

GROWING INNOVATIVE INDUSTRIES IN NEW ZEALAND

Digital Technologies Industry Transformation Plan

MAY 2023



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MINISTERIAL FOREWORD



The Digital Technologies Industry Transformation Plan (ITP) is the result of years of collaborative effort between industry and government. It is my hope that this will drive forward transformative change for the sector.

The Government has ambitious goals to achieve a high-wage, low-emissions economy. Growing the digital technologies sector is a practical step towards realising that vision.

New Zealand's digital technologies sector plays an important part in the diversification of our economy, and as a driver of future sustainable economic growth and jobs. The sector contributed \$7 billion to the New Zealand economy in 2021. Careers in digital technologies are high-wage and offer opportunities to lift the prosperity of our communities. Equally important, are economic and social spill-over benefits, such as enabling access to global markets, and providing innovative solutions for combating challenges like climate change.

This ITP seizes the exciting opportunity to execute the vision we have for the future of the digital technologies sector. We want the world to look to Aotearoa as a leader in ethical, innovative, inclusive, and sustainable technologies. This means these technologies enable our economy to prosper, and contribute to the wellbeing of all New Zealanders through higher paying jobs.

As a key tool for delivering on the Mahi Ake – Growth pillar of the Digital Strategy for Aotearoa (DSA) that launched in 2022, the ITP includes focus areas that look to build our national reputation around tech and innovation, improve the digital skills and talent pipeline, build Māori participation and activity in the sector,

and support Software-as-a-Service and game development as high-growth, high potential subsectors.

Digital technology exports have limited reliance on natural resources, meaning there are more opportunities for sustainable growth. They can also play a supporting role for other sectors to be more productive through using innovative products and services, and new business models.

Partnership is integral to shaping up the final ITP. A Partnership Board has been established to oversee the implementation of the ITP moving forward. It is made up of a diverse group of leaders who provide business, workforce, Māori and government perspectives. I want to congratulate and thank everyone who has engaged and made a valuable contribution. The final ITP reflects a high degree of engagement from the sector.

I look forward to seeing the next stages of the ITP partnership progress. This includes implementing actions under this ITP that will propel our digital technologies sector further forward. It will also include future iterations of this ITP, as it will be a living plan, reflecting the pace of the tech and momentum behind the partnerships surrounding this work.

Nāku iti nei
Hon Ginny Andersen
Minister for the Digital Economy
and Communications

PARTNERSHIP BOARD CO-CHAIRS' FOREWORD

—

This Digital Technologies ITP has become a mechanism for strong collaboration and alignment. During its development, multiple tech communities, organisations and people have come together to identify common opportunities and challenges. Together with government, we have used the ITP as an opportunity to create coordination on some of the sector's most significant ongoing challenges.

30 years ago, the digital technologies sector was recognised as a potential competitive advantage for New Zealand. By 1996, the first sizing of the sector tallied \$3.2 billion in revenues and a contribution of \$292 million in exports. Despite the economic turbulence since, including Y2K, the Global Financial Crisis and the COVID-19 pandemic, the tech sector has continued relentless growth. Today, it contributes billions of dollars in exports and includes a number of our economy's frontier firms.

Since 2016, the fastest growing part of New Zealand's diverse tech sector, the digital technologies sector, has been growing at an annual compound growth rate of 10.4%. Though this vastly outpaces the rest of the economy, it hasn't all been tail winds. The sector's dramatic growth has come during tough economic times, major ongoing skills shortages, years of capital constraints and no cohesive domestic policy framework.

Imagine what the future might hold, if we could work together to reduce some of these head winds?

The collaborative development process of this plan has also highlighted a range of diverse opportunities for growth that can provide benefits for all New Zealanders, has brought focus to the skills and talent challenges we face as an industry, and provided a mechanism for developing sustainable pathways to improved innovation. We look forward to the next steps and continuing with initiatives to help support transformational growth of the digital technologies industry.

DIGITAL TECHNOLOGIES PARTNERSHIP BOARD CO-CHAIRS



Graeme Muller,
CEO New Zealand
Technology Industry
Association (NZTech)



Victoria MacLennan,
CEO IT Professionals
New Zealand



Paul Stocks,
Deputy Secretary,
Ministry of Business,
Innovation and Employment

EXECUTIVE SUMMARY

There is a significant growth story ahead for successful digital technology firms in Aotearoa New Zealand. Given our distance from markets, these companies are important because they are global from day one, have a lower environmental footprint on average, are not constrained physically so are scalable, and present a pathway to high paying jobs for more New Zealanders. These are some of the reasons for backing New Zealand's digital technologies sector.

Cascading from the Government's Economic Strategy, through the Digital Strategy for Aotearoa (DSA), this Digital Technologies Industry Transformation Plan (ITP) seeks to support the transformation of the New Zealand economy and the sector.

ITPs support the Government's overarching priorities to accelerate the economic recovery to achieve a high wage, low emissions economy.

The digital technologies sector was selected for an ITP not only because of its growth potential, but also because of the broader role it can play in modernising and diversifying our economy. Achieving a high wage, low emissions economy requires careful planning with an inclusive approach built into its development and implementation. Ongoing global uncertainty increases the need for us to work together to ensure our people and our businesses are supported, future-focused and resilient.

The digital technologies sector is an important contributor to the economy. Economic and social spill-over benefits from digital technologies

include improving productivity, enabling access to global markets, providing innovative solutions for environmental sustainability and supporting social interactions.

The ITP has been in development since late 2019, and a draft was released for public consultation in February 2022. Extensive engagement with the sector has been based around the proposed work programme. Since then, a number of initiatives have been completed, while some are in progress and others are soon to begin.

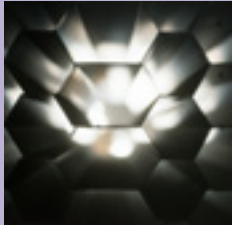

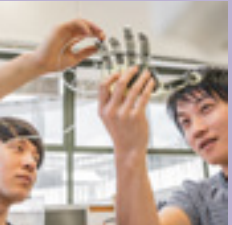

This document mostly focuses on initiatives already underway or soon to commence. These initiatives will support the sector's future growth. There are four immediate focus areas:

- 1. Growing export success** – growing the export potential of New Zealand's digital technology companies, with an initial focus on Software-as-a-Service (SaaS) firms (and game development as a future priority sub-sector).
- 2. Telling our tech story** – showcasing the scope and potential of digital technologies in New Zealand to both overseas and domestic audiences.
- 3. Enhancing the skills and talent pipeline** – equipping more New Zealanders, from a wider variety of backgrounds, with the technical and soft skills needed to work and thrive in the digital technologies sector, and to grow businesses in the sector (as well as other sectors now reliant on digital technologies).
- 4. Enriching Māori inclusion and enterprise** – promoting and supporting activity that enhances Māori leadership and participation in the digital technologies sector and appropriately builds on mātauranga Māori.

Digital Technologies ITP at a glance

ITP VISION: The world looks to Aotearoa New Zealand as a leader in ethical, innovative, inclusive and sustainable digital technologies. These technologies enable our economy to prosper, help our businesses to grow stronger and compete internationally, and contribute to the wellbeing of all New Zealanders.

IMMEDIATE FOCUS AREAS

| GROWING EXPORT SUCCESS  | TELLING OUR TECH STORY  | ENHANCING THE SKILLS AND TALENT PIPELINE  | ENRICHING MĀORI INCLUSION AND ENTERPRISE  |
|---|--|---|--|
| SaaS Ecosystem: <ul style="list-style-type: none"> › SaaS Community › SaaS Short Courses › SaaS Database | International Tech Story | Targeted implementation of the Digital Skills and Talent Plan | <ul style="list-style-type: none"> › Māori Tech Ecosystem Research › Māori Tech Annual Report |
| Game Development CODE | Domestic Tech Story | Coordination and oversight forum | Pathways and transitions into work |
| FUTURE FOCUS AREAS | | | |
| <ul style="list-style-type: none"> › Data-Driven Innovation › Artificial Intelligence | | <ul style="list-style-type: none"> › Government Procurement | |

This ITP sets out a vision and actions across the focus areas to support the transformation of the digital technologies sector.

Other areas of work have also been identified as future focus areas for the ITP. These areas are outlined in a separate section where we describe potential initiatives that would require further scoping and development if taken forward.

The work proposed throughout this ITP will propel the digital technologies sector forward by supporting its growth and productivity, which will in turn improve the diversity and prosperity of the wider New Zealand economy.

The work to date to develop and refine the ITP has been done in a strong working partnership

with key stakeholders, and this will continue as we look to realise the opportunities for industry transformation ahead.

This ITP will remain a living document, given the pace of change in the industry, the ongoing need to ensure that our efforts are targeting the right areas, and emerging opportunities and challenges. MBIE will continue to work with other agencies and industry stakeholders to implement the actions outlined in the ITP.

A Governance Partnership Board has been established to oversee the implementation of the ITP. The Partnership Board will initially be made up of a diverse group of industry body representatives, Māori and other sector leaders plus government representatives.

SUMMARY OF ACTIONS



| Focus area | | What | Who | Timeframes | Funding status |
|--|------------------|---|--|--|---|
| Growing export success | SaaS Ecosystem | SaaS Community | kiwiSaaS and NZTE | Ongoing growth of Community | Funded (22/23-24/25) |
| | | SaaS Focused Short Courses | kiwiSaaS, NZTE and MBIE | RFP process to select provider by Q3 2023 then ongoing delivery of courses | Funded (22/23-24/25) |
| | | SaaS Database | kiwiSaaS and NZTE | Pilot to be launched Q3 2023 | Funded (22/23-24/25) |
| | Game development | Expanding the Centre of Digital Excellence (CODE) | CODE | Immediate funding for new hubs and expansion of activity nationwide | Funded (2022/23 onwards) |
| | | Potential additional Game Development sector support | TBC | TBC | Scoping |
| Telling our Tech Story | | Tech Story activation | NZTech, NZTE and NZStory | Ongoing | Funded (22/23 and 23/24) |
| | | Domestic Tech Story development and activation | MBIE | Registration of Interest October 2022 | Funded (22/23 – 25/26) |
| Enhancing the skills and talent pipeline | Priority areas | <p>Various projects and operational actions to:</p> <ul style="list-style-type: none"> › enhance awareness and understanding of digital tech roles and skills › build and improve pathways into digital tech careers (individual initiatives and coordinated planning) › grow the maturity and professionalism of the digital tech workforce › implement SFIA in education, training, employment and career development | Various industry bodies, government agencies, education providers, community groups, sector stakeholders, businesses | Various timeframes for initiation, delivery and completion, as well as ongoing initiatives including coordinating and oversight structures | Monies allocated from residual ITP funding received in 2020 |
| Enriching Māori inclusion and enterprise | | Māori in Tech Ecosystem Research | Making Everything Achievable and NZTech | June 2023 | ITP funding received in 2020 |
| | | Māori Tech Annual Report | Paua Interface | February 2023 | ITP funding received in 2020 |
| | | Whītiki | MBIE | To be determined | To be determined |

Information on initiatives may not reflect the latest developments since the ITP was approved by Cabinet in December 2022.

