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Taiuru & Associates

Māori Voices in the Artificial Intelligence (AI) Landscape of Aotearoa New Zealand; An interim research report.



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Introduction

Māori Peoples are at the cross roads with Artificial Intelligence and other emerging technologies; We can either turn right and decolonise and empower ourselves, or turn left and have status quo with all of the negative statistics and inequities.

Featured Image Credit [The AI Tribe](#).

While the world faces the rapid growth of AI technologies, there is no reason why Māori can not be leaders in the area of Artificial Intelligence and determine their own economic sustainability and new opportunities for culture, social and overall wellbeing, rewinding the decades of negative statistics society has offered.



This preliminary kaupapa Māori research [0] has analysed the representation that Māori have in the New Zealand AI commercial, industry and academic landscapes and looked at what voices and representation Māori have in this new and influential growth area.

Considering AI has potential to drive innovation and contribute to improved social, environmental, and economic outcomes for New Zealanders [1]. It is estimated that the digital technologies sector contributed \$7 billion towards New Zealand's Gross Domestic Product (GDP) in 2021 [2].

A report by the New Zealand Productivity Commission found that up to 46% of jobs in New Zealand are at risk of automation over the next 20 years[3].

According to a survey by PwC, 30% of jobs in New Zealand are at high risk of automation by the early 2030's [4] and the adoption of AI in New Zealand is expected to increase productivity by 1.5% annually [5].

The New Zealand government has launched the Artificial Intelligence Action Plan to help businesses and workers prepare for the impact of AI on the job market [6].

The New Zealand Institute of Directors 2023 survey of directors has AI as one of the top 5 priorities for boards. In the USA KPMG found at least 75% of business leaders saw Gen AI as the top 3 emerging technologies in 12-18 months [7].

The New Zealand Herald recently reported that “the majority of Whangārei businesses are trying out Artificial Intelligence (AI) but are still not entirely comfortable with the rapidly advancing technology[8].”

DATAKOM AI Attitudes in New Zealand research report showed that New Zealand businesses are conscious and concerned about AI ethics and algorithmic bias. 53% of companies have questions around ethics, 50% with AI algorithms reflecting human bias and 82% believe that AI should be legislated [9].

Despite the overwhelming statistics that New Zealand households, individuals, groups, and businesses will be significantly impacted by AI, Māori make up only 4% of the Digital/Technology sector and less than 1% of the AI sector in New Zealand.

Methodology

This report has adopted the following definition of Artificial Intelligence:

“Artificial intelligence is a technical and scientific field devoted to the engineered system that generates outputs such as content, forecasts, recommendations or decisions for a given set of human-defined objectives” [ISO/IEC 22989:2022] [10].

For a layman audience, this includes technologies such as Machine Learning, Facial Recognition Technologies, Algorithms, Natural language processing, Large Language Models such as GPT, etc.

The research did not include Māori Tech businesses and practitioners who use AI as a part of their daily business or employment or those who have one set of key skills, for example data science or Data Sovereignty as these are sub sets of AI.

AI organisations were identified who have Māori representatives (with AI knowledge and mātauranga) with a mandate to promote Māori culture and or Te Tiriti in their constitution or other organisation documentation that gives the organisation a legal identity or mandate. Māori academics were considered if they identify AI as a key research area and had research papers that contributed to te ao Māori, or had memberships with AI organisations and identified as a Māori AI expert. School teachers of AI were not considered.

An organisation is not included if they simply have an organisation member who is of Māori descent.

A number of sources were consulted and analysed including: public web sites listing memberships of the AI Forum New Zealand, Artificial Intelligence Researchers Association and the Māori in Digital Facebook Group membership (495 members). The data was then cross referenced with LinkedIn and other credentials. Universities, research papers and funding partners were also analysed to identify Māori academics who primarily work in or with AI. Whare Wānanga were not considered in the report.

As the area of AI in New Zealand is still relatively small and new, and considering the wide networks and organisation affiliations of the researcher, this added knowledge to the networks of identifying Māori in AI in New Zealand.

Each individual and organisation was assigned an anonymous ID that was used to gain statistical data. For example A1 +B2, B7 = one individual has 2 organisation associations.

Findings

Representative Māori Groups

6 key groups were identified in this research representing Māori in the New Zealand AI industry.

Group 1: Industry Groups with constitutional mandate for Te Tiriti Partners and advisors such as Māori committees. Three groups were identified that met the research criteria.

Group 2: Tertiary AI Research Institutions with mandate to appoint and act as a Te Tiriti partner. One institution was identified that met the research criteria.

Group 3: Māori Academics who work with AI as a primary research/lecturer focus and with kaupapa Māori focus/representation. 14 Māori academics were identified whose primary role is AI with either research or lecturing.

Group 4: Māori owned or Māori majority shareholder AI Tech Companies. Three companies were identified that met the research criteria.

Group 5: Non-Māori owned companies that employ Māori staff. Three companies were identified that met the research criteria.

Group 6: New Zealand Government specific AI advisory groups with Te Tiriti appointed membership or public consultations with Māori. Three groups were identified that met the research criteria.

