TE KĀHUI RARAUNGA

AI GOVERNANCE FRAMEWORK ACTIVATED

Reference Resource: Conceptual AI Use Cases for Implementing the Māori AI Governance Framework in the Public Sector

Use Case 1:

Health System AI Risk Assessment Tool

The Goal:

A District Health Board wants to reduce hospital readmission rates by implementing an AI system to identify patients at highest risk of readmission, enabling prioritised follow-up care and more efficient resource allocation.

Why This Matters:

Hospital readmissions place significant strain on healthcare resources and often indicate gaps in patient care. By predicting which patients are most likely to be readmitted, healthcare providers can proactively intervene with targeted follow-up care, potentially improving patient outcomes while reducing costs.

The System Design:

The AI system is designed to generate groupings of patients who are statistically more likely to be readmitted to hospital care. The system operates on two key assumptions: - The system does not seek to identify or explain the underlying causes of elevated readmission rates - Enhanced follow-up care for high-risk patient groups will contribute to reducing hospital readmissions.

Intended Outcome:

Reduced hospital readmission rates through data-driven prioritisation of follow-up care resources.

The Challenge:

Historical health data shows Māori patients have higher readmission rates, but this reflects systemic inequities in healthcare access and quality rather than inherent health risks.

Project Manager Considerations:

Scope Options for Bias Assessment:

Expanded Scope: Consider a two-stage business case approach: - Stage 1: Data quality and bias review - assess the limitations of existing data and how these might affect intended outcomes - Stage 2: AI system development based on findings from Stage 1.

Constraint Documentation: Identify and document the constraints of data results and subsequent outcomes. Emphasise the limits of how the data can be used in reporting.

Risk Assessment: Include the likelihood of data being used to perpetuate stereotypes in risk planning. Consider mitigation strategies for unintended consequences vs intended outcomes.

Data Warnings: Consider whether the data outputs should carry warnings about appropriate use and interpretation limitations.

What Could Go Wrong:

- The AI system learns from biased historical data and perpetuates discrimination
- Māori patients may be incorrectly flagged as "high risk" due to systemic factors
- The system reinforces existing healthcare inequities rather than addressing them.

Applying the AI Toolbox Principles:

Māori Data Sovereignty:

- Consult with local iwi and Māori health providers before accessing Māori health data
- Ensure Māori communities understand how their data will be used and can withdraw consent
- Store health data within Aotearoa New Zealand with Māori controlled access protocols (*Benefits: Maintains data sovereignty, ensures compliance with New Zealand privacy laws, reduces jurisdictional risks from foreign legislation like the US CLOUD Act, and enables Māori communities to maintain control over their taonga).*

Governance with Māori Partners:

- Include Māori clinicians and community representatives in the AI system design team *(If Māori clinicians are not available, consider: statisticians with bias/ethics training, public health experts with cultural competency training, Māori health researchers, or cultural advisors working alongside non-Māori clinicians).*

- Establish a Māori advisory group to oversee the system's development and monitoring *(Examples of advisory structures: Trust Framework Authority approach, iwi partnership models, or co-governance frameworks like those used in health sector reforms).*

Embed Māori Values:

- Consider system design options for addressing systemic barriers:

  Option 1: Design system to identify limitations in data outputs (e.g., flag when data doesn't include reasons for readmission)

  Option 2: Two-stage business case approach - Stage 1 reviews data quality and limitations, Stage 2 addresses how limitations could affect intended outcomes -

  Option 3: Scope expansion to identify systemic barriers (noting this significantly broadens project scope and resource requirements).

- Ensure the AI recommendations support whānau centred care approaches *(Consider: How do AI-generated risk scores translate into care approaches that involve whānau in decision-making? Are recommendations culturally appropriate and do they align with holistic Māori health models like Te Whare Tapa Whā?).*

- Build in regular monitoring for discriminatory outcomes *(Implementation approaches: Build monitoring into project handover documentation, assign specific roles/skills for ongoing oversight such as data analysts with cultural competency training, establish automated alerts for statistical disparities in outcomes by ethnicity, create regular reporting schedules to advisory groups).*

Resources for best practice:

Ten Simple guidelines for decolonising algorithmic systems - O'Neale et al. practical guidelines for addressing bias.

Māori algorithmic sovereignty: idea, principles and use - Brown et al. foundational concepts for ethical AI development.

Stats NZ Statistical Standard for Ethnicity - for consistent ethnicity data collection and analysis.

NIST Framework for Managing AI Risks - includes bias detection methodologies.