SECTOR OVERVIEW

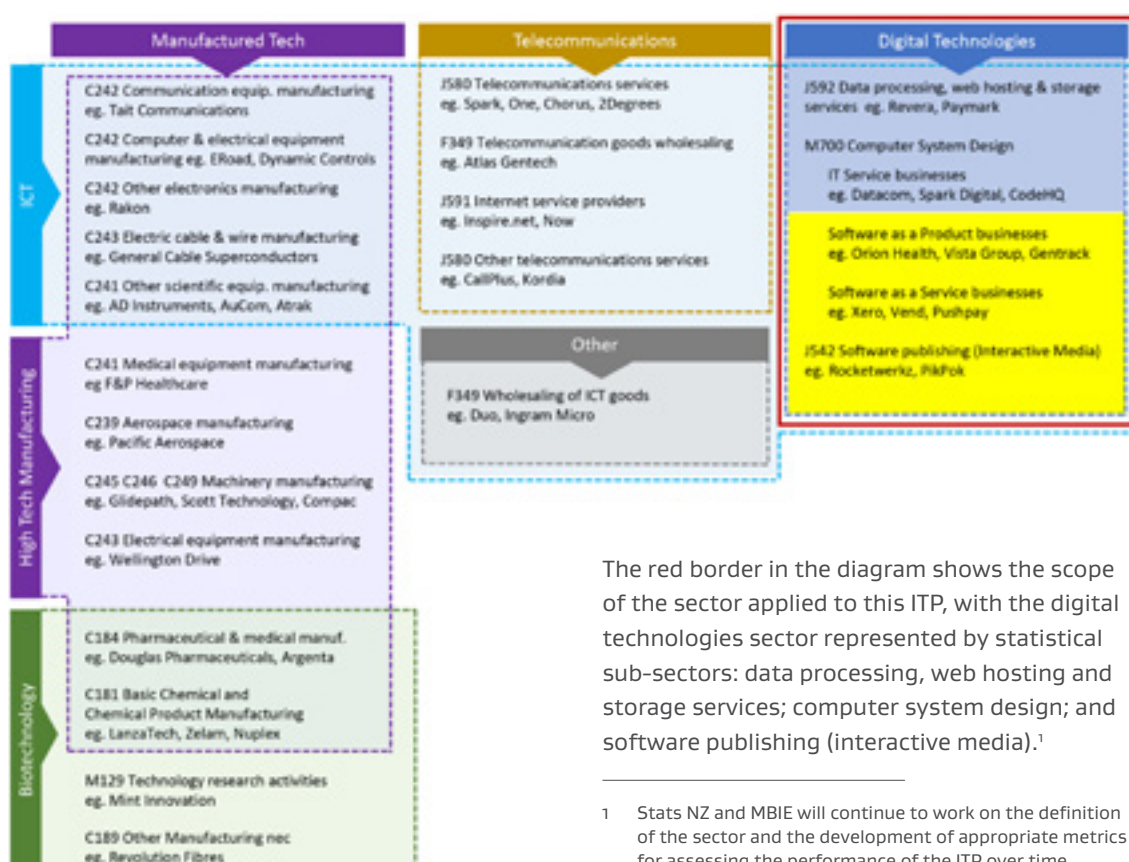
This section covers:

- What is defined as the digital technologies sector
- Overview of the sector
- Challenges to sector growth

DEFINING THE DIGITAL TECHNOLOGIES SECTOR

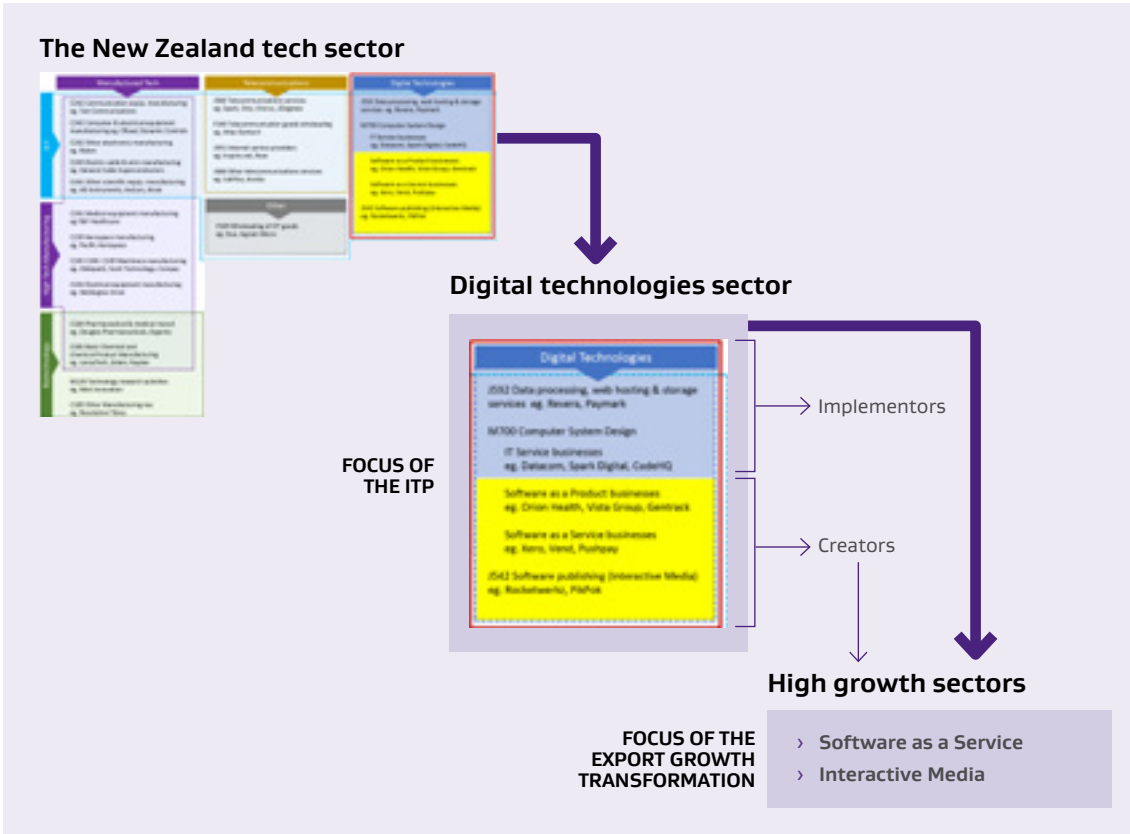
What is in scope?

Due to the cross-cutting and dynamic nature of the tech sector, well-established boundaries around the digital technologies sector do not exist. As shown in the diagram below, digital technologies are part of the New Zealand “Tech Sector”, a broader grouping of ICT industries that includes telecommunications and certain manufactured products.



The red border in the diagram shows the scope of the sector applied to this ITP, with the digital technologies sector represented by statistical sub-sectors: data processing, web hosting and storage services; computer system design; and software publishing (interactive media).¹

¹ Stats NZ and MBIE will continue to work on the definition of the sector and the development of appropriate metrics for assessing the performance of the ITP over time.



What is outside of scope?

This is not a plan for the diffusion of digital technologies across the economy. Other ITPs (e.g. for Tourism, Advanced Manufacturing and Agritech) and other initiatives (such as Digital Boost) have work focused on digital adoption. For example, the Construction Sector Accord (also an ITP) has initiatives to support greater online capability in construction. More information on other work programmes supporting the sector can be found in **Appendix One**.

However, having a strong domestic digital technologies sector will offer important spill-over benefits to other industries, including through the provision of productivity-enhancing business solutions and the growth of digital skills capabilities of the workforce. For example, supporting the growth of globally successful SaaS companies from New Zealand will enable other businesses to take advantage of these solutions, to boost their efficiency and customer focus.

SECTOR OVERVIEW

Background of the sector

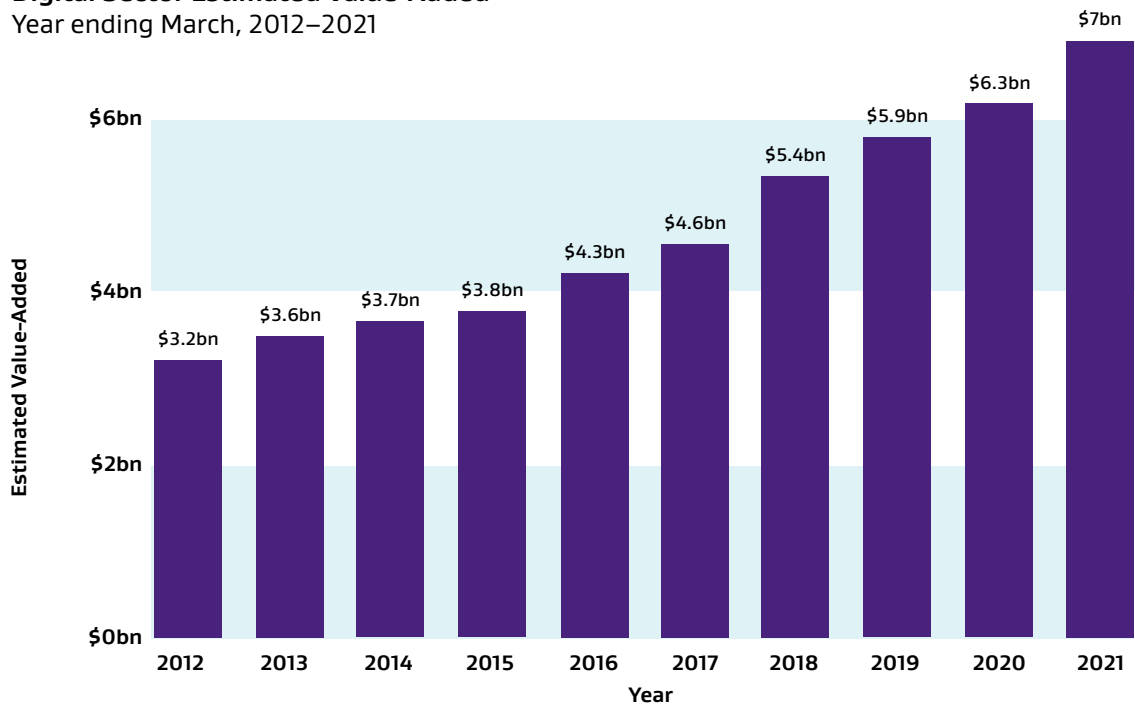
It is estimated that the digital technologies sector contributed \$7 billion towards New Zealand’s Gross Domestic Product (GDP) in 2021.² The sector has grown at an annual growth rate of 10.4% since 2016, this compares with the wider economy that has grown at an annual rate of 5.1% over the same period.

Digital technology exports have limited reliance on natural resources and typically do not need physical transportation. This can lead to more sustainable growth opportunities. Additionally, the digital technologies sector also supports other sectors to be more productive and, more broadly, supports New Zealand’s transition to a high wage, lower emissions economy.

2 This figure has been adjusted from \$7.4 billion as previously reported to better reflect the industry definition as set out in this ITP. Estimated contribution to GDP is based on Stats NZ’s approximation of the sector’s gross output less intermediate consumption derived from Annual Enterprise Survey data. Stats NZ Business demography statistics February 2021.

