Indigenous Data Sovereignty

Indigenous Peoples have always been 'data warriors'. Our ancient traditions recorded and protected information and knowledge through art, carving, song, chants and other practises. Deliberate efforts to expunge these knowledge systems were part and parcel of colonisation, along with state-imposed practices of counting and classifying Indigenous populations. As a result, Indigenous Peoples often encounter severe data deficits when trying to access high quality, culturally relevant data to pursue their goals, but an abundance of data that reflects and serves government interests regarding Indigenous Peoples and their lands.

The concept of Indigenous data sovereignty (ID-SOV) is a relatively recent one, with the first major publication on the topic only appearing in 2016.[1] ID-SOV is defined as the right of Indigenous Peoples to own, control, access and possess data that derive from them, and which pertain to their members, knowledge systems, customs or territories.[2,3,4] ID-SOV is supported by Indigenous Peoples' inherent rights of self-determination and governance over their peoples, territories and resources as affirmed in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), as well as in domestic treaties. ID-SOV recognises that data is a strategic resource and provides a framework for the ethical use of data to advance collective Indigenous wellbeing and self-determination.[5,6] In practice ID-Sov means that Indigenous Peoples need to be the decision-makers around how data about them are used.

Given that most Indigenous data is not in the possession of Indigenous Peoples, Indigenous data governance (ID-GOV) is seen as a key lever for addressing ID-SOV. ID-GOV harnesses Indigenous Peoples' values, rights and interests to guide de-

cision-making about how their data are collected, accessed, stored, and used.[7] Enacting ID-GOV results in Indigenous control of Indigenous data through both internal Indigenous community data governance policies and practices and external stewardship of Indigenous data via mechanisms and frameworks that reflect Indigenous values.

Oñati workshop and launch of Global Indigenous Data Alliance

In July 2019 a workshop on international law, ID-SOV and the UNDRIP was held at the International Institute for the Sociology of Law, Oñati, Spain. The purpose was to provide a forum for ID-SOV scholars and practitioners to advance the legal principles of Indigenous collective and individual data rights in the context of UNDRIP. The workshop brought together participants from seven nation states and included representation from the Maiam nayri Wingara Collective (Australia); Te Mana Raraunga Maori Data Sovereignty Network (Aotearoa New Zealand); and the United States Indigenous Data Sovereignty Network. The Oñati communique[8] highlighted three key points:

- UNDRIP provides a necessary but insufficient foundation for the realisation of Indigenous rights and interests in data. Indigenous Peoples also require Indigenous-designed legal and regulatory approaches founded on ID-SOV principles.
- While national ID-SOV networks are best placed to respond to and progress data sovereignty for their peoples and communities, a global alliance is needed to advocate for and advance a shared vision for ID-SOV.
- The international focus on the protection of personal data and privacy rights is inadequate for Indigenous Peoples. There is an urgent need for the development and implementation of collective Indigenous privacy laws, regulations and standards.

A key outcome of the workshop was the formation of the Global Indig-

enous Data Alliance (GIDA). GIDA[9] aims to provide a visible, collective approach to progressing ID-SOV and ID-GOV internationally, including building strategic relationships with global bodies and mechanisms. The UN Special Rapporteur on the Rights of Privacy has recognised ID-SOV in key UN documents[10] and the UN Permanent Forum on Indigenous Issues has an enduring interest in Indigenous data disaggregation for self-determination and development. As a 'network of networks', GIDA is also well placed to share best practice with respect to ID-SOV and ID-GOV frameworks, tools and processes. GIDA is also the mandated steward for the CARE principles of Indigenous data governance, see below.

CARE principles for Indigenous data governance

A key concern for ID-SOV networks is the lack of protection afforded Indigenous Peoples within the Open Data and open science movements. The widely-used FAIR principles (Findable, Accessible, Interoperable, Reusable) are just one example of the increasing push for greater data sharing among researchers and entities.[11] The emphasis on increased data sharing creates a tension for Indigenous Peoples who want a greater say over how their data are protected, shared and used.