Key Actions:

1. Conduct a cultural impact assessment before system development.
2. Work with Māori statisticians to identify and remove biased variables *(Preference is for statisticians who are Māori. If Māori statisticians are not available, ensure non-Māori statisticians are guided by Māori tikanga experts and Māori data specialists throughout the process).*
3. Test the system's recommendations with Māori health experts.
4. Establish ongoing monitoring for equitable outcomes across ethnic groups *(Implementation suggestions: Create quarterly review cycles with Māori advisory groups, establish baseline metrics before system deployment, implement statistical testing for disparities using appropriate confidence intervals, set up community feedback mechanisms, document response protocols when inequitable outcomes are detected, and ensure governance structures include Māori decision-making authority over system modifications).*

Better Outcome:

An AI system that identifies systemic barriers and supports targeted interventions to improve Māori health outcomes, rather than perpetuating existing inequities.

Use Case 2:

Social Services Fraud Detection Algorithm

Scenario:

A government social services agency wants to use AI to detect potential benefit fraud by analysing patterns in client data and external information sources.

The Challenge:

Māori and Pacific peoples are over represented in benefit statistics due to historical and ongoing socio economic inequities.

What Could Go Wrong:

- The algorithm may produce biased outcomes due to historical over-representation of Māori and Pacific peoples in benefit data, leading to unfair targeting for investigation that reflects systemic inequities rather than actual fraud risk
- Privacy rights are violated through excessive data matching without consent
- The system criminalises poverty rather than addressing its root causes *(Better commissioning approach: Define project scope to distinguish between welfare system integrity and poverty alleviation. Consider commissioning alongside supportive services to address underlying socio-economic factors. Include success metrics that measure both fraud detection accuracy and community wellbeing outcomes)*
- Community trust in social services is further eroded.

Applying the AI Toolbox Principles:

Māori Data Sovereignty:

- Obtain explicit consent from Māori clients before using their data for fraud detection
- Provide clear information about what data is being used and how
- Allow Māori clients to opt out without penalty to their benefits or entitlements.

Transparency and Redress:

- Make the fraud detection criteria publicly available and understandable
- Provide clear pathways for clients to challenge AI-driven investigations
- Publish regular reports on investigation outcomes by ethnicity.

Cultural Safety:

- Train investigators in cultural competency and trauma-informed approaches
- Ensure investigation processes respect whānau structures and cultural practices
- Partner with Māori social service providers for culturally appropriate support.

Key Actions:

1. Conduct algorithmic bias testing before deployment.
2. Implement human oversight for all AI flagged cases involving Māori clients.
3. Regular auditing of investigation outcomes by ethnicity.
4. Establish an independent review process for disputed cases.

Better Outcome:

A fraud detection system that operates fairly across all communities while maintaining the integrity of the benefit system and preserving client dignity.

Use Case 3:

Education AI Tutoring System

Scenario:

A government education agency wants to deploy an AI tutoring system in schools to provide personalised learning support, particularly for students struggling with literacy and numeracy.

The Challenge:

The AI system needs to be effective for Māori students while respecting cultural values and learning styles.

What Could Go Wrong:

- The AI system is trained primarily on Pākehā learning patterns and doesn't adapt to Māori learning styles
- Te reo Māori content is poorly represented or culturally inappropriate
- The system fails to incorporate whānau and community connections important to Māori education.

Applying the AI Toolbox Principles:

Māori Data Sovereignty:

- Store all student data within Aotearoa with Māori approved security protocols
- Obtain iwi consent for using Māori student data in AI training
- Provide whānau with full control over their children's educational data.

Embed Māori Values:

- Incorporate mātauranga Māori and kaupapa Māori pedagogy into the AI system
- Ensure te reo Māori content is culturally accurate and developed by Māori experts
- Design learning pathways that reflect Māori ways of knowing and learning.

Invest in Māori Led Development:

- Partner with Māori educators and technologists in system development
- Support Māori led research into culturally responsive AI education tools
- Fund training for Māori teachers in AI-supported pedagogy.

Key Actions:

1. Establish partnerships with iwi education authorities and Māori medium schools.
2. Ensure Māori educators lead the development of te reo Māori and cultural content.
3. Test the system extensively with Māori students and incorporate their feedback.
4. Provide ongoing cultural supervision and monitoring of learning outcomes.

Better Outcome:

An AI tutoring system that enhances Māori student achievement while strengthening cultural identity and connections to te ao Māori.

Key Principles Applied Across All Use Cases:

Before Implementation:

- ***Cultural Impact Assessment:***
  Evaluate potential effects on Māori communities.

