

Tikanga in Technology Brief #2

Protecting hapū data privacy: A Ngāti Tiipa case study of technology considerations

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Purpose

This brief is a part of a series, produced for the Tikanga in Technology (TiNT) research programme, that provides a hapū perspective on data sovereignty, data governance and data privacy. In this brief we focus on the Ngāti Tiipa ‘layer cake’ technology approach and assess it against the values of the TiNT Māori Data Privacy Framework. This brief should be read in conjunction with TiNT Brief #3 *The Māori Data Privacy Framework: How useful is it for hapū?*

Context

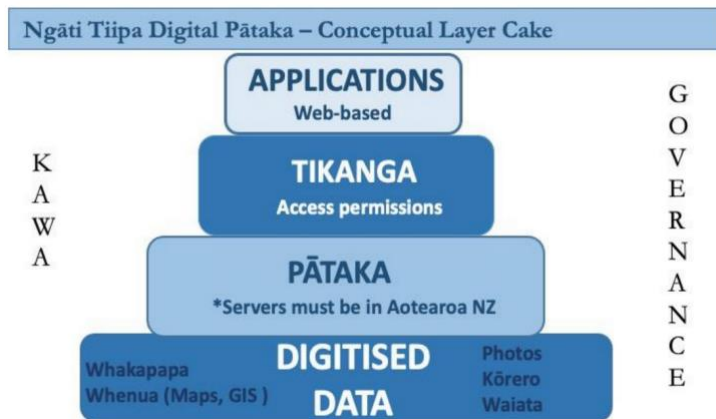
Ngāti Tiipa are one of the 33 iwi and hapū of the Waikato confederation. Its rohe encompasses the area known as Te Pūaha o Waikato – the area where the Waikato River meets the Tasman Sea – as well as three marae: Te Kumi Paa (Te Kohanga), Tauranganui (Port Waikato) and Ngaa Tai E Rua Paa (Tuakau). Ngāti Tiipa are kaitiaki of their tikanga, kawa, mātauranga and taonga, including digital taonga in the form of data.

Ngāti Tiipa has been engaged in hapū data sovereignty since 2018, supported by several research programmes (Clark et al., 2020, 2024; Kukutai et al., 2020, 2022, 2023; Newbold et al., 2022). Its flagship project involved building a database of hapū ancestors born between 1750 and 1900, and combining data from publicly available sources, archives, oral histories from kaumātua, marae-based wānanga, and whānau mātauranga. The research team developed their own ‘layer cake’ technology approach to governing the hapū data and tūpuna database that are hosted within a digital pātaka. Drawing on the work undertaken by Ngāti Tiipa, we consider some of the technology considerations that might assist other hapū to be kaitiaki of their digital taonga.

Ngāti Tiipa ‘layer cake’ technology approach

Taking a ‘by whānau, for whānau’ approach, marae-based wānanga were held at the three Ngāti Tiipa marae between 2018 and 2020. The purpose was to understand how Ngāti Tiipa tikanga and kawa used in physical settings

might inform kaitiaki practices to protect hapū data in the digital realm. A 2024 report by Clark and others describes the methodology and the findings. In some instances, existing tikanga could be readily applied in a digital context, but in others, some adaptation was required. The resulting layer cake is a metaphor for the various layers that comprise the Ngāti Tiipa digital pātaka, underpinned by the raw data, services and applications that, woven together, enable the assertion and expression of Ngāti Tiipa hapū data sovereignty. The digital pātaka does not exist in isolation; it is guided by the kawa of Ngāti Tiipa and good data governance processes and practices supporting respectful relations and kaitiakitanga.



The application layer through which uri are able to access the data and whakapapa database is through a **website**.

The tikanga layer is the operational **kaitiaki roles relating to whānau validation, security access and permissions**.

The pātaka layer refers to the requirement that **all data collected be stored in Aotearoa**.

The digitised data layer refers to all the different types of data collected. It includes processes for **data classification, metadata tagging and provenance**.

Through wānanga, the potential for unintended harm to arise through the process of undertaking research involving whakapapa data was identified. The exploration of kinship relations is a sensitive topic, particularly where traumatic events have occurred. Determining what might be sensitive data and **caring for sensitive data** required a tikanga-led approach to manaaki both the digital taonga and the uri of those represented in the data.

In terms of access, sharing and use of any of the data in the pātaka, whānau thought the most meaningful way to think about how tikanga could guide this is the **tapu–noa continuum** below. Whakapapa data is considered tapu so only direct descendants should have access to data on their direct tūpuna; anyone in Ngāti Tiipa who is registered should be able to access information relating to whenua (maps, GIS) and rauemi (resources including photos, kōrero and waiata); and the Ngāti Tiipa homepage on the website should be visible to anyone (once it is available).

