1 Indigenous Data Sovereignty, governance and the link to Indigenous policy

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Introduction

Across Anglo-colonized nation states, official policy, and the administratively devised strategic actions and programs that flow from that policy, are the predominant ways governments engage with their internal Indigenous Peoples, nations and populations. In the United States, Aotearoa New Zealand, Canada and Australia (referred to as CANZUS countries) (Meyer 2012), without exception, the central feature of this policy is its focus on Indigenous disadvantage and developmental disparity. The vision statements of each country's key Indigenous policy entity highlight this similarity. In the United States, the US Department of the Interior, Indian Affairs (2019) states their mission as: "enhance the quality of life, to promote economic opportunity, and to carry out the responsibility to protect and improve the trust assets of American Indians, Indian tribes, and Alaska Natives". In Australia, the National Indigenous Australians Agency's (2019) Closing the Gap policy framework across health, education and employment targets lists its primary aim as "to improve the lives of Aboriginal and Torres Strait Islander Australians". Indigenous Services Canada proclaim that their vision is "to support and empower Indigenous Peoples to independently deliver services and address the socio-economic conditions in their communities" (Government of Canada 2019) and in Aotearoa New Zealand Te Puni Kōkiri Ministry of Māori Development (2019) states its mission is to "lead public policy for Māori; advise on Government-Māori relationships; provide guidance to government about policies affecting Māori wellbeing; and administer and monitor legislation". All policy frameworks also state, to varying degrees, that they undertake their policy role in collaboration with, and in the interests of, Indigenous Peoples. In practice, these policies lack the actual integration of Indigenous worldviews.

All agencies also reference data as an evidence base for Indigenous policy. These data also display an uncanny sameness. All provide a remarkably similar statistical narrative of Indigenous overrepresentation across the same development indicators of socio-economic, health, education and social disadvantage. Incarceration rate data provide a good example of this phenomenon. In both Canada and Australia, official statistics report that Indigenous People make up a quarter or more of the prison population, despite being less than four percent of

the total population of each country (Chartrand 2018). In Aotearoa New Zealand, the data detail that half of those incarcerated are Māori although the Māori population count is around 17 percent of the total Aotearoa population (Department of Corrections 2019). In the United States, the data are disjointed due to the relatively dispersed nature of the criminal justice system, but the pattern is still clear. In Alaska, where 15 percent of the population is Native, 37 percent of the prison population is Alaskan Native or Native American. In South and North Dakota, around 30 percent of those incarcerated are Native American, but the Native population of these states is less than 10 percent of the total ("Native America: A History" 2018).

These numbers and the many other statistics detailing Indigenous societal positioning are not disputed. We know their reality too well. But accepting numerical reality is not the same as accepting the validity of the picture they represent or the policy settings that invariably emerge from these statistics. These pervasive data are not neutral entities. Statistics are human artifacts and in colonizing nation states such numbers applied to Indigenous Peoples have a raced reality (Walter 2010; Walter and Anderson 2013). Their reality emerges not from the mathematically supported analytical techniques they allow but via the social, racial and cultural standpoint of their creators. Data do not make themselves. Data are created and shaped by the assumptive determinations of their makers to collect some data and not others, to interrogate some objects over others and to investigate some variable relationships over others. As per Zuberi and Bonilla-Silva (2008), it is dominant society questions that are hidden behind the cover of claims of objective methodology. Within this, the Indigene remains the object, caught in a numbered bind, viewed through the straitjacketing lens of deficit (Walter and Anderson 2013).

For Indigenous Peoples, the statistics and data themselves per se, are not the problem. From a policy perspective, the far more critical question is how are such numbers deployed and what and whose purposes do they, and their attendant narratives, serve (Walter 2016, 2018)? Our basic contention, here and throughout this book, is that they do not serve our purposes or interests as Indigenous Peoples. With their limited scope, aggregate format, deficit focus and decontextualized framework, this joint data/policy narrative cannot, and does not, yield meaningful portraits of the embodied realities of Indigenous lives (Walter and Suina 2018). As such the social policy framework cannot and does not provide the policy outcomes that Indigenous Peoples across these countries need. Nor does it provide the data that we, as Indigenous Peoples, nations and tribes, need to develop and implement our own policy. The result is a historic and contemporaneous failure of Indigenous-related policy, across fields of policy and across CANZUS countries.

This chapter expands on this central thesis as well as the Indigenous response to nation state data/policy intransigence; Indigenous Data Sovereignty. At its core, Indigenous Data Sovereignty affirms the rights of Indigenous Peoples to control the collection, access, analysis, interpretation, management, dissemination and reuse of Indigenous data (Kukutai and Taylor 2016; Snipp 2016). Indigenous data, born digital or not, is a very broad category, including information, knowledge,

specimens, and belongings about Indigenous Peoples or to that which they relate at both the individual and collective levels (Rainie et al. 2019; Lovett et al. 2019). Here, we explore Indigenous Data Sovereignty as a global advocacy movement for Indigenous Peoples and as a growing field of Indigenous scholarship alongside the concept's underpinning policy-related rationales. We also outline the processes of Indigenous data governance, an activating mechanism of Indigenous Data Sovereignty, as a policy response.

