Introduction

All night long in Room 1212 they had discussed a network of tribal coalitions dedicated to the retaking of ancestral lands by indigenous people.

—Leslie Marmon Silko, *Almanac of the Dead*

ON DECEMBER 22, 2012, NATIVE PEOPLES ALL OVER THE UNITED STATES and Canada were organizing flash mobs to protest Canadian prime minister Stephen Harper's plans to break treaty obligations to tribes in order to make way for the construction of a transborder oil pipeline and tar sands extraction. Earlier that month, to protest the unresponsiveness of Parliament regarding First Nations rights, Chief Theresa Spence of the Attawapiskat commenced a six-week hunger strike. Native peoples representing many tribes drumming under the banner of Idle No More protested in malls, parks, across major highways, before embassies, and on college campuses throughout Saskatoon, Saskatchewan; Toronto; Albuquerque, New Mexico; Tucson, Arizona; Minneapolis, Minnesota; Los Angeles; Seattle; and Vancouver.[1]

In Mexico, on December 21, the Indigenous peoples' collective Ejército Zapatista de Liberación Nacional marched en masse through five cities in Chiapas, protesting the unjust and immoral capitalist economic development policies and drug cartel violence promulgated through the administration of former Mexican president Felipe Calderon and current president Enrique Peña-Nieto.[2] People of my own tribe, the Yaqui tribe, in Sonora, Mexico, blockaded shipping and transportation between the cities of Obregón and Guaymas.[3] Two years before, a young man from the tribe used his smartphone to record and post a video of Mexican state police beating up tribal people for hauling water from a river dammed to divert the flow of water that runs through the sacred

homelands. The state government agreed that the dam had been built without appropriate tribal consultation and, in return, offered to pay for university scholarships for all tribal youth. Record numbers of Yaqui youth applied and got into school. The state government reneged and refused to pay the tuition. Independent journalists posted photos online of parked semis blocking all interstate traffic passing through Vicam Switch, a predominantly Yaqui community on Interstate Highway 15 in Sonora, a primary north-south route in the country.

No more than an obscure myth for most Americans, December 22, 2012, marked the end of a five-hundred-year cycle according to the Mayan Daykeepers. But for the Indigenous peoples of the Americas, this date predicated a beginning, an opening up. Moreover, as Laguna writer Leslie Marmon Silko indicates in her 1994 novel *Almanac of the Dead*, Indigenous peoples of the Americas had been preparing for this calendrical shift for centuries.

To many Indigenous peoples of the borderlands, *Almanac of the Dead* is a guide, a manual for understanding how those of us separated by the legacies of colonialism would experience life in the interstices of cities, states, and nations; mass media and voicelessness; the regulated marketplace of ideas and the black market; guerrilla warfare and political persuasion. In the book, a group of spiritually minded Indigenous individuals congregate in a seedy hotel room in Tucson to lay out on the table, beside cigarettes and beer, their observations, insights, and visions about tribal peoples all over the Americas, including those who had settled there from Africa, working incrementally to reclaim spiritual and political relationships with their homelands, and how, at a certain point, the accumulation of this activity would visibly manifest. In short, all night long, in room 1212, they talked story.

Through the course of my education, both spiritually and politically as a Yaqui woman, *yoem hamut*, and a professional librarian and information scientist, I came to recognize the value of stories as the currency binding multiple parallel and sometimes incommensurable worldviews, including ontologically distinct Native and Indigenous worldviews. Already attuned to the deeply Indigenous concepts of relationality, interconnectedness, and emergence, as a scientist I picked up the poststructural study of networks—social (actor) networks, social media networks, sociotechnical networks—as one point through which Native and Indigenous scientific principles could inform and be informed by Western methodologies.[4] Moreover, I studied networks and the technical systems through which they physically manifest, with an eye toward Silko's prophetic reading: What are the technologies that will allow us, as Indigenous

peoples, to reclaim our lands and ways of being—spiritually, socially, spatially, ecologically, and politically?

I had read the works of Western scientific theorists who predicted the identity-based mobilization of Indigenous peoples, enabled through the availability of social media. Throughout my entire upbringing, I had been privy to kitchen table conversations, conversations by fires late at night in deserts, at powwows, in aunts' living rooms, in the back of trucks, about the ways that we, as the grandchildren of elders, spiritual leaders, and military generals—survivors—would have to re-order our ways of being to usher in new worlds of possibility for Indigenous peoples. On December 22, I set aside my stack of scientific articles on technical wireless networks and traced the flurry of stories about Idle No More, the Ejército Zapatista de Liberación Nacional protest, and the Yaqui blockade of Guaymas via Facebook. These parallel Indigenous protests were not covered by CNN, NPR, or the BBC. For three years, my colleagues and I at the University of Washington Information School had been looking for contemporary examples of Indigenous peoples harnessing social media toward political mobilization. We all had examples of small-scale focused mobilization, but Idle No More's political mobilization was the first of its kind that was transnational, fast-paced, self-organizing, emergent, dynamic, and showing clear signs of generating public responsiveness. Many times before the hashtag #idlenomore of December 2012 appeared, I had imagined how Indigenous peoples might organize across national boundaries using social media, but I had never seen a transnational Indigenous political movement emerge so quickly through social media networks. From a scientific perspective, this occurrence means that by December 2012, Indigenous people throughout Aotearoa (New Zealand), Australia, Canada, and the United States—the English-speaking Indigenous world—had established multiple trustworthy and reliable mobile digital social networks across various social media platforms and devices. It meant that an aspect of Indigeneity, as a paradigm of social and political protest, had become digitized, infrastructurally through broadband Internet, personally through consumer mobile devices, socially through social media adoption, and discursively through flash mobs, hashtags, and memes.[5]