  Resources for conducting Cultural Impact Assessments:
  - *Māori Data Governance Model - Te Kāhui Raraunga framework for ethical data governance*
  - *Māori data sovereignty and privacy - Tikanga in Technology discussion paper - guidance on cultural considerations in technology*
  - *UN Declaration of Rights of Indigenous Peoples - Key articles - foundational rights framework.*

- ***Data Whakapapa:***
  Understand the origins and biases in training data.

  Resources for identifying and assessing bias:
  - *Ten Simple guidelines for decolonising algorithmic systems - O'Neale et al. practical framework for identifying and addressing algorithmic bias*
  - *Māori data sovereignty and offshoring Māori data - Kukutai et al. analysis of data risks and sovereignty issues*
  - *Māori Data Governance Model - comprehensive framework for ethical data governance and bias prevention.*

- ***FPIC Process:***
  Obtain meaningful consent from affected Māori communities.

- ***Partnership Establishment:***
  Form genuine partnerships with iwi and Māori experts.

  Examples and guidance for genuine partnership:
  - *Māori Data Sovereignty Principles - Te Mana Raraunga foundational principles for partnership*
  - *Indigenous data sovereignty and policy - Walter, Kukutai, Carroll & Rodriguez-Lonebear frameworks for meaningful partnership*
  - *Iwi data needs - Te Kāhui Raraunga research on community priorities and partnership approaches.*

During Development:

- ***Bias Testing:***
  Regular testing for discriminatory outcomes

  Resources for effective bias testing:
  - *Ten Simple guidelines for decolonising algorithmic systems - O'Neale et al. practical testing methodologies and implementation guidance*
  - *Māori algorithmic sovereignty: idea, principles and use - Brown et al. comprehensive framework for testing AI systems with cultural considerations*
  - *Use case examples: Review health, social services, and education use cases in this document for sector-specific testing approaches*
  - *Stats NZ Statistical Standard for Ethnicity - methodological guidance for accurate ethnicity-based testing.*

- ***Cultural Supervision:***
  Ongoing oversight by Māori experts.

  What cultural supervision looks like in practice:
  - **Regular Review Cycles:** Quarterly cultural assessments with advisory groups to evaluate system impacts on Māori communities
  - **Decision-Making Authority:** Māori experts have authority to pause, modify, or redirect AI system development based on cultural concerns
  - **Tikanga Integration:** Supervision processes follow Māori protocols, including appropriate hui formats, consultation processes, and relationship management
  - **Community Connection:** Cultural supervisors maintain direct relationships with affected iwi, hapū, and urban Māori communities to ensure ground-level feedback
  - **Documentation and Reporting:** Cultural supervision activities are documented using both Western project management approaches and mātauranga Māori frameworks
  - **Capacity Building:** Cultural supervisors provide ongoing education to non-Māori team members about tikanga, cultural safety, and appropriate data practices.

  Framework reference: See *Māori Data Governance Model* for comprehensive cultural supervision guidance.

- ***Transparency:***
  Clear documentation of AI decision making processes.

  Required documentation for Māori data and bias decisions:
  - **Project Scoping Decisions:** Document all decisions made about including/excluding Māori data, with rationale and cultural oversight input
  - **Data Classification Records:** Maintain detailed records of how data was classified, who was involved in classification, and what cultural guidance was provided
  - **Bias Assessment Documentation:** Record all bias assessments conducted, findings, mitigation strategies implemented, and ongoing monitoring results
  - **Partnership Agreements:** Document formal agreements with iwi, hapū, and Māori experts, including roles, responsibilities, and decision-making authority
  - **Cultural Supervision Records:** Maintain records of all cultural supervision activities, recommendations made, and actions taken
  - **Community Consultation Logs:** Document all community engagement activities, feedback received, and how feedback was incorporated
  - **Incident Response Documentation:** Record any cultural harms detected, investigation processes, resolution actions, and lessons learned
  - **Audit Trail Requirements:** Ensure all documentation meets requirements for independent audits and cultural oversight reviews.

  Framework reference: Documentation standards should align with *Māori Data Governance Model* reporting requirements.

- ***Community Feedback:***
  Regular engagement with affected communities.