Digital Sector Estimated Value-Added

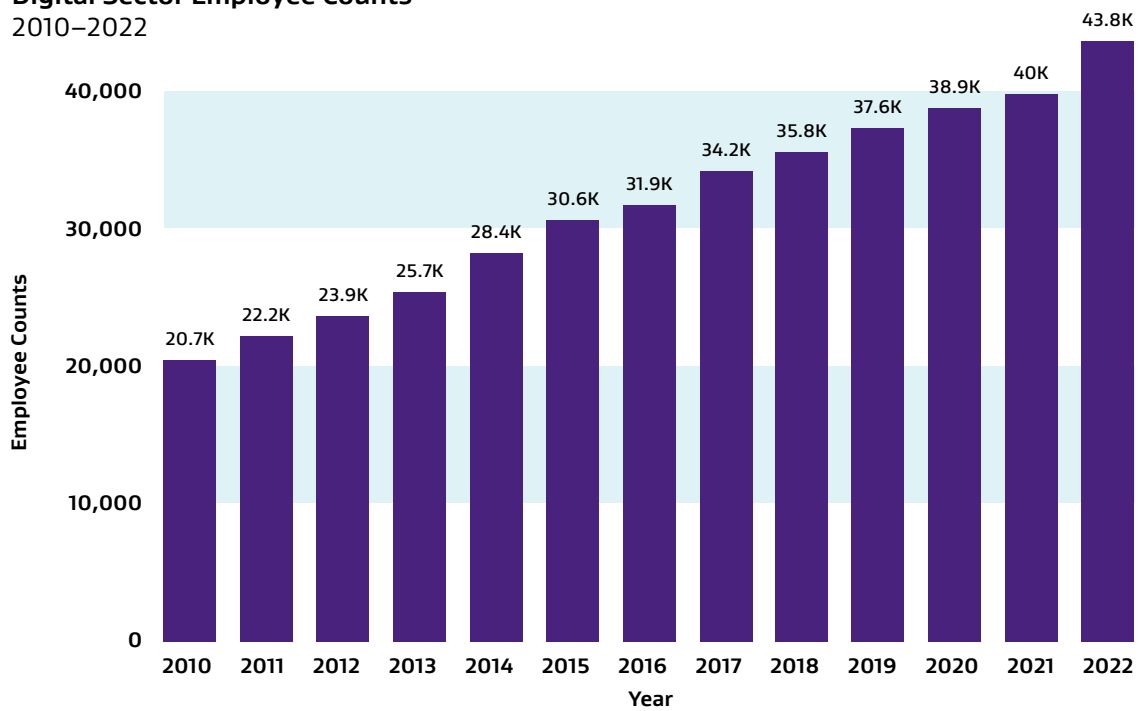
Year ending March, 2012–2021



Source: Stats NZ, Annual Enterprise Survey, 2019

Digital Sector Employee Counts

2010–2022



Source: Stats NZ, Business Demography Statistics 2020.

The sector employs 43,750 people, with the majority in urban cities of Auckland, Wellington, and Christchurch.³ The future workforce will likely be more regionally spread with the increasing use of remote working arrangements. With less reliance on physical resources compared to other industries, growth in the digital technologies industry could offer opportunities for regional economic development.

As observed overseas, digital technologies are a key enabler in economic transformation. As economies become more digitally enabled, it will be increasingly important that we build the expertise within New Zealand to create solutions that work for us both as a country and as an exporter to the world. Our digital technologies sector plays an important part in the diversification of our economy and as a driver of future sustainable economic growth and resilience.

The rising demand for talent within the sector represents an important opportunity for the growth of high-value jobs. The sector has the potential to create opportunities for New Zealanders from a wide variety of backgrounds to advance a rewarding and future-focused career, and to become creators of digital technologies, products and services. From developing a new video game or helping protect the public from cyber security threats, or by improving health services or climate adaptation through new digital solutions, the sector offers a diverse range of roles and career pathways.

To realise growth potential, the sector needs people with the right skills and experience. While digital capability is a common thread, what the sector needs is a mix of technical abilities (at various levels) as well as creative and “soft skills” and experience, such as business development, user experience, project management, and sales and marketing.

Challenges to sector growth

Like many industries, firms in the digital technologies sector are finding it difficult to hire the skilled people they need to thrive and grow. Tight labour markets abroad result in employers looking for candidates far afield including in New Zealand. Our sense is that this

phenomenon is putting upward pressure on wages in the New Zealand digital technologies sector (contributing to the higher than average earnings compared with other New Zealand sectors). It is also exacerbating local skills shortages and constraining the growth of local digital technology firms.

The shortfall in skilled professionals also carries potential implications for New Zealand’s cyber security and resilience. Enhancing the skills pipeline for the digital technologies sector will help address this, alongside bespoke actions targeted to the cyber security workforce.

Another persistent challenge for the industry is the notion that “people outside of tech do not think about tech” in the context of potential future workforce and support for digital technology businesses.

The growth of the future workforce will be influenced by students and workers in other industries, and also by people who advise them (e.g. parents, teachers, friends, and contacts). People outside the sector may not explore or recommend avenues in digital technologies if they or those influential to them have outdated views or misperceptions about the types of workers who go into tech jobs. Another deterrent could be they cannot see themselves represented there due to the lack of diversity currently in the sector.

As it relates to government, digital technology firms and their representatives observe that government may not understand their world as well as New Zealand’s more traditional sectors. It is important to recognise that government plays a key role within the sector, both as a procurer of digital technology goods and services, and as an employer of the tech workforce. While the collaboration around this ITP is working to deepen channels of communication and collaboration between the digital technologies sector and government, there is still work ahead to spread the message within government about locally produced digital technologies; why they are important (not only to the digital technologies sector, but all sectors); and how the government can better support them.

3 Stats NZ Business demography statistics February 2022.

STRATEGIC FRAMEWORK

This section covers:

- The vision the ITP is aiming to achieve
- How this ITP has advanced from the draft ITP
- An explanation of immediate and future focus areas
- What success looks like

VISION

The Digital Technologies ITP has the following vision:

The world looks to Aotearoa New Zealand as a leader in ethical, innovative, inclusive and sustainable digital technologies.

These technologies enable our economy to prosper, help our businesses to grow stronger and compete internationally, and contribute to the wellbeing of all New Zealanders.

This ITP outlines the roadmap for growing the digital technologies sector in the long term. It is closely aligned with the government's overall economic strategy for building a high wage low emissions economy. The ITP contributes to the growth pillar of the DSA, which aims to secure Aotearoa New Zealand's place as a world-leading, trusted, thriving digital nation.

The transformation will occur at two levels:

1. **Economic level:** By accelerating growth of our digital sector, the ITP helps to transform Aotearoa New Zealand towards having a more diversified, lower emissions, higher wage economy, as well as raising the value of our export profile, and helping address New Zealand's long-term productivity

challenge.

2. **Industry-level:** Transforming the digital sector itself will help to make it more diverse and inclusive, promoting shared benefits from the growth of the sector through wages.

This ITP fosters a partnership between business, workers, Māori, local communities and government, to jointly strive towards the creation of a more resilient economy.

DEVELOPMENT OF THIS ITP

This plan updates the draft released in February 2022 for consultation. It responds to the excellent feedback received, confirms focus areas that have been funded and includes other initiatives that industry, in partnership with the Ministry of Business, Innovation and Employment (MBIE) and other agencies are working to advance. A summary of key feedback from consultation can be found in **Appendix Two**.

This ITP will remain a living document, given the pace of change in the industry, the ongoing need to ensure that our efforts are targeting the right areas, and emerging opportunities and challenges. Periodically, MBIE will refresh the document to communicate the latest developments on how government and industry can work together to support sustainable sector growth and resilience.

The draft ITP identified seven workstreams. The initial allocation of \$5 million in Budget 2020 allowed for the development of a number of initiatives, including the creation of a SaaS Community, preparation of the Digital Skills and Talent Plan, and development of a New Zealand Tech Story.

Following stakeholder feedback, the outcomes of Budget 2022, and the level of resources available to government and industry, this ITP has prioritised the work into Immediate Focus Areas and Future Focus Areas.

FOCUS AREAS OF THIS ITP

There are four Immediate Focus Areas in this ITP:

- › Growing export success;
- › Telling our tech story;
- › Enhancing the skills and talent pipeline; and
- › Enriching Māori inclusion and enterprise.

These have been identified as the areas that are:

- › gaining momentum after receiving support in Budget 2022;
- › in focus for the Government as priorities at the moment; and/or
- › catalytic for sector growth and sustainability.

Subsequent sections explore the work underway in these focus areas in more detail.

The Future Focus Areas section explores the potential scope of work areas to further develop in the future, on Data-Driven Innovation, Artificial Intelligence (AI) and Government Procurement.

How do we think about diversity and inclusion in the ITP?

The theme of diversity and inclusion is cross-cutting and applies across the focus areas. There is a lack of diversity in the digital technologies sector. Those who are not proportionally represented in the sector's businesses or workforce include women, Māori, Pacific peoples, people with disabilities and the neurodiverse.

In addition to efforts to support digital technology businesses to innovate and increase productivity, we also want to improve the diversity of the sector's workforce and businesses. To ensure the digital technologies sector can reach its full potential, it is important to recognise currently under-represented groups

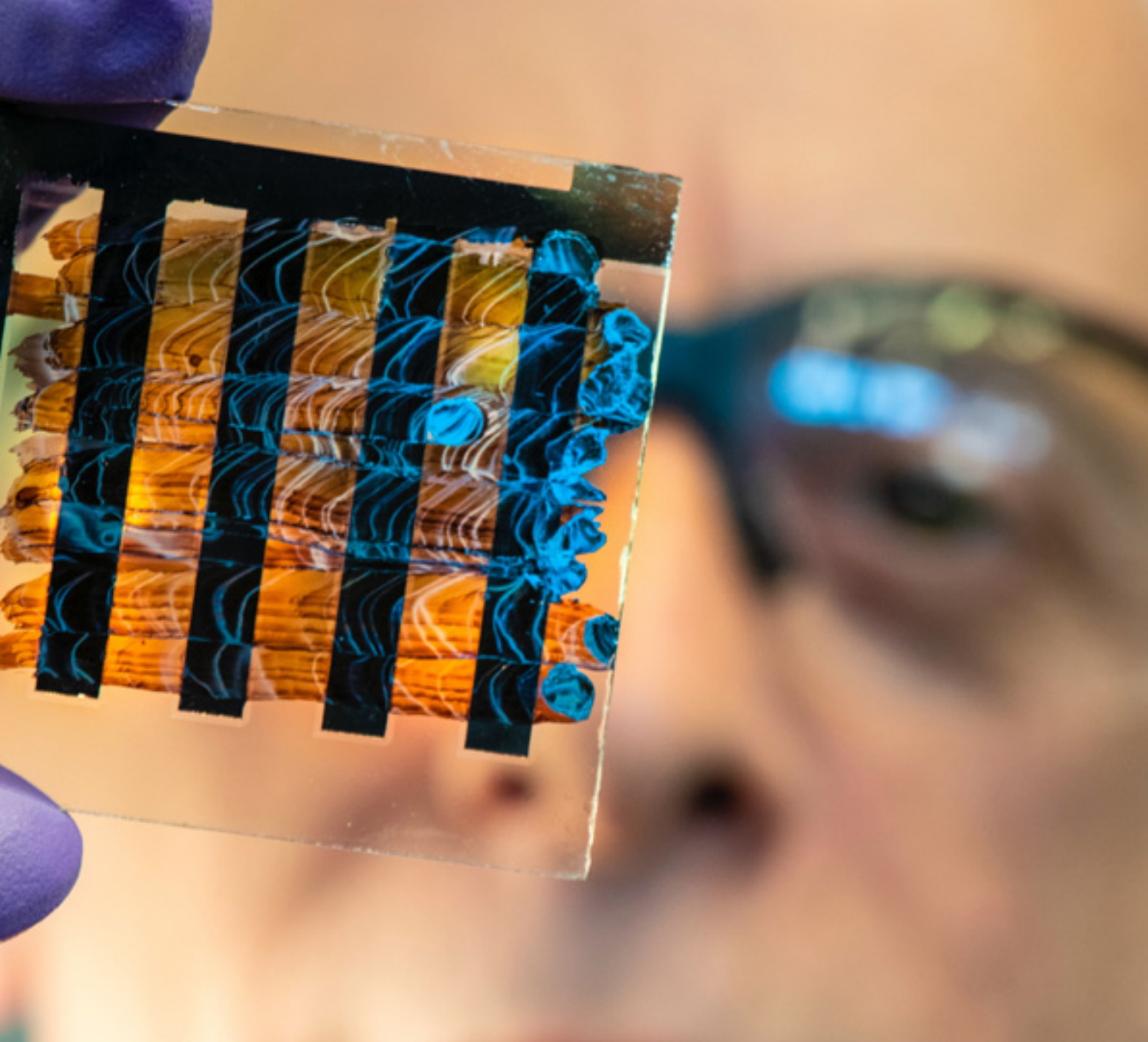
bring distinct skill sets and perspectives that can contribute to building a thriving industry. In addition, the proportion of the workforce that is Māori and Pacific is growing and it is critical that they see digital technologies and related jobs as their future.

