Principles of Māori Algorithmic Sovereignty

Tikanga in Technology

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The purpose of this document is to introduce readers to the idea of Māori algorithmic sovereignty and to provide an overview of the principles and sub-principles that underpin it. Māori algorithmic sovereignty builds on the ideas of Māori data sovereignty, framing algorithmic systems as an application of data.

Māori Algorithmic Sovereignty

Algorithmic systems that use Māori data, or are applied to Māori populations or environments that Māori have rights or interests in, should be subject to Māori rules, laws, and governance.

Definition of terms

- **Algorithmic systems** refer to a process or tool that requires computational algorithms to transform inputs (such as data) into outputs that are used for decision-making or support.
- **Māori data** refers to digital or digitisable information or knowledge that is about or from Māori people, language, culture, resources, or environments.
- **Māori data sovereignty** refers to the inherent rights and interests that Māori have in relation to the collection, ownership, and application of Māori data.

References

For more information we recommend the following resources:

Brown, P.T., et al., (2023): *Māori algorithmic sovereignty: ideas, principles, and use*. https://arxiv.org/abs/2311.15473.

Kukutai, T., et al., (2023): *Māori data governance model*. Te Kāhui Raraunga. https://www.kahuiraraunga.io/maoridatagovernance

Te Mana Raraunga (2016): Te Mana Raraunga Data Sovereignty Charter – Principles of Māori Data Sovereignty – Brief #1. https://www.temanararaunga.maori.nz/nga-rauemi.

Rangatiratanga | Authority

1. **Control** – Māori have the right to control the development, and use of an algorithm*, including (but not limited to) motives, design, choice of inputs, interpretation of outputs, maintenance, management, and deployment.

2. **Jurisdiction** - Decisions about the physical and virtual storage of the inputs and computational algorithms used, and the outputs generated from the algorithms shall enhance control for current and future generations. Whenever possible, the inputs and the outputs of the algorithms shall be stored in Aotearoa New Zealand.

3. **Self Determination** – Māori have the right to participate in the development and use of algorithms in a way that empowers sustainable self-determination and effective self-governance.

Whakapapa | Relationships

1. **Transparency** – Transparency is required in all aspects of the algorithm, including (but not limited to) who is involved, motivations, inputs, outputs, maintenance, management, and deployment. These should be clear prior to any application to ensure the algorithm is explainable, and outputs are interpretable.

2. **Data Lineage** – The use of Māori data throughout the algorithm process should be clear and uphold the principles and sub-principles set out in Māori data sovereignty guidelines.

3. **Sustainability** – It must be shown that the data and outputs used and generated from algorithms must provide long-term sustainable benefits to Māori, including environmental sustainability.

Whanaungatanga | Obligations

1. **Balancing Rights** – Individuals' rights, risks, and benefits in relation to the algorithms need to be balanced with the collectives they may be a part of.

2. **Redress** – Māori have the right to challenge the output or outcome of an algorithm if applied to them, and mechanisms for redress must be established in the process of algorithm development.

3. **Accountability** – Individuals and institutions that are responsible for the development of the algorithms are accountable to the Māori individuals and communities that the algorithm affects.

Kotahitanga | Collective Benefits

1. **Benefit** - Algorithms must be designed in ways that enable Māori to derive both individual and collective benefits, and to minimize harms.

2. **Capacity Building** – Individuals and institutions developing and using algorithms must include Māori in all parts of the process for meaningful partnership and to build capability for both Māori and non-Māori.

3. **Solidarity** – Māori must be supported to connect with other Indigenous groups for the purposes of sharing knowledge, ideas, and strategies regarding the development and use of algorithms. Where appropriate, Māori should also be supported to work with other groups that face discrimination from algorithms.

Manaakitanga | Reciprocity

1. **Respect** - The use of algorithms shall uphold the mana (respect) and dignity of Māori individuals and communities.

2. **Privacy** – Individual and collective privacy must be considered during the processes of data collection, storage, data re-use, and the dissemination of the outputs of the algorithm.

3. **Consent** – Any Māori community that an algorithm is applied to must give free, prior, and informed consent, for both the development and use of the system. This includes consents for data, outputs, and elements of the system that Māori control.

Kaitiakitanga | Guardianship

1. **Protection** – Inputs used in the algorithms and the resulting outputs must be treated in such a way that enables and reinforces the capacity of Māori to exercise protections over all components of the algorithm, including the inputs, outputs, and computational algorithms.

2. **Ethics** – Tikanga, kawa (protocols) and mātauranga (knowledge) shall underpin the protection, access, and use of the algorithms.

3. **Restrictions** – Māori shall decide how the inputs and outputs of the algorithm shall be considered tapu (restricted) or noa (accessible).

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*Note: "algorithms" in this context refers to algorithmic systems that use Māori data, are applied to Māori populations, or applied to environments that Māori have rights or interests in.