After Deployment:

- ***Outcome Monitoring:*** *Track impacts on Māori communities over time*
- ***Regular Auditing:*** *Independent review of algorithmic fairness*
- ***Redress Mechanisms:*** *Clear pathways for addressing AI caused harm*
- ***Continuous Improvement:*** *Iterative enhancement based on community feedback.*

Bibliography

Page 2 - Use case 1: Health

https://neac.health.govt.nz/national-ethical-standards/part-two/12-health-data/

https://www.health.govt.nz/publications/precision-health-exploring-opportunities-and-challenges-to-predict-prevent-diagnose-and-treat-health

https://www.health.govt.nz/system/files/2023-08/ltib-precision-health-online-version-v2.pdf

https://www.tewhatuora.govt.nz/assets/Corporate-information/About-us/Expertgroups/AI-Advisory-Group/Health-NZ-National-AI-Development-Checklist.docx

Page 4 - Use case 2: Social Services

https://www.msd.govt.nz/about-msd-and-our-work/work-programmes/initiatives/phrae/adm-standard.html

https://www.sia.govt.nz/what-we-do/data-systems

Page 5 - Use case 3: Education

https://www.puhoro.org.nz/post/learn-coach https://learncoach.com/

https://newzealandcurriculum.tahurangi.education.govt.nz/introduction-to-artificial-intelligence/5637235331.p

https://www2.nzqa.govt.nz/ncea/ncea-for-teachers-and-schools/managing-national-assessment-in-schools/ai-guidance/ https://theeducationhub.org.nz/an-introduction-to-the-role-of-artificial-intelligence-in-classrooms-and-schools/

Academic References

Brown, P. T., Wilson, D., West, K., Escott., K. R., Basabas, K., Ritchie, B., Lucas, D., Taia, I., Kusabs, N., & Keegan, T. T. (2024). Māori algorithmic sovereignty: idea, principles and use. Data Science Journal, 23 (15)., pp1-16. Available from: https://datascience.codata.org/articles/10.5334/dsj-2024-015

Kukutai, T., Clark, V., Culnane, C., & Teague, V. (2022). Māori data sovereignty and offshoring Māori data. Te Kāhui Raraunga. Available from: https://www.kahuiraraunga.io/_files/ugd/b8e45c_c035c550c8244c70a1025cd90a97298e.pdf pdf

Kukutai, T., Cassim, S., Clark, V., Jones, N., Mika, J., Morar, R., Muru-Lanning, M., Pouwhare, R., Teague, V., Tuffery Huria, L., Watts, D. & Sterling, R. (2023). Māori data sovereignty and privacy [Tikanga in Technology discussion paper]. Te Ngira Institute for Population Research. https://www.waikato.ac.nz/assets/Uploads/Research/Research-institutes-centres-and-groups/Institutes/Te-Ngira-Institute-for-Population-Research/MDSov-and-Privacy_20March2023_v2.pdf

Kukutai, T., Campbell-Kamariera, K., Mead, A., Mikaere, K., Moses, C., Whitehead, J., & Cormack, D. (2023). Māori Data Governance Model. Te Kāhui Raraunga. https://www.kahuiraraunga.io/_files/ugd/b8e45c_803c03ffe532414183afcd8b9ced10dc.pdf

O'Neale, D. R. J., Wilson, D., Brown, P. T., Dickinson, P., Rikus-Graham, M., & Ropeti, A. (2025). Ten Simple guidelines for decolonising algorithmic systems. Journal of Responsible Technology, Vol. 23., September 2025, 100125. Available from: https://doi.org/10.1016/j.jrt.2025.100125

Te Kāhui Raraunga (2022). Iwi data needs. https://www.kahuiraraunga.io/iwidataneeds

Te Mana Raraunga. (2018). Māori Data Sovereignty Principles. https://cdn.auckland.ac.nz/assets/psych/about/our-research/documents/TMR+M%C4%81ori+Data+Sovereignty+Principles+Oct+2018.pdf

Te Puni Kōkiri. (2021). Key articles from the UN Declaration of Rights of Indigenous Peoples. Avaiable from: https://www.tpk.govt.nz/docs/tpk-undrip-declaration-en-2021.pdf

United Nations Declaration on the Rights of Indigenous Peoples, A/RES/61/295. (2007). Available from: https://social.desa.un.org/issues/indigenous-peoples/united-nations-declaration-on-the-rights-of-indigenous-peoples

Walter, M., Kukutai, T., Carroll, S. C., & Rodriguez-Lonebear, S. (2020). Indigenous data sovereignty and policy. Routledge. https://doi.org/10.4324/9780429273957

Te Kāhui Rāraunga. (2025). Māori AI Governance Framework https://www.kahuiraraunga.io/_files/ugd/b8e45c_79f4162207da4123861c50dec08cd0fb.pdf

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