech workforce, including for Māori and Pasifika and women.

YEAR | 3

- Incentivise employers to retrain or upskill their staff. Similar to the existing model in the United States, employers would receive tax credits (or other support mechanisms) to co-invest in staff enrolled in a formal qualification in the tech sector.



YEAR | 4

- Change the funding model for training. The existing SAC funding model requires providers to deliver educational performance outcomes – notably qualification completion and retention in programmes. This design runs counter to the needs of employers who want employees to gain a qualification in a single subject. The providers are penalised for withdrawals or lack of progression as the system is set up for high school leavers. A classification system is required for learners who are enrolling in addition to their full-time work allowing more flexibility for providers to package and market single, or bundles of, learning rather than a full qualification.
- Find ways for NZQA/ NCEA to recognise the completion of professional industry certifications/courses as part of the national qualifications framework within tertiary or secondary programmes of study. This would mean learners are both earning industry ready skills and growing their national qualifications at the same time.

YEAR | 5

- Engage and lead tertiary education providers for innovation. Current providers in the tertiary education space tend to focus on risks rather than opportunities. This counteracts against innovation, leading to a lack of an innovative mindset in the tertiary system. Setting a collective agenda to review tertiary education frameworks that emphasise the incubation of an innovative mindset is a necessary drive to sustain Auckland’s aspirations in the future.



Conclusion



Conclusion

Technology will play an important role in the future sustainable growth of New Zealand's economy. Auckland is, by many measures, a world class city. It also has the unique attributes to be a global technology hub. This aspiration can be achieved in five years through aligned leadership and co-ordinated action as illustrated in this report.

Globally, cities that focus on hub activity are more likely to attract, retain and grow talent, they drive productivity, innovation, higher wages and job creation. By focussing on the three sectors of CreativeTech, FinTech, and HealthTech and continuing to invest in the platforms of digital/technology and homegrown talent, Auckland has a clear pathway to becoming a globally recognised hub city. Supporting these sectors to flourish is not only about economic growth but also about the enrichment of Auckland's creative landscape - the advancement of healthcare and financial services - all of which are critical to New Zealand's future prosperity and success. Auckland's elevation as a global tech hub will be marked by its inclusivity, diversity, and commitment to sustainability, echoing New Zealand's values.

Auckland's success will depend on the commitment of decision-makers, industry leaders, and policymakers as they work together to shape Auckland and New Zealand's tech-driven future.

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