The CARE Principles for ID-GOV is a framework designed to operate alongside the FAIR Principles, and encourages data collectors and users to engage with Indigenous worldviews and ID-SOV perspectives when considering appropriate data use.[12] The four core principles comprising CARE are:

- *Collective benefit:* data ecosystems shall be designed and function in ways that enable Indigenous Peoples to derive benefit from data.
- *Authority to control:* Indigenous Peoples' rights and interests in Indigenous data must be recognised and their authority to control such data be empowered.
- *Responsibility:* Those working with Indigenous data have a responsibility to share how those data are used to support Indigenous Peoples' self-determination and collective benefit. Accountability requires meaningful and openly available evidence of these efforts

and the benefits accruing to Indigenous Peoples.

- *Ethics:* Indigenous Peoples' rights and wellbeing should be the primary concern at all stages of the data life cycle and across the data ecosystem.

As mainstream data communities advance standards and practices to facilitate data sharing and reuse, the CARE Principles serve to enhance that work to allow for Indigenous participation on their own terms. Implementation of the CARE Principles alongside the FAIR Principles by data producers, stewards and publishers must occur with the use of mechanisms that convey Indigenous control throughout data lifecycles and ecosystems. Such mechanisms comprise but are not limited to including origin information in metadata, using dynamic consent for reuse, and employing data science practices to enhance data protections while allowing for data sharing.

Indigenous data sovereignty and Open Data

On a global scale, ID-SOV scholars and practitioners have engaged with Open Data and open government communities through participation in the International Open Data Conferences in 2015, 2016, and 2018, as well as via discussions with the International Open Data Charter (ODC).[13] Open Data environments are sites of unease for Indigenous Peoples as opportunities for sustainable development and participation in the knowledge economy are hampered by ongoing experiences with settler-colonialism and historic power imbalances.[14] The ODC sets out six principles to guide how governments publish data: 1) open by default, 2) timely and comprehensive, 3) accessible and usable, 4) comparable and interoperable, 5) for improved governance and citizen engagement, and 6) for inclusive development and innovation. The ODC Implementation Working Group discussed operationalizing the CARE Principles in Open Data contexts, using the ODC as a guide. ODC Principles 2, 3, and 4 coincide with the FAIR Principles. Principles 5 and 6 are purpose driven, addressing the CARE Principle of 'Collective benefit'. ODC Principle 1 (open by default) sits in direct conflict with the CARE Principles of

'Authority to control,' 'Responsibility' and 'Ethics'.[15,16] As such, the CARE Principles provide an opportunity to inform the application of 'Open by Default,' raising awareness of the responsibility: to include Indigenous Peoples and other communities in Open Data decision-making; to access and apply Indigenous values and ethics to Open Data policies and practices; and to create mechanisms that protect the access and use of Indigenous Peoples' data.

2018 New Zealand Census

Issues relating to control, consent and the secondary use of Indigenous data came to a head in Aotearoa New Zealand with the botched 2018 Census of Population and Dwellings. The census is the flagship of the Official Statistics System (OSS), providing essential data for monitoring national and community wellbeing, and informing decisions about the resourcing of services and infrastructure. Despite a fraught history of state-controlled data collection which facilitated domination and exploitation, the Indigenous Māori people generally support and see value in the census, and there is a shared interest in ensuring that it is high quality.

Operational failures resulted in a very low response rate in 2018 - less than 70% from individual forms for Māori.[17] Stats NZ, the national statistics office, tried to backfill the missing data by drawing extensively on other government administrative data - a move that was publicly challenged by the Māori Data Sovereignty Network Te Mana Raraunga (TMR). In a series of public statements,[18] TMR questioned whether the agency had social and cultural licence to use alternative data without free, prior and informed consent, and called on the agency to be more transparent about the quality of Māori data from Census 2018. A report by an independent data quality panel also raised questions about Stats NZ's social and cultural licence to include other government data in the Census 2018 dataset.[19] The panel also flagged the importance of Māori data sovereignty and governance for future censuses and noted that the agency had not met its treaty obligations to Māori by failing to collect high quality tribal data.