Government and industry will continue to take action to better support people from these groups. Diversity and inclusion are important considerations for the work underway in this ITP. For example, the Domestic Tech Story encourages the development of campaigns to showcase digital technology careers and opportunities to a wider audience. The Enhancing Skills and Talent Pipeline focus area explores building a more diverse workforce and promoting workplaces that are safe and inclusive of diversity.

The Enriching Māori Inclusion and Enterprise focus area explores initiatives to support Māori participation in the sector and what are often termed "by Māori, for Māori" approaches, which will also benefit others in the sector. Work towards a thriving and equitable digital future for Aotearoa provides an unprecedented opportunity to realise the aspirations for tāngata whenua and Te Tiriti o Waitangi / the Treaty of Waitangi in the digital era, both collectively and as individuals.

Alongside a Māori focus, the ITP will increasingly from 2023 take a Pasifika focus, as Tangata o le Moana, with the aim of increasing Pacific peoples' participation, and nurturing their business potential and growth, in the digital technologies sector. While there is a special relationship between Māori and Pacific people, different approaches are required to reflect Pacific values, context, and recognise the needs and aspirations of Pacific people.

We will continue to partner with communities to determine what support would best help, and ensure work programmes reflect the needs of the diversity and inclusiveness of a wide range of people and their backgrounds. The ITP will explore opportunities that build off emerging innovation already being driven by leading industry players from diverse backgrounds.



WHAT DOES SUCCESS LOOK LIKE?

It is important to measure and evaluate the outcomes of the initiatives outlined in this ITP. However, within some areas of the digital technologies sector, there is a lack of timely, accurate and fit-for-purpose data.

Throughout the focus area sections in this document, we have identified example success factors we can use to track progress towards

achieving our vision. Where applicable, we will leverage off other measurement frameworks, for example, the DSA identifies several measures of success to assess progress against its vision. Of most importance to this ITP are the DSA measures relating to growth.⁴

We will also continue to work with industry and other stakeholders to develop better metrics and indicators for tracking progress and the way we collect data on the sector.

⁴ Growth success measures in the DSA include:

- Digital & ICT exports are on track to becoming New Zealand's leading export earner.
- All New Zealand businesses are born digital, and supported to adopt the digital tools that work for them.
- The digital sector employs more than 10% of the New Zealand workforce in high value jobs.

FOCUS AREA: GROWING EXPORT SUCCESS



This section covers:

SaaS Ecosystem

- kiwiSaaS community
- SaaS focused short courses
- SaaS database

Game Development

- Expanding CODE
- Potential additional support

CONTEXT

Much of the activity in the digital technologies sector is export-oriented, generating new revenue and helping to diversify New Zealand's exporting base. The breadth of markets buying our digital technology products and services is contributing to both our economic growth and resilience.⁵ As our globally oriented digital technologies sector grows, we are not reliant on just one sector or market, rather we earn export dollars via a range of SaaS and game development sectors that sell into a wide range of international markets.

Creating more and stronger businesses in the digital technologies sector means new intellectual property is created and retained in New Zealand, along with growth in the number of higher-paying jobs for New Zealanders.

MBIE has been working with industry to explore the growth potential of two sub-sectors with high export growth and potential: SaaS and game development. This ITP outlines activity to support the SaaS Ecosystem, funded in Budget 2022, and evolving work on the game development sector.

What is Software-as-a-Service?

SaaS is the combination of a technology, software delivered via the internet (most commonly via the browser), and a business model (software paid for as subscription). SaaS businesses create and sell software services that can be accessed anywhere and anytime over the internet. The software is hosted in the cloud. As SaaS products are predominantly productivity tools, the technology is creating both an industry and lifting the productivity of New Zealand businesses.

New Zealand's SaaS sector generated \$2.2 billion in revenue in 2021⁶ and according to kiwiSaaS, is currently growing by 16% annually.⁷ The sustained growth by the SaaS sector over this period indicates that the sector could become a major industry for New Zealand. If this growth can be accelerated to 19% per year, by 2030, it is estimated that the sector could be worth nearly \$14 billion and generate as many as 58,000 new jobs (provided the talent could be found).⁸

5 The US is New Zealand's third largest trading partner overall and it is now our largest destination for services – receiving over 22% of our total service exports. Digital services are a major contributor to that figure, with \$682 million worth of exports to the US spread across computer services and software license exports. Source: **The NZ-US trade relationship: stability and diversity in a time of change.**

6 Source: kiwiSaaS

7 Source: kiwiSaaS – this number is based on revenue per head with the baseline year of 2020.

8 These numbers result from a collaboration between kiwiSaaS and Stats NZ and emphasise the value of a domestic and international marketing campaign to raise awareness and interest in working in New Zealand tech (see sections on Telling Our Tech Story).

SaaS companies typically disrupt traditional industries and processes, providing more scalable and efficient ways of operating. The SaaS business model has the advantage that it creates resaleable intellectual property through research and development or creative design, making it hard to replicate and inherently high value. Additionally, it allows for weightless exports that have the potential for significant scale with limited impact on inputs. Unlike many other industries, the sector is not constrained by land, the natural environment, location or the need for significant new infrastructure. Its core ingredients for success are people and a high-quality telecommunications network providing good internet connectivity.

What is Game Development?

Interactive media describes products or services where a user's experience is shaped by their input. Interactive media is sometimes used interchangeably with game development, but interactive media also includes virtual and augmented reality, e-sports, apps, and social media.

The game development industry depends on two core operating models:

- › Games-as-a-Product – Users buy a license to a physical or digital copy of a game that they can fully experience. Users pay an initial price for a complete game product; and
- › Games-as-a-Service – The initial commercial release of the game is just a milestone of the production process. There is continued development, and projects can be updated and monetised indefinitely.

In 2021, the video games market generated USD180 billion in global revenue and is forecast to reach USD219 billion by 2024.⁹ New Zealand's game development studios earned \$407 million in the 2022 financial year, up from \$276 million the previous year.¹⁰ Their games are sold around the world, with 97% of the sector's revenue coming from exports of weightless digital products or services in the 2021 financial year.¹¹

New Zealand is home to over 70 studios ranging from large game studios with over 100 employees to smaller indie studios with one to three people. While relatively small, with 1070 full time employees as of March 2022, New Zealand's game development sector has demonstrated high growth rates over recent years and its latest survey results suggest a high level of revenue per employee (of around \$380,000).¹²

SAAS ECOSYSTEM – [FUNDED]

kiwiSaaS – a Community for SaaS Company Employees, Founders and Leaders

kiwiSaaS was established in late 2021, as a community-building initiative to connect the businesses working in New Zealand's SaaS sector. Its first year was funded by MBIE, and continued funding of \$11.2 million for the next three years has been provided through Budget 2022.

The key purpose of kiwiSaaS is to improve the learning environment for business leaders, founders, and employees, by providing them with easy access to relevant networks and information. kiwiSaaS runs events, shares community insights, provides access to a virtual orbit networking platform and in person regional networks. It is a place of learning and an environment to foster connections for the people working in SaaS businesses. A central online community platform will be launched in 2022/23, which will enable the community to have maximum reach across New Zealand. Future work may include extending the platform through options such as a mobile app.

⁹ Source: *NewZoo, Global Games Report (2021)*.

¹⁰ Industry survey results can be found at: *NZ Interactive Media Industry Survey 2022 – NZGDA*

¹¹ *NZ Interactive Games 2021 Survey Results – NZGDA*

¹² *NZ Interactive Media Industry Survey 2022 – NZGDA*

The design of the community draws from feedback obtained from a series of interviews conducted with SaaS company leaders and founders at the start of the ITP process, as well as research into the needs of software entrepreneurs. The findings from the interviews informed the need for a Community for SaaS company founders to have a forum where they can learn from others who have travelled the same path. It confirmed that the process of developing a business venture into a successful venture with employees in secure jobs can be a lonely one.

SaaS Focused Short Courses

In order to realise the growth potential that is available from an increasing global demand for SaaS services, New Zealand's SaaS businesses will need to continually increase their focus on skills.

Interviews with SaaS companies and research completed by Sense Partners (commissioned by MBIE), highlighted how the shortage of people with specialised business and soft skills in SaaS is contributing to challenges in hiring skilled workers and boosting sector capacity. The development of short courses is an opportunity to support the upskilling of the talent pool and equip more SaaS firms with the skills needed to scale up a business/product and enter the global market to achieve accelerated export growth.

The proposed courses will bring together selected educational trainers and practitioners into a new programme that is scalable in a one-to-many format. Particular areas include:

- › Advanced non-technical SaaS specific skills and experience, including knowledge of how to build an international SaaS business at scale, product sales and development.
- › Soft skills in the SaaS context, including managerial skills to recruit or develop the right talent or their own businesses.
- › SaaS/Cloud-specific technical skillsets, which due to the nature of the industry, evolve faster than academia's ability to deliver training needs. This will include courses focused on ensuring diversity needs are met within product development (e.g. inclusive thinking about disability when developing a product).

The SaaS short courses will provide reskilling opportunities to a wide range of New Zealanders who are new to the sector. The courses will also enable learners from other sectors with transferable skills to develop SaaS focused skills that will offer higher value employment opportunities. For example, someone who currently works in sales can learn about SaaS sales, and then shift into the digital technologies workforce.

The next step in this initiative will be a Request for Proposal process to select a suitable provider. MBIE will also ensure this is linked closely to the wider work programme on developing digital skills.

SaaS Database

This work will include the development of a dataset for the SaaS sector and an interactive dashboard.

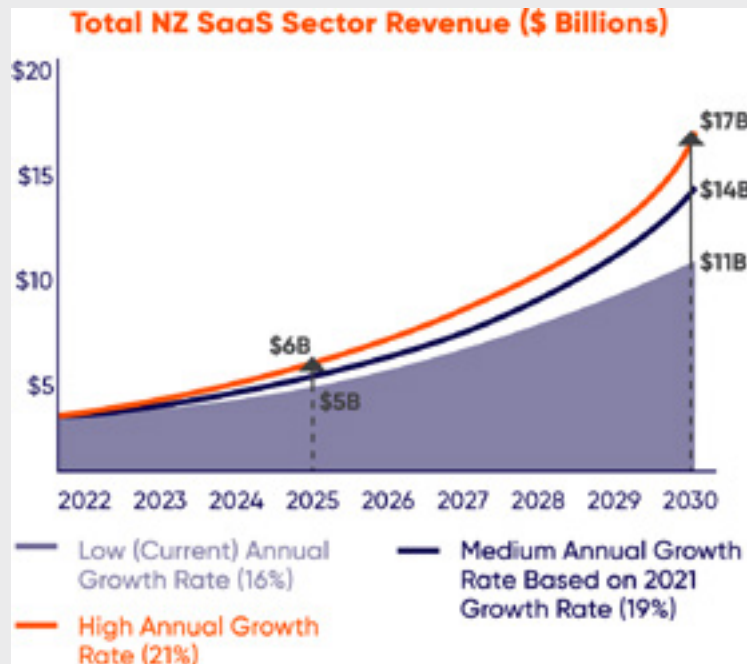
This initiative responds to the limited data available about the sector, which makes it difficult to secure an accurate quantitative representation of the sector including its value, growth, and employment situation.