Indigenous social policy: a history of failure

In 1858, public concern about destitute Aboriginal people occupying town fringes prompted the New South Wales Colony to hold an inquiry into the welfare of the Natives (Colony of Victoria 1859). The resultant report details the level of intense poverty and unmet need of these survivors of frontier wars, forcibly dislocated from their lands. In 2016, the Australian Productivity Commission, motivated by ongoing concern about Aboriginal inequality, released its seventh biennial report, *Overcoming Indigenous Disadvantage* (SCRGSP 2016). This report series' stated aim is to measure the well-being of Aboriginal and Torres Strait Islander Australians. Again, the data present a picture of deep, unremitting social, economic and health disadvantage, with little or no improvement record from that detailed in earlier reports. Apart from the modernizing of language, these two reports are remarkably similar.

Comparing these two reports highlights that the measuring and recording of Indigenous disadvantage is a long-established bureaucratic response. The resemblance of official documentation in 1858 to that in 2016, and the similarity of the data reproduced, also makes clear that between the first and second inquiries, the "welfare of the Native" is largely unchanged. Despite the more than 150 years of social policy enacted upon Aboriginal and Torres Strait Islander Peoples, as the data indicate, we remain the poorest, sickest, and least educated and employed group in Australia. This Australian example is repeated in other guises across the CANZUS countries. Inquiries such as the 1996 Canadian Royal Commission into Aboriginal Peoples (Government of Canada 2016) or the 1928 Meriam Report from the United States (NARF 2019) all document through data, in great detail, the level and depth of Indigenous disadvantage and the lack of change. To discuss the history of Indigenous policy in Australia, Aotearoa New Zealand, Canada and the United States, therefore, is to discuss the history of an unrelenting repetition of policy failure.

Critiques of poor Indigenous policy outcomes tend to coalesce around two competing positions, both centering Indigenous Peoples. The first emphasizes the lack of connection between the objects of policy (Indigenous People and communities) and policy makers (primarily drawn from the non-Indigenous majority) in terms of interaction, understanding and a corresponding lack of policy self-determination (see Taylor and Hunter 2001). From this position, policy is seen as being imposed on Indigenous Peoples from well-meaning but inadequately equipped policy makers. The remedy is linked to greater Indigenous participation in policy

framing and formulation. The other position is developed through the lens of market individualism and points to the perceived failure of individual Indigenous People to take advantage of the opportunities, especially those mandated in policy programs, afforded them by the nation state (see Price 2019). In this positioning, the cause of inequitable Indigenous social and economic positioning is the poor behavior and choices of Indigenous People themselves. The solution is framed in terms of Indigenous People taking greater personal responsibility.

Seeing Indigenous Peoples like a state

Our argument is that neither the lack of self-determination nor poor individual behavior is an adequate explanation for continuing Indigenous policy failure across nation states. Rather, we point to the cross-national patterns inherent in the consistency of the data produced and reproduced, the consistency of policy approaches and the consistency of the failure of that policy. All four nation states, for example, had policies active during the 20th century that sought to assimilate Indigenous populations via the removal of children from their families. The disastrous outcome of these policies has now been laid bare by the Royal Commissions and other formal enquiries held to uncover the harms done (see NTRC 2015; Commonwealth of Australia 1997). Yet, today, in all four nation states, Indigenous children are still far more likely to be removed from their families and placed in state care than non-Indigenous children. In Australia, Aboriginal children are ten times more likely than non-Aboriginal children to be placed in out-of-home care (Dickie 2019); in the United States, the rate is lower but American Indian and Alaskan Native children are 1.6 times more likely to be removed from their biological homes and twice as likely to remain in foster care for over two years (Fostering Together 2019); and in Aotearoa New Zealand, Māori children make up 59 percent of all children in care, more than double their proportion of the population (RNZ 2019). There is little to indicate that the current removal of Indigenous children from their families will not, one day, be also recognized as the policy disaster that it is, just like the forced assimilation programs of the past.

So, given the cross-nation pattern of policy approaches and policy failures, seemingly on repeat, can the long history of poor Indigenous policy outcomes be viewed as inevitable? Here we draw from Scott's (1998) thesis, *Seeing like a State*, to conceptualize the terrain of Indigenous policy. This theory has had scholarly resonance in making sense of how state-preferred modes of organizing and managing Indigenous sub-populations are implicated in Indigenous policy failure (Andersen 2014; Walter and Andersen 2013). Scott's (1998) core argument is that four elements are needed, in combination, to create a social policy disaster of truly epic proportions. The first element is the deployment of a system of administrative ordering necessary for modern nation states to make a society legible. An example is a national census whose purpose is not only to enumerate but to describe a population across criteria deemed important for understanding that population, such as age, gender and employment status. Scott (1998) emphasizes that this is not a straightforward exercise. The state needs to undertake

transformative simplifications whereby "exceptionally complex, illegible and local social practices" (1998: 2) are standardized to allow central recording and monitoring. The result is radically simplified understandings of social (we would add cultural) environments. Critically, for our arguments, the state's rationalizing and standardizing does not actually represent the reality of the society that is being depicted. Only the slice of that society that is of interest to the state is represented in the final product.