Opportunities and challenges ahead

The rise of Big Data technologies heralds a period of unprecedented and accelerating change in data ecosystems, globally. These technologies, combined with a nation state led impetus for Open Data underpin new data practices such as administrative data linkage, data mining across multiple platforms and the incorporation of Artificial Intelligence (AI) into social programs. For Indigenous Peoples, this new data world provides previously unimagined opportunities to access our data as a cultural and economic resource. For example, the huge cache of Indigenous-related administrative data could potentially instigate a new era of Indigenous policy development and delivery, and AI is being used to tell stories on country and in language revitalisation activities.[20,21]

This rapidly evolving space also poses new challenges. The legacy of traditional data ecosystems translates to a Big Data infrastructure that neither recognises Indigenous worldviews nor considers Indigenous data needs. Domestic regulatory frameworks focus on individual privacy, with little regard of collective rights or privacy. For example, a discussion paper on upcoming legislation for Australian Government Departments to release and share data did not include any reference to Indigenous data.[22] This absence was remedied via submissions from the Maiam nayri Wingara Collective, but the exclusion of Indigenous considerations in this new data space highlights the challenge. While the Report of the UN Special Rapporteur on the Rights of Privacy includes ID-SOV related recommendations these remain non-binding on nation states.

There is also a growing awareness of the harm that can arise from the careless use of Big Data and algorithmic processes, particularly for groups that are racialised and over-surveilled. The marginalised social, cultural and political location of Indigenous Peoples means that we are over-represented in datasets relating to disadvantage. Resultant analysis, regardless of the data power of the technologies utilised, will likely just reinforce rather than challenge the trope of 5 D (disparity, difference, disadvantage, dysfunction, difference) Indigenous data narratives.[23]

Finally, in the context of climate change and environmental justice, there is a risk that collective Indigenous knowledge and traditions re-

lating to the environment will be exploited or inappropriately used. In Australia, for example, the recent catastrophic bushfires have belatedly bought to the fore an interest by government entities and others[24] in Aboriginal cool fire burning. Practiced across Australia, traditional cool fire burning involved the deliberate firing of the forest understorey during the cooler months, in a mosaic pattern that would ensure different parts of the forest were burnt each year. These fires burned at a much lower intensity than wildfires, keeping the tree canopy protected. The purpose was to manage the landscape, keep trails and grasslands open and reduce the impact of the expected hot season wildfires through the reduction in ground level fuel load.[25] However, in modern day Australia, where towns have been built in places Aboriginal and Torres Strait Islander peoples knew to vacate during fire season, such practices cannot just be picked up as a panacea to mitigate the increased risk of fires due to climate change. Data needs to be sought and collected on these practices from Indigenous knowledge holders. More importantly, this process must be Indigenous led and Indigenous controlled to reduce the risk that these practices will be digitally captured and then applied without the deep knowledge that underpins them - with predictable poor results.

ID-GOV can mediate some of these risks and provide pathways to collective benefits. Within this, building Indigenous data capacity and capability is an essential element of enacting ID-GOV and the associated requisite Indigenous cultural and social licence for Big Data and Open Data access to Indigenous data. Indigenous Data Sovereignty Networks, globally, are involved in this work. In Australia, the Mayi Kuwayu Study examining Aboriginal and Torres Strait Islander wellbeing includes in its methodology, working directly with communities to increase Indigenous data literacy.[26] In the United States, the Native Nations Institute provides hands on courses on ID-SOV and ID-GOV for Native researchers and tribal leadership.[27]

Notes and references

1.   Kukutai, Tahu, and John Taylor. *Indigenous data sovereignty: Toward an agenda.* Canberra: ANU Press, 2016.
2.   First Nations Information Governance Centre. "Pathways to First Nations' data and information sovereignty." In *Indigenous data sovereignty: Toward an*

agenda, edited by Tahu Kukutai & John Taylor, 139-55. Canberra: ANU Press, 2016.

3. Kukutai and Taylor, Op Cit.

4. Snipp, Matthew. "What does data sovereignty imply?: what does it look like." In *Indigenous data sovereignty: Toward an agenda*, edited by Tahu Kukutai & John Taylor, 39-55. Canberra: ANU Press, 2016.

5. First Nations Information Governance Centre, Op Cit.

6. Hudson, Maui, and others. "Tribal data sovereignty: Whakatōhea rights and interests." In *Indigenous data sovereignty: Toward an agenda*, edited by Tahu Kukutai & John Taylor, 157-78. Canberra: ANU Press, 2016.

7. Walter, Maggie, and others. Indigenous Data Sovereignty Briefing Paper 1. Miaim nayri Wingara Data Sovereignty Group and the Australian Indigenous Governance Institute, 2018. We acknowledge the pioneering contribution of John Taylor.