The SaaS Database will collect the necessary data to overcome this shortfall and create opportunities for benchmarking so that SaaS firms can measure and monitor growth against that of peers. It will collect employment data which can be re-used for skills mapping and advising on immigration settings.

Over time, the database will become a source of reliable and up-to-date data on the sub-sector and look to contribute and inform national statistics efforts.

Success factor for this focus area:

Lift the SaaS sector Compound Annual Growth Rate from the current trend of 16% to 19% in 2025.



Source: kiwiSaaS. Revenue is based on forecast headcount growth multiplied by the sector’s 2021 revenue-per-head to which a 3% annual adjustment for inflation has been added.

FUTURE SUPPORT FOR THE GAME DEVELOPMENT SECTOR [IN PROGRESS]

Given the size of the global market, and the increasing applications of digital game design and functions in different domains (e.g. health, education, workplace health and safety), businesses developing interactive media will play an increasingly important role in our economy and society. Game development businesses are often creating their own intellectual property assets that are retained in New Zealand, and are supporting creative and software development roles. With examples such as games that increase children’s nutrition knowledge, or that feature te reo Māori or utilise Te Ao Māori for storytelling, it is clear that the sector also holds potential for tackling social issues and opportunities in new innovative ways.

MBIE commissioned a report on the gaps and opportunities in the existing investment ecosystem within New Zealand for small and medium-sized interactive game development studios. The work:

- › identified where in the business (studio) and project (game) development cycle, investment gaps and opportunities exist and their approximate size (e.g. number of studios and dollar value);

- › identified barriers for both New Zealand and international investors to invest in New Zealand’s game development sector; and
- › described options, including the potential costs and benefits and any scope to scale or pilot opportunities.

MBIE is assessing the recommendations from this report and is working with Ministers on options to support the growth of the game development sector, noting the suite of incentives available in Australia (including the introduction of a federal tax offset) and other jurisdictions. The industry is particularly concerned about the possible impact of the Australian regime on New Zealand’s talent pool and studio expansion plans.

In November 2022, the Government announced new and stable funding for the Dunedin-based Centre of Digital Excellence (CODE) to establish new regional hubs in the upper and lower North Island and expand its contestable grants and skill development programme to game development studios nationwide.¹³ MBIE will continue to work with the game development sector to consider the role that government can play to support its future growth.

13 Funding boost to support NZ’s game development industry | Beehive.govt.nz

FOCUS AREA: TELLING OUR TECH STORY



This section covers:

International tech story

Domestic tech story

CONTEXT

Research and engagement around the draft ITP highlighted that international awareness of New Zealand as a source of technology and innovation remains relatively poor, with traditional sectors dominating, such as tourism and agriculture. This is despite strong growth and recent success in international markets.

Furthermore, within New Zealand, the advantages of the sector, and the potential for job creation and developing innovative solutions for current and future problems (e.g. related to the environment or wellbeing) is similarly relatively unexplored by those who are not active within the sector.

This points to a need to better tell the story of the digital technologies capabilities we have as a country, and to better inspire more New Zealanders to become part of this.

Initial ITP funding was provided for the development of Our Tech and Innovation Story (Tech Story). This work, which was led by NZTech with support from NZ Story and New Zealand Trade and Enterprise (NZTE), involved extensive consultation with industry, youth, Māori, government, and international stakeholders.

ACTIVATING NEW ZEALAND'S INTERNATIONAL TECH STORY [FUNDED]



\$4 million over two years has been allocated for the international activation of the International Tech Story.

NZTech, NZTE and NZ Story will jointly work on the implementation phase for taking the *See Tomorrow First* message to the world. The focus is to influence international perceptions of New Zealand's technology and innovation capabilities and to associate it with an exciting culture of tech and creativity that people want to be a part of.

The Tech Story leverages the notion of a tomorrow that needs new ideas, new perspectives, and new ways of doing things. It notes that, in New Zealand, the tech communities are focused on meeting the challenges of the future, and together are building a tomorrow that future generations can thrive in.

This project will share our Tech Story with the world's tech buyers, talent, and investors.

A joint project team is responsible for this implementation phase:

- › NZTech is leading the activation and enablement of New Zealand tech businesses to use and engage with the Tech Story;
- › NZTE is overseeing the activation of the story in high priority international markets, including the United States and South East Asia; and
- › NZ Story is working to ensure that this Tech Story is consistent with and supports other sector stories shared internationally about New Zealand to manage a cohesive all-of-country positioning in overseas markets.

Success factors for the International Tech Story:

- By crafting and promoting a compelling story that confirms New Zealand's world-class tech and innovation capabilities:
 - International perceptions of the sector are improved
 - We attract both local and international investment and talent
- Number of impressions/views on social media posts
- Viewer sentiment statistics
- Website traffic to campaign landing pages



DEVELOPING A DOMESTIC TECH STORY [FUNDED]

This ITP has a focus on improving the diversity of the digital technologies workforce. Women, Māori and Pacific peoples are all under-represented in the sector and this has not improved in recent years. One reason is the low awareness of the positive aspects of the sector, including the variety of roles, the types of work and projects, the salary levels and the opportunities for progression.

Funding of \$1 million per annum for the next four years was allocated in Budget 2022 to develop a “Domestic Tech Story”. MBIE is leading this work, collaborating with interested stakeholders, including Te Puni Kōkiri, the Ministry for Pacific Peoples, the Ministry for Women, the Ministry of Education, and others. The core goals are to:

- › inspire more New Zealanders, from a variety of backgrounds, to want to participate in digital careers, or other related endeavours. This includes prioritising primary and

secondary school students, including girls, Māori, Pacific peoples, the neurodiverse and people with disabilities. Initiatives targeted at these groups should start early, then move from school onto pathways that transition into vocational education and training or university, and employment;

- › showcase different pathways into the sector that will resonate with young New Zealanders and their whānau;
- › create visibility of different role models who are not currently well represented or supported in the sector. This includes women, Māori, Pacific peoples, neurodiverse, people with disabilities, career changers and those who give them advice; and
- › connect into existing resources as appropriate for stronger collective impact. These include the NZ Tech Story, Careers.govt.nz, the Tertiary Education Commission's *Inspiring the Future* resource, and a proposed web-based resource for digital skills and talent.

Success factors for the Domestic Tech Story:

This project contributes to:

- An increase of women, Māori, Pacific peoples, the neurodiverse and people with disabilities entering the tech sector in New Zealand over time.
- An increase of kura (school) aged children and career changers entering the tech sector.
- Greater awareness among parents, wider whānau, and career advisors of careers in the tech sector and the value of digital skills.

FOCUS AREA: ENHANCING THE SKILLS AND TALENT PIPELINE



This section covers:

Improving the discovery & awareness of tech careers

Building & enhancing pathways into digital tech careers

Growing the maturity & professionalism of the digital tech workforce

CONTEXT

Integral to the success of the digital technologies sector is access to the right skills and talent at the right time. For many years however, there have been concerns about the availability of skills and what was being done in New Zealand to build the right level and supply of skills, rather than to bring them in through overreliance on immigration.

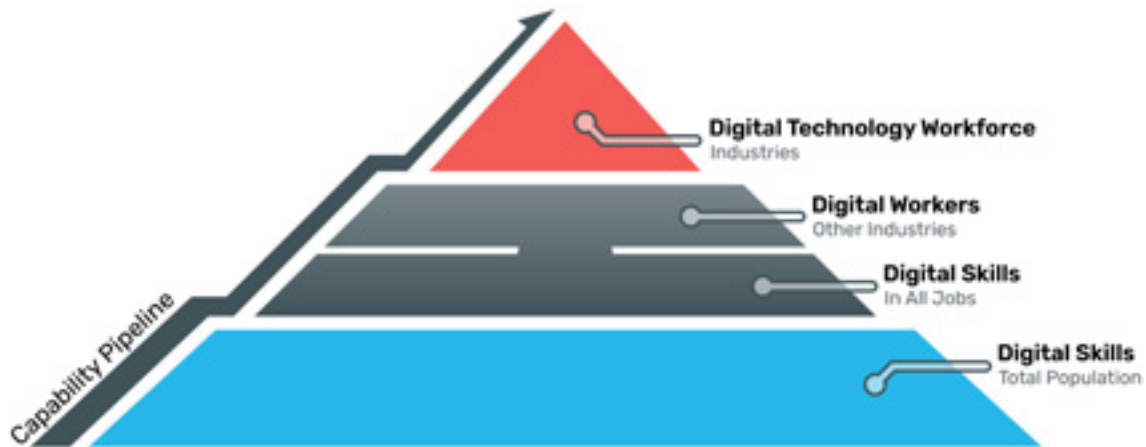
Border closures caused by COVID-19 reinforced the existing need to invest in domestic skills and build a pipeline of talent in New Zealand that has pathways into and across the sector, and can benefit from high-value jobs that on average have a median salary around twice the national equivalent.¹⁴

Digital skills in this ITP refers to those skills required to participate in the digital tech workforce (the red triangle in the diagram below).¹⁵ Actions to upskill and reskill workers for this workforce will have spill-over benefits for other industries as well, including those needing workers with technical digital skills such as agritech, advanced manufacturing, construction, fintech, health tech, and food and beverage. Increasingly workers with digital tech skills will be able to move across industries as they traverse their career pathway.

¹⁴ In 2019, industry estimated that the median salary for ICT and digital technology workers was over \$92,000, more than 50% higher than the national median salary. *Source: Industry self-reporting data.*

¹⁵ Diagram supplied by IT Professionals NZ.

Digital Skills in Aotearoa



The *Digital Skills for Our Digital Future* report is a key foundation of this focus area. Based on this report and its significant input, industry developed the *Digital Skills and Talent Plan (DSTP)*, released in October 2021. Both documents confirm a mismatch between supply and demand at various skill levels, a lack of diversity and inclusion, and an overreliance on the immigration system. The sector notes a particular lack of skills in emerging technologies (e.g. AI, cyber security, data science, and blockchain) and in “soft skills” needed to grow and operate digital businesses.

In summary, these issues are driven by:

- › misperceptions about digital tech careers and who they are suited for;
- › the lack of appropriate and supportive pathways into entry-level positions for youth or those reskilling into digital tech careers;
- › insufficient investment in upskilling and career development opportunities for middle and senior staff, which impedes flow through the pipeline to the areas of greatest shortage (e.g. specialist skills, and support for junior staff); and
- › low participation rates for under-represented and under-supported groups (such as Māori, Pacific peoples, women, disabled people and the neurodiverse).

The DSTP calls for a rebalancing and investment at various levels to support the sustainable growth of the sector. It outlines initiatives across 10 areas of action that would enhance the skills

and talent pipeline, and to address its existing gaps and challenges. It seeks for successful initiatives to be made sustainable for the longer term, and to be scaled up or outwards to benefit other sectors’ skills and talent needs.