For Indigenous Peoples, the slice of our social and cultural realities represented in data collected about us is limited to those aspects of interest to the nation state. Transformed and recorded into state-defined terms and categories, the outcomes are the data which are the primary tool by which the nation state makes sense of its Indigenous population/s. These data, again in a commonality across CANZUS countries, play a much deeper role than being counts of Indigenous populations or neutral reflectors of Indigenous lives (Walter and Andersen 2013). Rather, these data drive a particular narrative of Indigenous Peoples, creating an underpinning framework of how Indigenous Peoples are recognized by the state (Andersen 2014). As argued later, and across many of the chapters of this book, the areas of interest of the national state in Indigenous Peoples do not, for the most part, align with the reality of Indigenous lives. Nor, in answer to our earlier question, do the narratives they construct serve Indigenous social and cultural interests or purposes.

The second element is what Scott (1998) calls a high-modernist ideology. This term translates to a self-confidence about scientific and technical progress associated with a presumed rational design for social order. In earlier times assimilationist policies were the prime example via their motivating presumption that Indigenous Peoples needed to be brought into the modern world. As a result, many Indigenous children were forcibly removed from their families, traditional lands and culture. But similar high-modernist ideology can be detected in the relatively uncritical embrace of Big Data technologies and privileging of Open Data policies required for these technologies now sweeping Western nations, including the CANZUS countries. It is also possible to identify the risks of policy failure in the translation of these technologies into social programs, again intrinsically linked to how the data are deployed. For example, tools such as predictive risk modeling (PRM) are beginning to be used in a wide variety of frontline services. Their use is largely motivated by a desire to reduce costs through targeting those most "at risk" (Keddell 2014). Yet there is growing evidence that racial biases find their way into algorithms. Cossins (2018) cites five examples from the United States, where the specific logics of artificial intelligence had resulted in prejudicial outcomes. Indigenous Peoples, overrepresented in datasets of disadvantage, are also likely to be overrepresented in those identified "at risk", and the consequential social intervention or formal surveillance. PRM does not even have to include an Indigenous identifier for Indigenous Peoples to be subject to disproportionate impacts of algorithm-informed decision-making (Kukutai and Walter in press). A study using PRM to predict child maltreatment in Aotearoa New Zealand excluded ethnicity. However, Māori children were still far more likely

to be featured in the model outcomes because they, as all Indigenous children in CANZUS countries, are much more likely to live in poorer, heavily disadvantaged areas with relatively few services (Vaithianathan et al. 2013; Kukutai and Walter in press). A more recent example that links back to our earlier discussions of incarceration is the use of the Roc*Roi algorithm to assign risk scores of recidivism (Stats NZ 2018). The 30 personal variables used do not include ethnicity, but there are so many data points, which are strongly correlated with Māori ethnicity, that ethnicity is superfluous.

The third element identified by Scott (1998: 5) is an authoritarian state, willing and capable of using the full weight of its coercive power to bring these high-modernist designs into being. This addition of state power is what turns the bureaucratic rationalization of Indigenous populations (Indigenous data) into disciplining social policy. The plethora of deficit-framed Indigenous data informs the policy mind, to understand the Indigenous population as in need of remaking, via coercive means as necessary, into idealized, good Indigenous citizens (Moreton-Robinson 2009). While some might argue that the power of CANZUS countries is limited by democratic structures and citizens' rights, access to such rights is, and always has been, limited for Indigenous Peoples. Whether it be the violent breakup of the protests by Native American people at Standing Rock fearing the contamination of their water supply by oil from the North Dakota pipeline (Skalicky and Davies 2016) or the forced imposition on Aboriginal communities of "welfare quarantining" whereby recipients' payments are restricted to "state approved" purchases (Davey 2017), the use of coercion by state is woven into the practices of state/Indigenous interactions.

Scott's fourth element is a society that lacks the capacity to resist the machinations and policy imposition of the state. Again, a dramatic imbalance of power is the hallmark of the past and present relations between Indigenous Peoples and the non-Indigenous majority (Tuhiwai-Smith 1999). Indeed Scott (1998: 97) himself noted that Colonial regimes are particularly prone to social policy experimentation on Indigenous populations noting that "[A]n ideology of 'welfare colonialism' combined with the authoritarian power inherent in colonial rule have encouraged ambitious schemes to remake native societies".