8. Available at: https://static1.squarespace.com/ static/5d3799de845604000199cd24/t/5d79c41de03d890d924243 8d/1568261149610/Onati+Communique+2019.pdf

9. GIDA. 2020. "Who We Are — Global Indigenous Data Alliance". Global Indigenous Data Alliance. https://www.gida-global.org/whoweare

10. UN Special Rapporteur on the right to privacy. Big Data Open Data Taskforce Report (A/73/45712); UN Special Rapporteur on the right to privacy. Accessed at: https://www.ohchr.org/Documents/Issues/Privacy/SR_Privacy/A_73_45712. docx Draft Recommendation on the Protection and Use of Health-Related Data. Accessed at: https://www.ohchr.org/Documents/Issues/Privacy/SR_Privacy/ DraftRecommendationProtectionUseHealthRelatedData.pdf

11. Wilkinson, Mark D., and others. "The FAIR Guiding Principles for scientific data management and stewardship." Sci. Data 3:160018, 2016. doi: 10.1038/ sdata.2016.18

12. Research Data Alliance International Indigenous Data Sovereignty Interest Group. (September 2019). "CARE Principles for Indigenous Data Governance." The Global Indigenous Data Alliance. GIDA-global.org.

13. "The International Open Data Charter". 2013. *International Open Data Charter*. https://opendatacharter.net/

14. Rainie, Stephanie Carroll, and others. "Issues in Open Data: Indigenous Data Sovereignty," in *The state of Open Data: Histories and horizons*, edited by T. Davies, S. Walker, M. Rubinstein & F. Perini , 300-19. Cape Town and Ottawa: African Minds and International Development Research Centre, 2019.

15. *Ibidem*

16. Stone, Paul and Ania Calderon. 2019. "[Spotlight] CARE Principles Unpacking Indigenous Data Governance: Unpacking Indigenous Data Governance". Blog. *Medium: Open Data Charter.* https://medium.com/@opendatacharter/spotlight-care-principles-f475ec2bf6ec

17. Stats NZ. 2018 Census: Interim coverage rates, collection response rates, and data sources. Wellington: Stats NZ, 2019.

18. "News & Updates — Te Mana Raraunga". 2019. *Te Mana Raraunga*. https://www. temanararaunga.maori.nz/nga-panui

19. 2018 Census External Data Quality Panel. *Initial report of the 2018 Census External Data Quality Panel.* Wellington: Stats NZ, 2019.

20. Powell, Dominic. "How Mikaela Jade built augmented reality startup Indigital from deep in Kakadu National Park," *SmartCompany*, March 12, 2018.

21. Collins, Mikaela. "Te Hiku Media project teaching, machines to speak te reo Maori," *New Zealand Herald*, February 14, 2018.

22.   Department of Prime Minister and Cabinet. *New Australian Government data sharing and release legislation: Issues paper for consultation.* 2018

23.   Walter, Maggie. ''Data Politics and Indigenous representation in Australian statistics.'' In *Indigenous data sovereignty: Toward an agenda*, edited by Tahu Kukutai & John Taylor, 79-97. Canberra: ANU Press, 2016.

24.   Allem, Lorena. Right fire for right future: how cultural burning can protect Australia from catastrophic blazes, *The Guardian*, 19 Jan. 2020.

25.   Aboriginal Heritage Tasmania. Aboriginal Cultural Burning https://www.aboriginalheritage.tas.gov.au/cultural-heritage/aboriginal-cultural-burning

26.   Mayi Kuwayu National Study of Aboriginal and Torres Strait Islander Well-being https://mkstudy.com.au/ <accessed 19 December 2019>

27.   Native Nations Institute - Indigenous Governance Program https://igp.arizona.edu/events/46-indigenous-data-sovereignty <accessed 19 December 2019>

Tahu Kukutai *(Ngāti Tiipa, Ngāti Kinohaku, Te Aupōuri) is a Professor at the University of Waikato, Aotearoa New Zealand and a co-founder of the Māori data sovereignty network, Te Mana Raraunga.*

Stephanie Russo Carroll *(Ahtna-Native Village of Kluti-Kaah) is an Assistant Professor at the University of Arizona, USA, and a co-founder of the United States Indigenous Data Sovereignty Network.*

Maggie Walter *(palawa) is a Distinguished Professor at the University of Tasmania, Australia, and a co-founder of the Australian Maiam nayri Wingara Indigenous Data Sovereignty Collective.*