This focus area will deliver a targeted implementation of the DSTP initiatives, taking the partnership approach integral to the ITP, and based on coordinated action and investment from both industry and government, working with providers and communities.

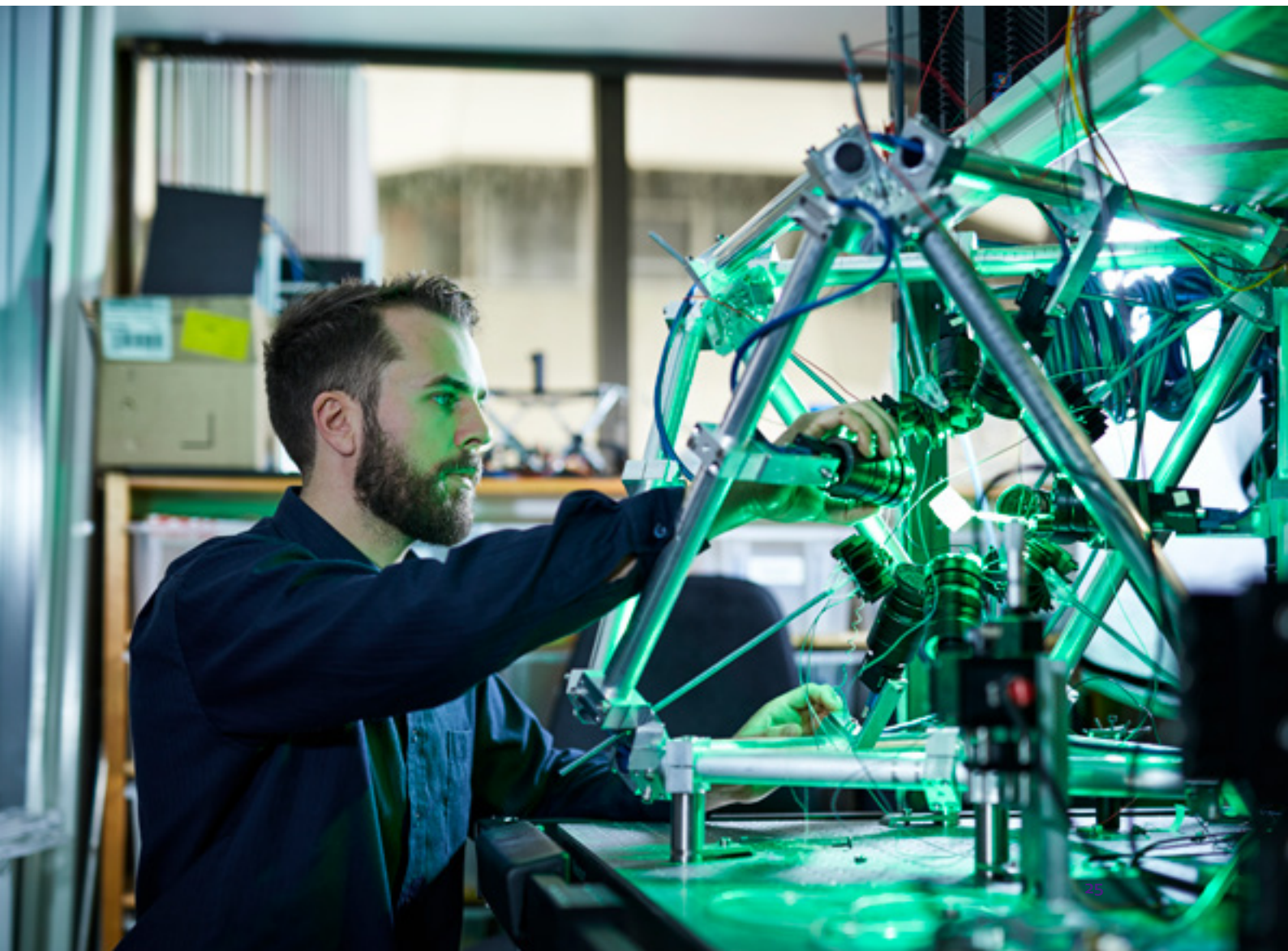
For some initiatives, industry and employers are best placed to lead and drive the necessary changes in mindset, culture, and practice to overcome specific systemic challenges. Government can offer incentives and support to assist industry. It can also provide the current system changes in education and vocational training that will enable transformation through pathways that build skills through work-integrated and work-based learning. Government, industry, and providers already have various initiatives underway or in planning, but these need some overarching cohesion to ensure we get the best out of the investment, so that learners, workers, industry, providers and government all benefit.

In its role as government co-lead, MBIE has a facilitation and coordination role for the targeted implementation of initiatives in the DSTP, as well as leading or co-partnering on specific initiatives and activities (particularly those to support industry transformation), or providing direct support (e.g. through funding and other resources).

As part of its role, MBIE has brought together various government agencies and sector representatives who collectively identified three priority areas to implement the DSTP, and the “circuit breakers” needed to address systemic and ongoing issues.

A brief outline follows of the work underway or planned for 2022–2023 for these three priorities, including activities that started in late 2021. These will be progressed working across government and in partnership with industry, to support an integrated, coordinated and prioritised approach. In addition, they:

- › will align with, build on or support other focus areas of the ITP, e.g. the skills development activities for SaaS and the Domestic Tech Story;
- › are built on existing system changes underway and funded in the education and training sector (such as the Reform of Vocational Education including the Toi Mai workforce development plan and Regional Skills Leadership Groups’ workforce development plans, the review of NCEA and the refresh of the curriculum, and the implementation of SFIA global skills framework);
- › are relevant to existing activity in government and/or industry. For example, the other ITPs (particularly those requiring advanced digital technology skills, e.g. Agritech or Advanced Manufacturing); cyber workforce planning; the Digital Boost’s education resources; the Regional Skills Leadership Groups’ workforce development plans; the Future of Work programme; and
- › various employment action plans and strategies, and a variety of projects under those, for population groups such as youth, women, disabled persons, Māori, and Pacific peoples, all of whom are underrepresented in the tech sector. Many have a focus on diversifying the workforce, and addressing systemic barriers, and point to the need for increased capability in digital skills.



PRIORITY AREAS

Encouraging the discovery and improving awareness of tech careers

The target audiences are children and youth (noting the need to start awareness and interest at the school age), those under-represented in the sector and "career changers", plus whānau, school career advisors, and recruitment and HR staff. Actions include:

- Leveraging the Domestic Tech Story.
- Enhancing and showcasing career resources, building on work underway for a new TEC careers platform; Inspiring the Future and IT Professionals' Tech Hub Platform.

Building and enhancing pathways into digital tech careers

Work-integrated pathways and work-based learning are bridges in the "discover-explore-connect" pathway from school to a job (or for adults entering a tech career). They give opportunity to "earn while you learn" and gain skills most relevant to the changing needs of the sector, as well as a swifter pathway into work. Actions include:

- Developing work-integrated pathway programmes, prototypes and models initially focused at Level 5-7 education and training (including short courses and micro-credentials) and supporting tailored approaches targeted at raising diversity.
- Providing guidance and resources (e.g. playbooks, good practice advice, templates and training) to help employers support staff entering the tech workforce. Implementation of the Skills Framework for the Information Age (see below) will also assist.
- The ITP has a small amount of funding in the 2022/2023 year to support prototypes and projects, and will disseminate insights and resources generated from those. To date, the ITP has supported three initiatives with funding: the initial design stages of (a) a pilot employment programme for dyslexic (neurodiverse) workers, and (b) a framework for a digital tech pathway for Māori rangatahi; and support for a summer internship matching programme for tertiary students.

Growing the maturity and professionalism of the digital tech workforce

Upskilling the digital tech workforce, and reskilling workers across and into the tech sector, will help fill specialist and technical skill needs in greatest demand. Workers can develop skills and experience at the right level and at the right time, and thrive in their roles and professional development. Actions include:

- Developing a pledge system for employers – an industry-led system with government support and involvement, similar to the UK Tech Charter system.
- Providing employer resources (see above). Initial focus will be given to the SaaS sector to align with the actions for SaaS skills development.

Woven through each of the priority areas are distinct cross-cutting objectives:

- › **the need to increase and perpetuate diversity in the workforce** through specific targeted actions, to increase the proportion of Māori, Pacific peoples, women, disabled persons, and the neurodiverse; and to see more enter and remain in the workforce, as they have the greatest growth potential, and bring distinct skill sets and perspectives to build a thriving industry.
- › **the implementation of the Skills Framework for the Information Age (SFIA)** in government, industry and education and training. SFIA is an internationally recognised framework for describing and managing skills and competencies for the tech sector (including sub-sectors such as SaaS and cyber security). It can be used to form the national basis for skills assessment, development, and transfer across providers, pathways, or courses. It can also map and support consistent career development pathways for digital tech workers. In June 2022, MBIE and the Department of Internal Affairs (DIA) purchased a three-year country licence for New Zealand. DIA will lead government to implement SFIA, while MBIE and ITPNZ will support industry implementation.
- › **to grasp the opportunity for government to role model the transformation needed in the digital technologies industry**, as it employs a large proportion of the digital technologies workforce and is a significant employer and procurer of digital technology skills and talent. One means of quickly progressing action in this area is through the implementation of SFIA. Agencies could consider increasing support for entry level roles (e.g. graduate programmes such as GovTech).

In addition, the following activities are also priorities:

- › establishing a framework such as a revitalised Digital Skills Forum to coordinate and oversee the delivery and results from the implementation of the DSTP, and web-based resource to provide information and guidance for workers, employers, students and trainees, and those considering a job in digital technologies.
- › input into immigration policy so that immigration supplements, not replaces, the skills supply from the domestic workforce.

Inasmuch as the ITP seeks to enhance the domestic supply of skills, and to reduce the reliance on immigration that was evident pre-COVID, there will always be specialist skills that cannot be sourced locally. Immigration will therefore remain important to ensure the tech sector can grow and thrive, by meeting immediate and specific skill needs.

As an interim measure to address immediate skill shortages that border restrictions had created, in February 2022 the government provided a border class exception for the tech sector. As at August 2022, this visa pathway resulted in 52 workers and their families arriving into New Zealand. Since July 2022, tech sector workers have been able to apply for Accredited Employer Work Visas.

Furthermore, the government has since announced several residence pathways relevant to highly skilled digital technology workers: the Green List, which provides a straight-to-residence option for specified tech roles that meet a salary threshold; a two-year work-to-residence pathway for highly paid migrants paid at or above twice the median wage; and the reopening of the Skilled Migrant Category.

Success factors for this focus area

- The number of jobs in the digital technologies sector grows from 43,750 (in 2022) to over 58,000 in 2030.
- By 2030, the diversity in the workforce has increased significantly. For example:

| | Percentage of workforce in 2020 | Percentage of NZ population in 2018 | Target percentage in 2030 |
|-----------------|---------------------------------|-------------------------------------|---------------------------|
| Women | 27% | 50.6% | 50% |
| Māori | 4% | 16.5% | 10% |
| Pacific Peoples | 2.8% | 9% | 6% |

Source: Stats NZ, and Digital Skills for Our Digital Future report

FOCUS AREA: ENRICHING MĀORI INCLUSION AND ENTERPRISE

This section covers:

Māori in tech ecosystem research

Māori tech business reporting

Pathways and transitions into work

CONTEXT

From the instigation of this ITP, many voices spoke to the need and opportunity to support more Māori to be active participants in the digital technologies sector, given the increasing role of digital across the economy and society. The scope for increased Māori participation is wide ranging, from workers and employees, business owners and creators of digital technologies, to investors.