Indigenous policy, fracasomania and data

The specific and limited slice of Indigenous life of interest to the state is heavily implicated in the how and why Indigenous policy continues to go dangerously awry. These data are the support system of the long history of failed policy schemes that attempt to "remake native societies". So deeply entrenched is this history that there is a generalized acceptance, by both policy makers and those subject to those policies, Indigenous Peoples, that Indigenous policy and policy failure are synonymous. Indigenous policy, across the CANZUS countries, is caught in a "complex of failure" or in the term coined by Hirschman (1963) using the Spanish translation, fracasomania. Indigenous policy is situated within a bureaucratic mindset which has made a comfortable adjustment to policy failure.

Hirschman (1963, 1975), drawing on his economic policy work in 1950s Colombia, was struck by a prevailing "categorical disappointment" of his fellow policy makers with previous endeavors. He theorized that this policy mindset, while dysfunctional in terms of policy outcomes, was also functional in that it allowed the "problem" to be addressed and readdressed continually. Policy failure might follow policy failure but policy makers took comfort in that at least action was being taken. Thus, the policy actors, usually from outside the community for which the policy is developed (in Hirschman's Colombia it was the World Bank), are driven by "a compulsive desire" to solve problems as rapidly as possible and tended to swing across policy measures. The assumed superiority of external expertise was unquestioned by either the outside policy makers or its Colombian recipients. To paraphrase Hirschman, such policies were prompted more by motivation than understanding, leading to imperiousness in their imposition. Imperiousness led to a failure to build the cumulative knowledge that would allow them to develop policies that truly understood the realities of the community to which they are being applied. Thus, despite a constancy of policy re-starts, the pervasive expectation of low performance led to little belief that any "new" policy approaches would actually succeed. Failure expectation was so ingrained that the prospect of further policy failure became easier for policy makers to manage than imagining, or preparing for, policy success.

Even a relatively simplistic analysis of the characteristics of the litany of Indigenous policy failure displays all four signs of Hirschman's (1963) complex of failure, fracasomania. First, Indigenous policy development was, and continues to be, largely devised and implemented by "outsiders" from the community of policy interest. It is these non-Indigenous outsiders, the most being from the dominant Euro-majority, who both diagnose the Indigenous problem and formulate the appropriate Indigenous-focused policy solutions. Hirschman's second sign of fracasomania, a failure to build cumulative knowledge on the policy topic, is linked to Indigenous policy's external genesis. An Australian example demonstrates both factors. As in other CANZUS countries, Aboriginal and Torres Strait Islander children record significantly lower school attendance rates than non-Indigenous children (82% to 93% in 2018). This is a long-standing issue. In 2014, a target to close the school attendance gap was added to the Government's signature Closing the Gap Indigenous policy framework (DPMC 2019). Policy implementation involved deploying a bevy of School Attendance Officers in Aboriginal communities across five states and territories. Known colloquially as "truancy officers" and referred to as such in the media (Stewart 2014), this terminology exposes the policy and public presumptions: that low school attendance is related to the poor individual choices of Indigenous children and families to skip school. Therefore, despite numerous reports indicating that low school attendance is multi-faceted, linked to diverse causes such as poorly performing teachers, poor relationships between schools and Indigenous families and a lack of services to address the many issues plaguing Indigenous children (Grindlay 2017), applying disciplinary policies to pressure on families and communities was the primary policy response.

A third sign of fracasomania is observed in the political response to policy failure, a rapid swing to new policy measures without evaluation of previous policy failure. Again, this element can be found in the school attendance policy implementation. Initially lauded as a success (Stewart 2014), such claims quickly died away as attendance rates for Aboriginal students did not improve in the following five years (2014–2018) (DPMC 2019). Responding to negative media reports, those with carriage for the policy pointed to an upcoming review of Indigenous policy. This renewal, they argued, would provide government agencies with a fresh opportunity to "redouble our efforts" to improve the lives of First Australians, including achieving better education outcomes (cited in Grindlay 2017).

Here also we observe the fourth sign of fracasomania; a broad-spectrum ennui as each successive failure of Indigenous policy is revealed. Over ten annual reports (2009–2018) to parliament of progress on Closing the Gap targets (which included improving school attendance rates), little or no surprise was expressed at the consistent lack of progress on the targets by the politicians making the report, by the media, or indeed by Aboriginal people living the results of the ongoing lack of improvement in life circumstances. Nor were there mea culpas from the responsible policy agencies. Rather, there was a ritual stating of the obvious, that the policy had failed, followed by the regular exhortation that we (politicians and policy makers) have to "do better", largely without any real expectation, by anybody, that the next round of Indigenous policy will actually do better. Within this performance there is an unstated, but largely accepted, premise that Indigenous policy problems are unsolvable because Indigenous Peoples are too problematic; an assumption supported by the existing Indigenous data of disadvantage. Ergo, no blame for policy failure can be apportioned to policy makers. Failure is normalized and continued failure is both expected and expected to be without repercussions (for policy makers).