Tapu (closed)		Noa (open)
Specific whānau access	ALL Ngāti Tiipa access	Anyone online access
E.g., whakapapa	E.g., whenua, rauemi	E.g., Ngāti Tiipa homepage

Data privacy considerations for Ngāti Tiipa

When the Ngāti Tiipa layer cake technology approach was first developed, the primary focus was protecting the hapū data that was collected to reconstruct the hapū tūpuna population. Most of the data was historical in nature. As the research has engaged with whānau more widely about expanding the database to enable living uri to connect to their pre-1900 tūpuna, data privacy considerations have become more important, particularly to guard against unintended harm. Using the TiNT Māori Data Privacy Framework, we were able to undertake a deeper dive into the Ngāti Tiipa technology approach, with a specific privacy focus. The Framework is underpinned by four core tikanga concepts – Mana, Tapu, Mauri and Hau – each of which has been translated in the context of data privacy. We took each of the privacy considerations from the Framework and thought about how this might be interpreted and actioned in the Ngāti Tiipa technology approach.

Māori Data Privacy Framework	Framework description	Ngāti Tiipa technology considerations
<p>Mana Authority</p>	<p>To hold mana is to hold binding authority or power over one’s domain, including the digital domain. Mana is held by individuals and groups.</p> <ul style="list-style-type: none"> – Māori authority – interrogate and influence – balance individual with collective rights 	<p>Ngāti Tiipa Hapū Data Sovereignty Statement</p> <p>Drafted in 2022, this statement was developed to protect the taonga data (whakapapa and whenua data, kōrero tuku iho, photographs, waiata and maps) that had been collected and deposited in the Ngāti Tiipa digital pātaka, and some of which was published in a closed access book for whānau. The statement states that hapū and whānau data is a taonga and that taonga belong to the collective, not individuals. It is a declaration and assertion that where Ngāti Tiipa whakapapa data is collected, stored, accessed, shared and used, mana over that data rests with Ngāti Tiipa, irrespective of where that data is held.</p> <p>Application of the Ngāti Tiipa Hapū Data Sovereignty Statement shows up as a declaration in printed and digital forms and as a watermark used where whakapapa is provided in physical and digital settings. The watermark is taken from whakairo at Te Kumi Paa.</p> <p>It is a living statement where whanaungatanga, ethics and free prior informed consent (see also Tapu, Mauri and Hau) and the ongoing acts of keeping in good relations with ourselves are both a responsibility and an obligation.</p> <p>Empowering whānau authority</p> <p>Kaimahi and kaitiaki roles were developed to empower whānau to engage in and validate uri to their tūpuna direct descent lines. A semi-automated approach was developed initially as part of the registration process for access to the Ngāti Tiipa website and whakapapa database. For example, implementing the kaimahi role as a whānau admin in the website access settings is technically feasible, whereas validating uri and their connection</p>

		<p>to pre-1900 tūpuna may take longer and require further kōrero or whānau wānanga.</p>
<p>Tapu Protection</p>	<p>Tapu protects the sacredness of all life. In the context of data, tapu safeguards and upholds issues of data restrictions and sensitivity.</p> <ul style="list-style-type: none"> – de-identification – right to know/opt out – freedom from harm – data storage and security 	<p>The tapu–noa continuum</p> <p>This continuum was developed to guide levels of access, sharing and use of data on the Ngāti Tiipa website (once it is available). It recognises that taonga tuku iho and all whakapapa data, whenua data and korero tuku iho are interrelated and that care must be taken when dealing with all data (access and permissions) and particularly with sensitive data (privacy and security).</p> <p>We have used indexing, data classification and metadata tagging, including tagging the provenance of the data. Verification of these at the point of uploading data is done through the website admin console. It is a painstaking but necessary process to ensure each data type is afforded the appropriate protections.</p> <p>Caring for sensitive data</p> <p>A tikanga-led approach is used to manaaki sensitive data and its direct uri, particularly where there is potential for revelation of trauma, often through close-kin relationships.</p> <p>We use a whānau validation process to connect uri to their pre-1900 tūpuna at the time of registration.</p> <p>Affording privacy to pre-1900 tūpuna</p> <p>The default privacy setting in the genealogical software is that deceased people have no privacy.</p> <p>We propose to use a novel concept that gives three categories of a person in the whakapapa database: 1) deceased people who died a long time ago, 2) deceased people who are within a specified privacy window to restrict visibility to direct descendants, and 3) living people.</p> <p>We have also considered a range of access and security settings such as: 1) updating to the most recent versions of everything, especially webtrees but also the webserver, operating system, etc; 2) requiring CAPTCHA, two-factor or multi-factor authentication at login; 3) interrogating internal access procedures with IT partners (e.g., Can they see the data?); 4) understanding the protections for TLS server settings (e.g., Is there a cloud proxy that sits in front of the website, and hence sees all the traffic?); and 5) minimising 3rd-party services that require data stored on their servers (and therefore their partner platforms).</p> <p>The opportunity to use blockchain and other distributed data storage systems was considered initially, but we took the approach to store data on servers in a city in Aotearoa with back-</p>