Many successful enterprises in the digital technologies sector are led by Māori business creators and owners (including wāhine Māori), but they are under-represented proportionately. Currently only four percent of the sector's workforce are Māori.¹⁶ This very low percentage is likely due to a range of factors, such as misperceptions about digital tech jobs, a lack of visible role models, barriers to pathways into work or investment, and workplaces not offering mentors or manaakitanga to those transitioning into the workforce. There are a number of programmes that focus on raising digital skills for Māori, but these are usually ad hoc and small scale. The sector needs to do more to welcome and attract participation by Māori.

This ITP will promote and support activity that builds Māori participation in the digital technologies sector, having regard for Te Tiriti and the role of the Crown as partner, and the ambition for what are commonly termed "by Māori for Māori" approaches, while recognising the Waitangi Tribunal principle that Māori have the option to "walk in two worlds". The ITP's specific focus area for Māori inclusion and enterprise seeks to nurture the growth and potential of the Māori tech ecosystem and its mātauranga.

The ITP's actions aim to support on-the-ground partnerships, how we can learn about what is working well, and how to replicate and share the lessons. This knowledge will help better connect existing initiatives, so they operate more as a whole, reinforcing each other and leveraging different strengths. The knowledge will identify how successful initiatives might be scaled up, whilst being mindful some are tailored to local needs and kaupapa and kawa. The ITP will support initiatives led by Māori that are inherently "by Māori for Māori with Māori".

¹⁶ Digital Skills For Our Digital Future



In addition, all focus areas in this ITP have actions that aim to grow and reinforce a Māori presence and involvement in the industry, including wāhine Māori. Furthermore, the ITP is cognisant of other related work underway within government to encourage Māori participation in the sector. These include (but are not limited to) the Māori Employment Action Plan, the Future of Work programme, the Māori Economic Resilience Strategy, and He kai kei aku ringa (the Crown-Māori economic growth partnership). These all have synergies with this focus area.

It is clear that Te Ao Māori perspectives, values, language and practices have significant potential to help grow and invigorate New Zealand's global success in this sector. This ITP aims to make the activity and the potential of the Māori tech ecosystem more visible and understood by a wider audience, such as industry, potential investors, government agencies, and communities. However, we need to take care around the marketing and use of mātauranga, recognising it is not a commodity but something respected and guarded, while shared for the common good of communities, whānau and individuals.

MĀORI IN TECH ECOSYSTEM RESEARCH [FUNDED]

Research on Māori in the tech ecosystem is underway, which highlights the range of the existing activity promoting Māori perspectives within the sector. This research is being led by a Māori tech entrepreneur, and involves Te Whare Wānanga o Awanuiārangi and a Māori Advisory Kōmiti. It will create a landscape map of the ecosystem to better understand the current Māori tech sector. It will build understanding of the needs and aspirations of leaders within this sector and how these voices can contribute to efforts to increase Māori participation.

The research utilises a kaupapa Māori/ mātauranga Māori framework. It will provide understanding of the key opportunities and challenges, and how the sector can be unlocked to support the growth of both the Māori and broader New Zealand economy.

The final report is due to be released in the first half of 2023.

MĀORI TECH ANNUAL REPORT [PART-FUNDED]

MBIE was a part funder of the inaugural Māori Tech Annual Report, developed by Paua Interface Ltd. This report, which was launched in February 2023, makes visible, and will help boost, the success and economic contribution of Māori technology companies, their founders, and their workforces. It provides a comprehensive and independent data-driven report to those who want to partner, invest, fund or support Māori-owned technology companies.

The report features 72 companies, with a deep dive into 16 started by tech founders who provide in-depth insights on the paths to their successes, and the challenges. The report presents the unique value provided by kaupapa Māori perspectives, values, language, and practices. It profiles technology sub-sectors, such as telecommunications, AI, gaming, digital media, and cyber security and provides an analysis of global and local mega-trends in technology that Māori technology companies can respond to and build on.

TOKONA TE RAKI STAGE ONE DIGITAL APPRENTICESHIP [FUNDED]

MBIE provided financial support to Tokona Te Raki for the first stage of a proposed digital “apprenticeship” initiative. Tokona Te Raki is a Ngāi/Kai Tahu led organisation with a vision that all rangatahi are “inspired by their futures, thriving in education, confident in their culture and determining their own path”.¹⁷

This first stage involved engagement and co-design with rangatahi, education providers, agencies, and employers on what is necessary to develop a digital ‘apprenticeship’ (a work integrated pathway model) and how a prototype might encourage more rangatahi Māori into the digital technologies sector. The final report outlines the information and insights gained, and provides a framework and roadmap for implementation (Manu Kurutao) to support the further development of the apprenticeship

model. This work will also benefit others looking to develop similar work integrated pathways for new starters or career changers, especially from a kaupapa perspective.

ENABLING MĀORI FUND [ITP PROGRAMME FUNDED]

The Enabling Māori Fund (EMF) arose from the COVID-19 Response and Recovery Fund, which included \$6.5 million for facilitating Māori economic development. The EMF was set up to contribute towards industry transformation, with a focus on Māori participation and enterprise.

In mid-2022, MBIE ran a pilot for EMF funding that would achieve high-wage, low emissions and sustainable business growth for Māori across the Māori enterprise, digital and agritech sectors. MBIE is now determining a process to distribute the remaining funding in the EMF, which will be spread across all eight ITP work programmes.

The EMF and the Digital Technologies ITP will work together to maximise their impact and support for Māori enterprise and participation.

POTENTIAL INITIATIVE

Whītiki

Champions within the eco-system are often responsible for delivering their initiatives and helping and supporting others directly or through roles on boards, committees and so forth, while concurrently holding down a job or running a business. The demands on their time represents a significant barrier for them to identify, support and assist in scaling up successful initiatives.

The draft ITP work programme previously identified the concept of “Whītiki”, who would be champions paid to act as a connector and advocate for the Māori tech ecosystem and to enable Māori participation and success. Further consideration is needed however, and this will be supported by the insights and outcomes of the initiatives already funded in this focus area.

Success factor for this focus area:

Increased Māori participation in the digital technologies sector, as business owners, entrepreneurs, and workers.

FUTURE FOCUS AREAS



This section covers:

Data-Driven Innovation

Artificial Intelligence

Government Procurement

This section covers areas where some preparatory work has been undertaken. These work areas have been identified as important to progress. However, further policy planning, development and/or dedicated funding are required to shape up work programmes in the future.

DATA-DRIVEN INNOVATION

The value of using data to create new products and services is one of the core foundations of the digital economy. Data fuels growth, drives innovation, and enables the development of new products and services developed by the digital technologies sector, including for other sectors.

Data and analytics are now being viewed as an increasingly important asset, helping to drive economic development and build competitive advantage.¹⁸ Data is a critical factor in production, complementing labour, physical capital, and is a key asset for innovation.

Having greater access to data resources is critical for the future growth of the digital technologies sector. Adoption and use of data-driven technologies such as the Internet of Things, 5G and AI are also driving the increased datafication of the global economy.

However, within New Zealand, many organisations continue to have low data maturity with relatively few embracing data as a basis for making decisions at the upper management or board level. Instead, many New Zealand decision-makers prefer to rely on “gut feel” and experience.¹⁹

A Productivity Commission report addressing capability at the board level found the necessary cultural shifts evident in overseas markets have not occurred within New Zealand.²⁰ One result of this low data maturity is a general under-appreciation of the value of data, leading to slower adoption of data-driven technologies and business models that could boost innovation and productivity across the economy. In turn, this can impact the digital technologies sector as a data-intensive industry.

To begin to address these issues, MBIE, together with the i4 Group (a consortium of industry, academia, and not-for-profit stakeholders) across 2021/22 established and executed the i4 Data Driven Innovation Education Pilot. The objective of the pilot was to promote widespread understanding of the value of data and support the use of data-driven technologies to help fuel innovation, productivity, sustainability, and inclusion.

This pilot created a **platform to share resources**, including tools that businesses can draw from to better understand the value of data and the opportunities that the sharing and pooling of data can provide, not only for their organisation, but for the entire New Zealand economy.

¹⁸ Data and analytics refer to the ways data is managed to support all uses of data and the analysis of data to drive improved decisions, business processes and outcomes, such as discovering new business risks, challenges, and opportunities. Source: *Gartner*.

¹⁹ Sapere & Covec, Data Driven Innovation in New Zealand, 2015

²⁰ BRG Institute, New Zealand Frontier Firms: A capabilities –based perspective: August 2020.

ARTIFICIAL INTELLIGENCE

AI has potential to drive innovation and contribute to improved social, environmental, and economic outcomes for New Zealanders. The draft ITP work programme proposed the advancement of an AI Strategy to explore the benefits and risks of using AI. Sector feedback confirmed that this work would be valuable as AI is increasingly used as general-purpose technology and adopted across the public and private sectors.

Some initial work was developed by MBIE in conjunction with the AI Forum, on draft “cornerstones” to underpin a future AI Strategy for Aotearoa New Zealand. These included the aim that all AI innovation and adoption across New Zealand is done safely and ethically, with the full trust and support of New Zealanders. Future work could look to advance development of an AI Strategy that helps New Zealand leverage the economic opportunities of this technology in a trustworthy way.

More broadly, because AI is informed by data, our ability to advance ethical and innovative development and use of AI depends heavily on building a trustworthy and ethical data ecosystem. To fully realise the economic development potential from AI, it will be crucial to have in place the necessary safeguards to promote an appropriate balance of objectives for both ethical and innovative uses of data. Future work on this issue has relevance beyond the scope of the digital technologies sector.

One of the forward-looking issues signposted in the DSA Action Plan is data ethics and the development and use of AI. The DSA identifies there are opportunities in the next few years to raise awareness of the value of data-driven and next generation technologies, including AI. The DSA Action Plan identifies work to build data ethics capability within the public sector and to continue exploring the merits of establishing a Centre for Data Ethics by 2025.

GOVERNMENT PROCUREMENT

Each year, the New Zealand public sector spends \$51.5 billion on goods and services, which has a major impact on the wellbeing of New Zealanders.

Government procurement can play an important role in helping to support New Zealand businesses. Access to procurement opportunities contributes to the growth of export-capable businesses, local skills and expertise, and high-quality employment.

What has the Government achieved to date?

- › Reformed the government procurement policy settings in New Zealand to focus on achieving public value that will benefit New Zealanders, including through the introduction of Broader Outcomes in the Government Procurement Rules.
- › Introduced a requirement for government agencies to consider how to create opportunities for New Zealand businesses for government contracts, including Māori, Pasifika, regional businesses, and social enterprises.²¹
- › Created more equitable outcomes for Māori through the Progressive Procurement policy.²²
- › Made improvements to the Marketplace website and is publishing actual expenditure through the Marketplace online.
- › Launched a suite of automated and customisable common commercial documents to generate more consistent, simpler, and fit for purpose procurement documents.
- › Made significant improvements to the Government Electronic Tenders Service (GETS) and government procurement website.
- › Published historic GETS contract award notices as open data and produced a quarterly upload of GETS data, all free and accessible to the public.²³

²¹ Government Procurement Rule 17:

<https://www.procurement.govt.nz/broader-outcomes/increasing-access-for-new-zealand-businesses/>.