Seeing Indigenous People like a state: emphasizing/disguising our difference

Public policy is the core business of the state. As such, policy making needs to be understood as much more than a strategic objective and recognized as long-established bureaucratic endeavor both served and shaped by an interlocking infrastructure (Andersen 2014, Walter and Andersen 2013). How the state "sees" its Indigenous population/s, in turn, serves and shapes the policy infrastructure with Indigenous data, the lens by which Indigenous Peoples are made visible. These data define who and what Indigenous Peoples are and who and what we are not. Indigenous data delineate what is seen and as importantly, what is not seen. Thus, both the overabundance of data depicting Indigenous difference and disadvantage, and the absence of Indigenous data that is not related to development measures are problematic. As per Scott, data's definitional role is shaped by its representation of Indigenous subjective realities, simplified and rationalized to reflect the interests of the state.

The interests of the state in relation to its Indigenous populations are, and always have been, deeply political. The interlocking infrastructure serving these interests are reflected in the Indigenous data/policy nexus. This nexus operates whereby data simultaneously emphasize and disguise Indigenous difference, as required. We argue that this variable positioning serves the purpose of perpetuating and buttressing the state's dominant national narratives. This is not to claim that nation state Indigenous data practice is always or even primarily deliberately nefarious in intent. The belief in the need for policies that "advance" Indigenous Peoples, as per Scott's high-modernist ideology, is often as genuine as it is mistaken. The policy environment operates in a complex of failure, resigned but dutiful in the efforts to "help" the sad plight of the Indigene. But it has lived reality consequences for Indigenous Peoples.

In CANZUS countries, emphasizing Indigenous difference from majority populations locates Indigenous Peoples within the national narrative as a deficit and problematic sub-population. This positioning has several roles. Most critically it acts as a foil to the historical foundations of the nation state; Indigenous dispossession and oppression. As King (2012) states, referring to Native American Peoples, Indigenous Peoples are deeply inconvenient, casting a pall over the nation state's legitimacy. Our continued existence is an existential threat to deeply held illusions that the lands from whom the non-Indigenous majority draw their wealth and identity are not the same lands taken and still kept by force from their Indigenous owners. Thus, situating the Indigene as "in need" repositions the state, not as the direct descendent of colonialism, and the inheritor of its spoils, but as the beneficent helper of those who cannot, despite the best efforts of the state, help themselves. A secondary benefit is that addressing Indigenous need is hegemonically positioned as what Indigenous nations and tribes must prioritize, rather than rights or political issues.

In this narrative, it is necessary for Indigenous Peoples, as a population, to be easily observable as pejoratively different from the Euro-majority. The "in need" aspect of discourse is served by a data infrastructure constructed around developmentally derived categories. The data outcome is what Walter (2016, 2018) describes as 5D data, a set of items related almost exclusively to measuring Indigenous difference, disparity, disadvantage, dysfunction and deprivation. Evidence to support this assertion is easily found via a Google search for statistics relating to Indigenous Peoples in any CANZUS country: Native American, Aboriginal and Torres Strait Islander, Māori, Native Hawaiian, First Nations or Alaska Native. No matter the peoples named, the result is the same; a list of 5D items such as poor health, high mortality, low educational outcomes, low school attendance and high incarceration. The portrayal is completed by simplistic presentations where the deficient Indigenous population is compared, in frequency tables or bar charts, to the normed non-Indigenous majority (Walter 2005, 2018; Kukutai and Walter 2016). Nationally, aggregate data reinforce the whole population story, discursively locating the demonstrated deficit as a population trait.

Seeing like a First Nation: Indigenous Data Sovereignty and data for governance

How do we halt the cycle of ongoing policy disasters fueled by how the state sees Indigenous Peoples in the data? How do we get the state and its policy infrastructure to see us differently? The key, as detailed later in this chapter and throughout this book, is Indigenous Data Sovereignty. Indigenous Data Sovereignty is operationalized via Indigenous data governance, which harnesses Indigenous decision-making across data lifecycles and ecosystems to assert Indigenous rights and interests (Smith 2016; Walter and Suina 2018). A central right is governance of the data generated by state infrastructure; changing the narrative of who we are to halt the endless cycle of fracasomania-driven policy. Such change at the state level will never come about through goodwill or good intentions. The national narratives of CANZUS countries have too much invested in keeping Indigenous Peoples visible only through the narrow lens of deficit data. To see us on our terms is not only not of interest to the state, it is important for the state to not be able to see us in other ways. To do so would allow other explanations of 5D data to come to the fore; those that include overt and covert systemic discrimination, intergenerational trauma and ongoing dispossession. To do so would make visible the primary attribute that Indigenous Peoples in CANZUS countries, internationally and intra-nationally, share: Anglo colonization.