Key statistics

- **3** Industry Groups with constitutional mandate for Te Tiriti Partners and advisors were identified.
- **3** Māori owned or Māori majority shareholder AI Tech Companies were identified and have 6 staff including directors.
- **2** non-Māori owned companies were identified that employed 5 Māori staff.
- **27** different Māori individuals in total were identified as AI researchers/lecturers, developers, ethics or as contributing mātauranga Māori to AI project developments.
- **3** Māori individuals were identified as making a significant contribution to the AI space, but this was not their primary employment. One of the individuals offers a mixture of free and paid for prompt engineering courses with significant numbers of people participating (It was not possible to identify people by ethnicity) and another is the creator of a Māori LLM.
- **2** New Zealand Government specific AI advisory groups with Te Tiriti appointed membership were identified in the health space that had at least one Māori representative who has a AI background. 1 group was identified that was a public consultation group of Māori relating to one aspect of AI. The Algorithm Charter was not included due to the lack of a Māori voice in 2018 and no public information being offered about a review.
- **14** Māori academic staff

Individual Māori with affiliations with NZ AI organisations

- 1 individual has 6 affiliations
- 3 individuals have 3 affiliations each to AI organisations
- 9 individuals have 2 affiliations each to AI organisations
- 14 individuals have only one affiliation with an AI organisation including their employer

Māori AI Staff in Academia

Aotearoa New Zealand has eight Universities. Three do not have Māori AI staff: Auckland University of Technology (AUT), Lincoln University and University of Otago. All Universities have AI research groups, departments, and institutions. Only one University has a Te Tiriti mandate with its AI Institute - Te Ipu Mahara Artificial Intelligence Institute [15] at the Waikato of University.

AI courses in Wānanga

At the time of writing this report, none of the three Wānanga are offering any AI or related courses and have no staff listed as AI experts.

General findings

This study was not able to identify how many Māori students are studying an AI related field at a tertiary or Private Training Institute or how many Māori teachers are teaching AI in the classroom.

Māori Iwi who are a part of the Iwi Leaders Forum Data Group have a voice with digital technologies via several Mana Ōrite agreements, including with the Department of Internal Affairs [12] and StatsNZ [13], this could include AI with the government departments with whom a Mana Ōrite agreement exists. It is important to note that this group does not have a mandate to represent the wider Māori communities such as Māori businesses, hapū, hāpori, whānau and individuals who this research has identified as not affiliating with an AI industry organisation. This raises a concern that Māori individuals, hapū, whānau, businesses and hāpori will not likely get a voice with government consultations regarding AI issues and could face discrimination without a voice with new AI regulations and new laws that parliament may consider.

The current exception is the Privacy Commission public consultation with Māori regarding Facial Recognition Technologies, but the representation of participants is very limited to those Māori with a voice, Iwi Leaders Data Group and Māori academics.

New Zealand AI Guidelines and resources with input by Māori AI experts

The following four guides have had direct Māori expert input. There are three other government guides for AI that do not meet this reports inclusion criteria:

- Capturing the benefits of AI in healthcare for Aotearoa New Zealand. Office of the Prime Minister's Chief Science Advisor [16]
- Explainable AI – building trust through understanding. November 08, 2023. AI Forum New Zealand [17]
- DISCUSSION PAPER: Responsible AI Ensuring AI works reliably, fairly, transparently and safely for everyone. Artificial Intelligence Researchers Association [18]
- A list of all Māori related Artificial Intelligence papers written by Karaitiana Taiuru [19]
- Ka mua, ka muri - Walking backwards into the future. Te Rangimaria Warbrick Te Whare Wānanga o Awanuiārangi [20]
- Kaupapa Māori concept modelling for the creation of Māori IT Artefacts. Kevin Shedlock & Petera Hudson [23]
- AI Connecting our Whānau Petera Hudson [24]

Conclusion

There are no statistics of the AI workforce in New Zealand. But if we consider that The Artificial Intelligence Forum of New Zealand (AI Forum) [11] currently has **147** member organisations in comparison to **3** identified Māori AI organisations (non AI Forum members) and **27** identified Māori individuals in the AI sector; Māori make up a minute portion of the AI sector in New Zealand.

Māori academics, business owners and government representatives have representative bodies individuals can affiliate with. Many academics and government staff are largely members of such industry organisations. But, some government departments and agencies are creating AI guides without input from Māori in the AI.

Māori individuals, whānau, hapū, businesses and hāpori have no AI representative body to affiliate to which could contribute to a new digital divide for Māori with AI and emerging technologies.

Recommendations

1. Māori education providers such as Kura and Wānanga have a great opportunity to harness and create new AI courses that can complement existing AI courses, but also include community and Māori group needs such as looking at manual jobs that are dominated by Māori that will likely be replaced by automation [21], Māori ethics, computer scientists with a kaupapa Māori focus [22], roles that require a human check the AI including with Facial Recognition Technology and government Algorithms, provide academic qualifications to the online community of prompt engineers with art could also be adapted to other existing opportunities with prompt engineering.
2. There is an urgent requirement for Te Ao Māori to form an inclusive for all Māori AI group to champion AI and emerging technologies to ensure all of te Ao Māori have a voice that will lead to social, cultural and economic wellbeing.
3. Te Ao Māori should consider AI and emerging technologies as a decolonising mammoth vehicle of opportunities and create national think tanks and debate about how to be in the seat of change and empowerment. If iwi and traditional Māori leaders will not take up the challenge, then let the new generations shine and lead Māori in this new world.
4. Local, hapū, hāpori and business leaders should take the mantle to discuss how AI and emerging technologies will empower and decolonise in their own fields whether it is environment, health, language revitalisation, cultural protection, commerce trades, marae etc.
5. Whānau, hapū and Iwi need to empower youth and the unemployed to realise the potential for rapid and new wealth and explore employment trends in AI and emerging technology and prepare for them. Noting, for many roles life experience could be more beneficial than academic training in areas such as algorithmic bias.
6. Iwi and other Māori Education Grant providers need to consider AI as a professional qualification and create AI training specific education grants and scholarships.
7. The New Zealand Government must continue to honour their Mana Ōrite agreements, but also recognise that these agreements do not fully reflect a Tiriti obligation, that most of te ao Māori are not represented.

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