²² Each year, at least 5% of the total number of relevant government contracts must be awarded to Māori-owned businesses. The Government is on track to meet this target and has committed to investing a further \$26 million over the next two years to continue to build Māori business capability and achieve significant social and economic impact. For more information see <https://www.tpk.govt.nz/en/a-matou-whakaarotau/maori-economic-resilience/progressive-procurement>.

²³ <https://www.mbie.govt.nz/cross-government-functions/new-zealand-government-procurement-and-property/open-data/>.

What is the Government planning to do next?

The Government's 2030 vision is "Government procurement supports people, communities and businesses to thrive and grow as they aspire to". To achieve this, a comprehensive, long term work programme will be implemented to position government procurement for the future and ensure that it is a strong lever for advancing the Government's priorities and contributing to New Zealand's wellbeing.²⁴

Core features of this Procurement for the Future work programme are to significantly improve the transparency of public spending; modernise and digitise procurement; and make it easier for New Zealand businesses to deal with government.²⁵ Many of the issues raised by the sector during the draft ITP engagement process are within scope of this programme.

Over time, the Government will:

- › Adopt appropriate data standards, including the Open Contracting Data Standard, to allow aggregation and sharing of data across the system.
 - › Modernise procurement through the development of a digital procurement platform which will, over time, enable agencies and suppliers to shift their procurement activities to an entirely digital environment.
 - › Continue to evolve the "Document Builder" capability to streamline the creation of procurement documentation and make it easier for business to deal with government through the creation of consistent and fit for purpose procurement documents.
 - › Create and publish a GETS dashboard looking at trends and analyses of both published and awarded tenders.
- › Develop and implement a sector leadership model for government procurement. Sector leadership aims to improve delivery, market resilience and consistency of practice through a significant change in the way that we apply commercial and subject matter expertise to complex, specialist areas of procurement, such as ICT. More information and engagement on this initiative will occur this year.

2023 – initial priorities

- › Develop, publish, and promote guidance to support government agencies to increase New Zealand businesses' access to ICT government contract opportunities.
- › Establish a Data Governance forum to enable pan-system agreement on data interoperability and adherence to data standards (Open Contracting Data Standards) and uniqueness.
- › Include data standards compliance and uniformity within any procurement technology changes or implementations.
- › Publish government spend information and data; this includes the All-of-Government contracts.
- › Determine the best way to publish estimated ICT spend data to give the market a reliable and accurate view of the pipeline of spend. It is anticipated that publishing a view of estimate spend through the Marketplace, and potentially other capabilities, could begin in early 2023.

²⁴ <https://www.procurement.govt.nz/procurement-for-the-future/what-is-procurement-for-the-future/>.

²⁵ Further information refer <https://www.procurement.govt.nz/procurement-for-the-future/what-is-procurement-for-the-future/>.

CONCLUSION AND NEXT STEPS

This ITP sets out the vision and actions to support the future growth of New Zealand's digital technologies sector. It is a living document that will evolve and be updated over time so it can continue to deliver the transformation sought by the partners of this ITP.

The next stage will involve implementation of the focus areas outlined in this ITP. Having accurate data available to monitor the impact of the initiatives remains important and the ITP will consider improvements to measuring success throughout the implementation phase.

A Digital Technologies ITP Partnership Board has been established to support the ongoing implementation of the ITP. The Partnership Board is made up of a diverse group of representatives from government, industry body representatives, Māori and other leaders in the sector.



APPENDIX ONE: OTHER WORK PROGRAMMES SUPPORTING THE SECTOR

Other ITPs

This ITP has areas of common interest with other ITPs, for example:

- › **The Agritech ITP** provides a vision and purpose for the growth of the agritech sector and a series of actions to accelerate this growth. Agritech is a broad and diverse sector with a growing contribution to the economy, jobs and communities. It is a key enabler of a world-leading food and fibre sector to improve productivity and sustainability.
- › **The Advanced Manufacturing ITP** has the vision of *“A thriving Aotearoa New Zealand advanced manufacturing sector of world-class creators, innovators and makers delivering quality products, sustainable solutions, and intergenerational wellbeing”*. Digital technologies are critical enablers of advanced manufacturing.

Digital Strategy for Aotearoa

The DSA has a vision that Aotearoa New Zealand’s people, communities, economy and environment are flourishing and prosperous in the digital era. The DSA is framed around the following three connected themes:

- › Mahi Tika: Trust
- › Mahi Tahī: Inclusion
- › Mahi Ake: Growth

This ITP is part of the “Mahi Ake – Growth” pillar of the DSA.

Digital Boost

Improving small enterprises’ capabilities to adopt and use digital technologies will not only have a tangible impact on their own productivity and resilience, but will also enable stronger growth, productivity, and job creation across the country. The Digital Boost programme offers training and support to small businesses to help them improve their digital skills. As of October 2022, over 55,000 business users have already signed up to the programme.

The *Digital Boost Alliance* (whose members develop commitments to collectively drive the uptake of digital technologies across Aotearoa) are currently focusing on developing and fostering skills in tech.

Trade Recovery Strategy

Aligned with the Digital ITP, the Government’s Trade Recovery Strategy launched in 2020 has helped fund the evolution of NZTE’s support for technology exporters. This work has included the allocation of a Customer Management

team of 32 based around New Zealand focused on technology exporters, the recruitment of additional tech-focused Business Development Managers in the United States and Australia, and an increase in the number of tech exporters in NZTE's "Focus" portfolio from 185 in June 2020 to 395 in September 2022.

Deepening Capital Markets

The call for deeper capital markets is not as strong in 2022 as it was pre-pandemic. However, there are still capital gaps, including for game development and Māori firms.²⁶ The crown company New Zealand Growth Capital Partners provides strong support for the early-stage investment market in New Zealand with two investment vehicles; the Aspire NZ Seed Fund and Elevate NZ Venture Fund. The Government's new **Investment Attraction Policy** aims to lift the amount of active investment by adding a new resident visa category (requiring investors to invest a \$15 million minimum) alongside the previous border exception for selected investors. The planned **Business Growth Fund for New Zealand** will add an additional layer to support successful medium sized firms with excellent prospects.

Ārohia Innovation Trailblazer grant

In the digital age, innovation is increasingly data-driven, collaborative and service-oriented, and does not necessarily involve dedicated Research and Development (R&D) activities. As a result, this grant was introduced for non-R&D innovation with potential to create spillovers to the rest of the economy. This initiative broadens the type of innovation support offered to those like digital firms, whose innovation activities are not always eligible under the R&D Tax Incentive.

Digital Public Service

Digital government is about putting people first. The government is focusing on what people need from it in these fast-changing times and how it can meet their needs using emerging technologies, data and changes to government culture, practices and processes.

The Strategy for a Digital Public Service sets the direction to modernise and transform the

public service, putting citizens and businesses at the centre of government services. Current work focuses on web accessibility guidance, digital inclusion, digital identity, as well as the government cloud programme. Leadership is provided by the Minister for the Digital Economy and Communications, and the Government Chief Digital Officer (GCDO – who is also the Chief Executive of the DIA). The GCDO works closely with other system leads – the Government Chief Data Steward (Chief Executive of Stats NZ) and Government Chief Information Security Officer (Chief Executive of Government Communications Security Bureau).

All-of-Government Pacific Wellbeing Outcomes Framework

The **Pacific Wellbeing Outcomes Framework** is a tool that forms part of the Performance and Improvement focus area of the **All-of-Government Pacific Wellbeing Strategy**, launched in Auckland on 16 September 2022. The **Pacific Wellbeing Outcomes Framework** includes some digital-related outcomes under the 'Improved Labour Market Participation' and 'Wealth and Business Ownership' outcome areas within Goal 2 of the Strategy, 'Prosperous Pacific Communities'. Examples include, 'Pacific people have excellent digital access and skills' and 'all types of Pacific enterprises are successful and resilient into the future (e.g. digital)'. The outcomes sought are to remove barriers and create better employment opportunities for Pacific peoples.

Fit for a Better World

Fit for a Better World sets out actions to bring together opportunities the Government considers will accelerate the productivity, sustainability, and inclusiveness of the primary sector, to deliver more value for all New Zealanders. The roadmap spans all of the food and fibre sectors and brings together significant opportunities to add value across the agriculture, horticulture, fisheries and marine, and forestry sectors.

²⁶ Reserve Bank of New Zealand consulted on Improving Māori Access to Capital. <https://www.rbnz.govt.nz/have-your-say/improving-maori-access-to-capital>

APPENDIX TWO: SUMMARY OF CONSULTATION FEEDBACK

Since 2019, MBIE and NZTech have been working in partnership, with ongoing input from the wider sector, to develop this ITP for the Digital Technologies sector. In September 2019, two workshops were held with key sector representatives in Auckland and Wellington to discuss the scope of the ITP. It was agreed the ITP would focus on supporting the growth of the digital technologies sector itself, rather than a focus on addressing the broader uptake of digital technologies across the economy. The ITP would identify the key foundations for a strong sector and the growth opportunities that could be more actively pursued.

In November and December 2019, workshops were held in Auckland, Tauranga, Hamilton, Wellington, Christchurch and Dunedin to gain broad input from the sector on developing a long-term vision for the sector. This also provided the opportunity to understand the sector's key challenges and opportunities, which the ITP could seek to address. Workshop attendance was open to those working in or with the digital technologies sector. More than 150 people attended the six workshops.

In early 2020, workstreams were developed based on key issues that had been identified through these workshops.

An ITP reference group was established in August 2020, made up of key regional and sector representatives. This reference group has provided input to the development of the ITP, looking across all workstreams and providing a range of perspectives from businesses, Economic Development Agencies, industry organisations and Māori.

As key initiatives in the ITP action plan were developed, the wider sector has also had opportunities to be involved through interviews, workshops and feedback on draft papers. A draft ITP was released in February 2022, with feedback welcomed over a six week period.

48 submissions were received on the draft ITP.

What people liked:

- › The ITP recognises the value of the industry to New Zealand, and submitters noted that it was good to see that the government is focused on this (alongside other sectors).
- › The ITP aligns with other stakeholder areas of focus, e.g. TECH Tāmaki Makaurau strategy.
- › Most submitters strongly endorsed the focus of the skills workstream.
- › The Tech Story was well-received, and efforts to involve all the regions have been appreciated.
- › Immigration will continue to be important, and we need to ensure that we can efficiently attract the right skills to New Zealand to support business growth.

- › The national focus on AI is important given its increasing use as a general-purpose technology, and stakeholders were interested to see the proposed AI Strategy.
- › Some submitters were pleased that government procurement is included as a focus, noting limited tangible action at this stage.
- › The draft ITP focuses on the right things, albeit not enough specificity of actions.

What to improve:

- › Be clearer on what is funded and what is not (even if it is still deemed a priority).
- › The measurement aspects for the ITP needs strengthening (targets, KPIs etc, noting data trickiness).
- › More specificity needed on the possible actions – refine these towards the most important.
- › Despite the low emissions profile of the industry, e-waste and computing power emissions should be acknowledged.

- › SaaS should not be the only focus. Interactive media and product-based models should also be considered.
- › Ensure initiatives apply across New Zealand, not just Wellington and Auckland. E.g. consider how the SaaS Community can work in the South Island.
- › Government can support skills development via procurement decisions (e.g. valuing involvement by graduates/interns etc).
- › Include neurodiversity when framing diversity opportunities.
- › Consider clarifying the focus of the ITP against a framework of users, implementers, and creators. The ITP focus is the latter.
- › There is no mention of Intellectual Property in the ITP – it is important for value and asset creation.



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