Indigenous Peoples require not just governance of existing data, but access and control of data for governance (Smith 2016). Emphasizing our 5D data difference disguises our difference in areas unrelated to state-determined development goals. Indigenous populations in CANZUS countries are made up of multiple First Nations and the terms used to describe us; Aboriginal, Torres Strait Islander, Indian, Māori, Native Hawaiian, or even Indigenous, are not what we call ourselves. Rather, these terms were coined as a way of categorizing us in terms "seeable" by the colonizing state. Amalgamating us into a single amorphous sub-population renders invisible our substantial and meaningful distinctiveness across country, traditional and contemporary culture and knowledges, ways of life, urbanity and the varying impact of colonization and dispossession on our peoples, now and then.

For Indigenous Peoples, this currently unseen and mostly non-existent data reflecting our lived realities and our innate differences is a critical resource (Lovett 2016). First Nations, tribes, Iwi or community groups require what is currently excluded; disaggregated, contextualized data that represent Indigenous lifeworlds and Indigenous priorities (Walter and Andersen 2013; Walter 2016). The nation state is not delivering, so we must create or demand the data we need. Indigenous Peoples have always engaged with data and knowledge, holding and using such information to care for and support collective rights and interests. Also, like other nation states, First Nations governments and leadership structures need data to carry out the multitude of tasks that comprise governance (Cornell et al. 2004). Key among these tasks is making decisions about one's citizens, communities, and resources; in essence, devising and enacting policy. Indigenous governments,

in whatever format, also need ways to honor, protect and control their data both internally and externally via Indigenous data governance. Rebuilding governance institutions increases Indigenous nation's capability to govern their own data thereby providing stronger evidence-based decision-making. Through this lens, Indigenous data governance depicts a reciprocal relationship between data for governance and governance of data (Carroll et al. 2019).

At the core of Indigenous data governance is Indigenous leadership. Indigenous-led and controlled decision-making ensures that Indigenous values, priorities, cultures and ways of knowing cohere in Indigenous data, making such data relevant, contextualized and aligned with the aspirations of Indigenous Peoples (Walter and Suina 2018; Rainie et al. 2019). Alongside Indigenous leadership, two key facets are required, in concert, to enact Indigenous data governance. The first is a matter of quality, relevance and access. The essential question here is: can First Nations obtain the data they need for governance? The second is a matter of ownership and control. Here, the essential question is can First Nations manage, protect and use that data? First Nations sovereignty sits at the center of this relationship between data for governance and governance of data (Carroll et al. 2019).

In colonial settler states where power dynamics are heavily stacked against Indigenous Peoples and are often a direct threat to sovereignty, how does Indigenous data governance begin to unwind the deep-seated policy failures? What are the challenges for Indigenous Data Sovereignty? Given the stark power asymmetries between nation states, researchers, other mainstream institutions and Indigenous Peoples, how do we prevent Indigenous Data Sovereignty from being co-opted and selectively appropriated into "policy" that may have unintended consequences?

The ongoing work of Indigenous Data Sovereignty

Enacting Indigenous Data Sovereignty requires interaction among Indigenous data, data governance and Native nation rebuilding (Rainie et al. 2017a). It reflects Indigenous Peoples' collective rights to self-determination and to govern data about our peoples, lands, resources and knowledges as expressed in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), a non-binding human rights instrument (Taylor and Kukutai 2015). As the data revolution has exponentially grown, the Indigenous Data Sovereignty movement has emerged as an Indigenous-led advocacy, education and research network of networks. Our shared purpose is to address global concerns, often at the nation state level, about protecting Indigenous data from misuse, ensuring Indigenous Peoples are the primary beneficiaries of their data and leveraging Indigenous data toward Indigenous aspirations. At its core, the Indigenous Data Sovereignty movement seeks to transform the data landscape to the benefit of Indigenous Peoples (Lovett et al. 2019).

Discussions on the link between Indigenous data and national and international policy have occurred at the United Nations Permanent Forum on Indigenous Issues. Indigenous participants at the forum have consistently addressed the need

to develop more relevant statistical frameworks that are operationalized through data processes that prioritize Indigenous participation and leadership (Davis 2016). While data and data justice agendas of Indigenous Peoples vary across cultures and geographies, the demand for data that meet Indigenous aspirations and needs remain consistent. These universal Indigenous data requirements comprise disaggregated data; data that are relevant to Indigenous Peoples' ways of knowing and life ways; data that inform Indigenous nation rebuilding and data that disrupt the deficit narrative pervasive across policy spheres (Carroll et al. 2019; Rainie et al. 2017b; Walter 2018). At the heart of this policy is the problematic large-scale Indigenous exclusion from the Indigenous data terrain, again cross-nationally. And despite many years of Indigenous complaints of the lack of relevance of these data for Indigenous Peoples, there remains significant resistance to changing Indigenous data (and subsequent policy) practices (Kukutai and Walter 2015).