		up and redundancy in another. The preference of Ngāti Tiipa is to use Māori data infrastructure and security systems where ever possible and we are encouraged by recent developments of Te Kāhui Raraunga and some iwi spearheading their data infrastructure imperatives.
Mauri Lifeforce	<p>Mauri is the force of all life. All forms of data possess mauri and require nurturing, care and respect in order to maintain its vitality.</p> <ul style="list-style-type: none"> – treat data as taonga – derived information – right to correct 	<p>Development of Ngāti Tiipa Privacy Statement and Privacy Policy</p> <p>This statement and policy let people who register or interact with the Ngāti Tiipa website know when or if we collect personal information and what we do with it. This includes: 1) what types of data are collected, for what purpose and for how long; 2) identification of a Privacy Officer equivalent with a contact email address, such as kaitiaki@ngatitiipa.maori.nz; and 3) how to update/correct/edit information and/or initiate hohou te rongo as a restorative approach in the instance of data issues or harm occurring (see Hau).</p>
Hau Reciprocity	<p>Hau is the vital essence of life that is shared by all living things. In digital worlds, hau symbolises a state of balance based on a moral code of reciprocity. Hau requires accountability and thus a commitment to data justice and equity.</p> <ul style="list-style-type: none"> – relations of respect – equity and justice – redress – consent 	<p>Whanaungatanga, ethics and free prior informed consent</p> <p>Hau encompasses ongoing acts of keeping in good relations with ourselves. There has been a conscious effort to seek ongoing agreement and consensus for the mahi through whanaungatanga – a form of ongoing consent – and more importantly, the notion of keeping in good relations with one another.</p> <p>Hohou te rongo</p> <p>Hohou te rongo is included as a mechanism and restorative approach in the Ngāti Tiipa Privacy Statement and Privacy Policy to restore mana of affected person(s) where data issues or data harms may arise. It sits alongside whanaungatanga and keeping in good relations with ourselves.</p>
Tapu and Mauri	<ul style="list-style-type: none"> – right to know/opt out/be digitally invisible – derived information 	<p>Digital considerations for Ngāti Tiipa Digital Pātaka aligned to both Tapu and Mauri</p> <p>Our approach is to: 1) be a fast follower of general data protection regulation (GDPR) planning in Aotearoa; 2) if cookies may be considered, apply multiple layers per GDPR (if this is the gold standard) to differentiate between necessary, functional, performance, machine learning, large language models, training, and data sharing arrangements; 3) where use of analytics and insight gathering may be considered, temper this with purpose and an understanding of who benefits; 4) use Tiipa’s image and digital assets with permission of the artist and as a watermark on the public-facing website; and 5) house whakapapa, kōrero tuku iho, waiata and other taonga that may be digitised on a hapori-facing website to minimise the implications of generative AI and</p>

		the unauthorised scraping of imagery, photos, music, waiata, etc.
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Conclusion

The opportunity to consider the Ngāti Tiipa layer cake technology approach against the Māori Data Privacy Framework has proven to be a valuable exercise. The pou tikanga of Mana, Tapu, Mauri and Hau of the Framework guided us and provided an inherently familiar way to think about data as taonga, in discrete but interconnected ways. It challenged us to think deeply about how we might empower and amplify whānau voice, interrogating the intention behind technology decisions, and to consider what additional data protections might be necessary. Ultimately it affirmed our underlying ethos, which is to use technology for good versus technology for technology's sake.

Tikanga in Technology

Supported by the Endeavour Fund (UOWX2003), Tikanga in Technology (TiNT) is a research programme that supports Indigenous approaches to transforming data ecosystems. The TiNT team collectively has expertise in Māori data sovereignty and governance, data privacy, cybersecurity, te Tiriti o Waitangi and mātauranga Māori. For more about our TiNT research theme, visit: <https://www.waikato.ac.nz/research/institutes-centres-entities/institutes/te-ngira/research/tikanga-in-technology/>

Glossary

ahi kā	continuous occupation
atua	influential ancestors, gods
hapū	sub-tribe or clan, usually containing a number of whānau and marae with a common ancestor or ancestors
hau	vital essence, cosmic breath
iwi	tribe
kāhui kaumatua	advisory group of elders
kaitiakitanga	guardianship
karakia	traditional ritual chant done to acknowledge atua Māori or the environment
kawa	immutable protocols, usually associated with the marae
kōrero tuku iho	oral traditions
mana	prestige, influence; spiritual power, supernatural force in a person, place or object
mātanga	experts
mātauranga	knowledge, wisdom, understanding, skill; education, Māori knowledge system
mauri	life force
mokopuna	grandchildren, future descendants
Papatūānkuku	Earth Mother
pātaka	storehouse, digital repository or archive OR storehouse raised upon posts, pantry, larder
purakau	historic narratives
Ranginui	Sky Father
tapu	sacred, restricted, set apart

taonga	those things and values that we treasure, both intangible and tangible; usually collectively held
tautoko	to support, prop up, verify, advocate, accept (an invitation), agree
tikanga	custom, rules for proper conduct
tino rangatiratanga	self-determination, sovereignty, autonomy
uri	offspring, descendant, relative, kin, progeny, blood connection, successor
waiata	song, chant, psalm
whakapapa	genealogy
whenua	land; placenta

Acknowledgements

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Cite

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