The OCAP® (ownership, control, access, possession) principles from Canada were an early response to the problematic data/policy nexus. Developed by First Nations to provide a new framework for data governance and statistical practices for health data, OCAP® asserts Indigenous Peoples and communities' right to control of their data to their benefit and to dismantle external deficit narratives. Housed at the First Nations Information Governance Center in Canada, OCAP® has been at the forefront of advocating and advancing the rights of Indigenous Peoples in relation to their data for almost a quarter century (FNIGC 2016). To prevent misuse and co-optation, the acronym was trademarked. Using the principles found in OCAP®, national bodies, educational institutions and others have altered their data practices to empower First Nations' control of their data (Walker et al. 2017).

By 2017, Indigenous Peoples in three Anglo-colonized societies had created Indigenous Data Sovereignty networks to advance Indigenous data rights and interests, with similar efforts underway across the globe (Lovett et al. 2019; Rainie et al. 2019; Kukutai and Taylor 2016; FNIGC 2018; Nickerson 2017). The Te Mana Raraunga Māori Data Sovereignty Network (temanararaunga.Māori.nz) formed in 2015 in Aotearoa New Zealand. Te Mana Raraunga enables Māori Data Sovereignty and advances Māori aspirations for collective and individual well-being by asserting Māori rights and interests in relation to data; ensuring data for and about Māori can be safeguarded and protected; requiring the quality and integrity of Māori data and its collection; advocating for Māori involvement in the governance of data repositories; supporting the development of Māori data infrastructure and security systems; and supporting the development of sustainable Māori digital businesses and innovations (TMR 2016).

The United States Indigenous Data Sovereignty Network (USIDSN; usIndigenousdata.org) emerged in 2016 to ensure that data for and about Indigenous Peoples and nations in the United States are used to the benefit of Indigenous Peoples toward collective and individual well-being. The USIDSN provides research and policy advocacy to advance Indigenous Peoples and nations' rights and interests in their data (USIDSN 2019). Created in 2017, the Maiam nayri Wingara Aboriginal and Torres Strait Islander Data Sovereignty Collective in

Australia (maiamnayriwingara.org) seeks to change data practices in relation to Aboriginal and Torres Strait Islander Peoples. A 2018 summit of Aboriginal and Torres Strait Islander leaders determined that Indigenous Peoples in Australia had the right to exercise control of the Indigenous data ecosystem inclusive of data creation, development, stewardship, analysis, dissemination and infrastructure to ensure that such data are contextual and disaggregated; relevant and empowering of sustainable self-determination and effective self-governance; accountable to Indigenous Peoples; and protective of Indigenous individual and collective interests (Indigenous Data Sovereignty Summit Communique 2018; Walter et al. 2018).

In 2017, founders of the three Indigenous Data Sovereignty networks and a collaborator working with Sami data sovereignty formed the International Indigenous Data Sovereignty Interest Group at the Research Data Alliance (RDA Group; rd-alliance.org). Participation with the RDA group has expanded activities and advocacy beyond North America and Australasia to include Indigenous Peoples and priorities from regions such as Southeast Asia, South America and Africa; engaged mainstream data actors; convened leading Indigenous data scholars in person for strategy, advocacy and policy advancement; and formalized a global movement (Carroll et al. 2019). The most impactful output of the RDA Group is the CARE Principles for Indigenous Data Governance (collective benefit, authority to control, responsibility, ethics) (RDA IG 2019). Reflecting the crucial role of data in advancing Indigenous innovation and self-determination, the CARE Principles are meant to affect change within external data stakeholders and the secondary use of data. The CARE Principles expand on mainstream principles, e.g., FAIR (findable, accessible, interoperable, reusable) concerned with data attributes (Wilkinson et al. 2016) to bring people and purpose into focus for data policies and practices. The CARE Principles enhance Indigenous Peoples' rights by providing direction to non-Indigenous data actors on relationships with Indigenous Peoples for the stewardship of Indigenous data. Operationalizing the CARE Principles requires policy and practice actions. Currently, efforts are underway to identify what implementing the CARE Principles might look like for both policies and mechanisms with a number of entities and across data environments, including the Research Data Alliance, the Open Data Charter and the Smithsonian Institution (Carroll et al. forthcoming).

In 2019, 18 Indigenous Data Sovereignty leaders from seven nation states held an international workshop in the Basque Country of Spain. The primary purpose was to further joint global work drawing the links for Indigenous Data Sovereignty to its foundations in international law and the United Nations Declaration of the Rights of Indigenous People in particular. The Oñati Indigenous Data Sovereignty Communique (GIDA 2019) detailed three key findings. These were that:

1. UNDRIP provides a necessary but insufficient foundation for the realization of Indigenous Peoples rights and interests in relation to data and that Indigenous Peoples also require Indigenous-designed legal and regulatory approaches to data founded on Indigenous Data Sovereignty principles

2. while national 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 Indigenous Data Sovereignty
3. 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

The major outcome from the Oñati Workshop was the formation of the Global Indigenous Data Alliance (GIDA). GIDA and the GIDA website (GDA-global.org) were launched in September 2019 concurrently with the release of the CARE Principles.

The policy implications of Indigenous Data Sovereignty

Policy and Indigenous Data Sovereignty have multiple points and levels of intersection. Other chapters in this book discuss these across a diverse range of policy terrain including the legal instruments of the nation state, internal tribal or First Nations policies and laws, intra-nation state and intra-First-Nation organizational policy development and enactment and inter-institutional policy realms. Here, we restrict our comments to the implications of Indigenous Data Sovereignty on the most direct point of the data/policy intersection, that between the data collected by the nation state on the sub-population of policy interest, in this case, Indigenous Peoples. Most of these data are the product, or sometimes the by-product of administrative data collection, conducted and controlled by government and institutional entities.

The central role played by data is manifest at all key points of the policy life course. The conception of the policy problem, the determinations of the causes and parameters of the policy problem, the strategies deemed pertinent or possible by policy decision makers, the policy development framework, its implementation, deployment and monitoring, and in the case of Indigenous policy as we have seen, its frequent consequent abandonment, all pivot in one way or another, around data. As demonstrated in this chapter, the population of interest, Indigenous Peoples, are "made sense of" by the nation state's policy generation center, dramatically impacting what data are sought and used and the epistemic value given to different data sources, again at every stage of the policy life course.

The implications of Indigenous Data Sovereignty on nation state Indigenous-related policy are substantial. Indigenous Data Sovereignty inverts the standard Indigenous data/policy nexus. The assertion of the rights of Indigenous Peoples to data about themselves, their people, lands, resources, traditions and cultures challenges and in many cases refutes current Indigenous data processes at every point of the policy life course. The result is ontologically disruptive of the Indigenous data landscape. Inverting the central role of data dramatically changes the way data and the people those data represent are understood in the policy realm. The central policy/data question becomes, not what data do the nation state need to deal

with the multiple problems of its remnant Indigenous populations, but what data are needed to meet the needs, priorities and aspirations of Indigenous Peoples?

This reframing of the underpinning policy assumptions completely alters the status quo of the Indigenous data environment. It immediately leads to other questions, such as whom should determine what it is important to know about Indigenous Peoples? Who should determine what data need to be gathered, how, where and at what levels should those data be gathered? Who should control those data once gathered and who should be able to access those data and for what purposes? Or what data is regarded as evidence in determining policy priorities or in evaluation of policy outcomes? And the list goes on. What is required is essentially a paradigm shift; a complete resetting of the Indigenous data/policy relationship, not a tinkering around the edges or small concessions to Indigenous data demands.

The key to achieving a new Indigenous data/policy relationship is Indigenous data governance. We require governance of data *and* data for governance and both governance directions are premised on Indigenous data leadership. In the governance of data arena, we need to be able to refute the current 5D data of disregard that dominates the nation state's Indigenous data narrative. In their place, we need the data to be able to tell our own stories of who we are as Peoples, at multiple levels of disaggregation and how we want to be known, to both the nation state and to ourselves. In the data for governance field, we need the data for nation rebuilding, to determine our own policy and program needs and to evaluate their efficacy. We need to ensure data indicators measure what is important and meaningful for the Indigenous People to whom those data relate. To achieve these aims, Indigenous Peoples need to be able to develop our own technical and human resource data capacities, policies and practices.

Conclusion

CANZUS countries share a history of Anglo colonization and a deep historic and contemporaneous failure of Indigenous-related policy. The social policy framework derived from current Indigenous data infrastructure in these nation states cannot and does not provide effective Indigenous policy outcomes. Nor does it provide the data that Indigenous Peoples need to develop and implement the policy and governance necessary for our nation rebuilding aspirations. As such, regardless of the eloquence or vehemence of state-based commitments to Indigenous well-being, the data/policy nexus mechanism continues nation states' purpose to do what they have always done: demonstrate Indigenous unfitness as a rationale for the denial of Indigenous rights. As shown throughout this and subsequent chapters, the social policy based around these numbers, more often than not, serve to reinforce the status quo of Indigenous improvisation and marginalization.

The denial of Indigenous rights extends to the denial of Indigenous data rights. The rapid pace of the global data revolution, epitomized through Big Data and the state and policy enthusiasm for Open Data, operate to further distance lived social and cultural realities from their database embodiment. With Big Data, understanding

that dominant norms and social understandings, not statistical methods, determine social data meanings is even further concealed. Linking multiple 5D data sets (health, schooling, justice system, welfare, etc.) and/or mining other data will provide a bigger ball of data, but not necessarily a more informative one. No matter how sophisticated the linking or the analytical techniques used, if only deficit-related items (i.e., educational comparisons) are included the obtaining "results" outside of the tired existing trope Indigenous statistics is dim (Walter 2018). Open Data, without specific Indigenous data protocols, just expands the number of Indigenous statistical analyzes that are conceived and executed from non-Indigenous worldviews. As shown in this and subsequent chapters, the Indigenous data status quo and the policy complex of failure that it supports is being vigorously challenged by the growing and increasingly global Indigenous Data Sovereignty movement.

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