Native and Indigenous scholars have argued, mostly from a first-world English-speaking (United States and Canada) context, for Native peoples to frame the contemporary relationship between recognized tribes and the nation-state as one based on the need for Native peoples to leverage self-determination toward building a just world for themselves with regard to, and in spite of, ongoing colonization. Policies of sovereignty and self-determination

are to be understood as stepping-stones toward a more flexible, morally Indigenous vision of governance.[6] At present, and in part due to the way that information and communication technologies (ICTs) have shaped US domestic and global hegemony, the leaders of Native nations must understand how information flows, the disciplining and transfer of knowledge, and technological innovation and surveillance function within the multivalent power dynamics of contemporary colonial arrangements.[7] More fundamentally, this means understanding when, where, and how autonomous Indigenous peoples can leverage information flows across ICTs for the purpose of meeting social and political goals, in spite of the forces of colonization.

As my late friend and colleague Allison B. Krebs (Anishinaabe) taught me, this is a continuation of what Vine Deloria, Jr. (Dakota), asserted during a 1978 White House presentation on library services in tribal lands. It is our right as Indigenous peoples to know the origins of our current status as colonized peoples.[8] It is our right to know this so that we can speak back to unjust governmental power. It is our right to mobilize, enact, and determine our own trajectories as Native and Indigenous peoples. While the protests of December 2012 represent a particularly striking mode of political mobilizing and government interactions, Native and Indigenous peoples have endured centuries of colonization in part because of daily ordinary habits of sharing information and ways of knowing with one another, workmates, allies, and friends. Uses of social media and the undergirding systems of devices are becoming, in Native and Indigenous contexts, common modes of sharing information and knowledge critical to Indigenous self-determination.

In the United States, the tribal command of broadband infrastructures and services represents one way that Native peoples leverage large-scale ICTs toward accomplishing distinctly Native governance goals. While these goals are particular, and depend on each tribe's ways of approaching its mode of self-government, because of the future US reliance on pervasive high-speed Internet as a means of interacting with citizens and administration, tribal leaders will want to make sure that, at minimum, tribal administration buildings, schools, and libraries have access to robust and affordable broadband Internet devices and services, including wireless capabilities. As governments, tribes possess the means for acquiring the infrastructure and services that make social media and mobile devices work from deep within Indian Country.

I write this book to (1) weave Native and Indigenous thought more firmly and productively into the broad fields of science, technology, and society studies; (2) introduce Native and Indigenous thinkers to the language of

information science and sociotechnical systems; and (3) share what I have learned thus far about the uses and implications of broadband Internet in Indian Country with colleagues in the sciences, students, educators, policy makers, tribal leaders, and the general public. We have work to do, getting our people connected. We have work to do, sharing with one another the millions of stories about our strategies for effective negotiation, our failures, our visions for bringing about a healthier world for our children and the grandchildren they will one day bring into this world. ICTs are an important medium for this intergenerational and intertribal transmission of knowledge.

This book is a scientific narrative, following the arc of a scientist walking on the path of discovery with the rigor of specific methodological interventions. I am the scientist and the writer, and I am also Indigenous, specifically, a Yaqui woman with an intellectual lineage born out of the particular exigencies in the US-Mexico borderlands. I grew up hearing tribal stories and border stories. I grew up respecting the value of tribal peoples' knowledge and also the life experiences of self-made individuals, especially those who reside in the liminal and jurisdictional interstices between countries, institutions, and cities, not to mention languages and ethnic identities. I grew up attuned to the finer meaning of Native storywork, understanding how elders and other wise and thoughtful types transform the present web of meaning and therein create new possibilities for ways of being, acting, and thinking when they talk story. At present, it is still common in academia for practicing scientists to attempt to delegitimize the intellectual and scientific contributions of Native and Indigenous thinkers, as well as the participation of women. Many scientists are unfortunately not responsive to the manifestations of storywork, the interventions of feminist scientific approaches, or the intellectual claims of Indigenous research. Many scientists are financially and intellectually invested in discrediting or marginalizing the contributions of Native and Indigenous thinkers. As Indigenous thinkers are well aware, a mechanism of colonization is the subjugation of Indigenous knowledge. Through centering Native experiences and weaving together Indigenous and information scientific methodologies, this book challenges the shadow of epistemic injustice.[9]

However, this work is not intended to serve as an exhaustive Indigenous critique of techno-science; rather, it is intended to open up new ways of thinking about digital technologies, and specifically of high-speed Internet, in Indian Country. Sociotechnical conceptualizations are a relatively new analytic lens in the general field of Native and Indigenous studies. Indigenous approaches to studies of the Internet and ICTs are also new. Thus, this examination focuses

on the intersection of a few disciplines, epistemological landscapes, and knowledge domains. Each chapter builds on ideas framed in preceding chapters, so that, by the end of the book, the general reader in Indigenous studies has increased knowledge about information scientific approaches and the general Internet studies researcher has increased knowledge about Indigenous experiences and approaches. Together we will have an increased understanding of the place-based nature of the Internet and how jurisdictional borders shape access to this integral communications infrastructure. This work is organized not according to the chronology of historiography but according to the way findings revealed themselves to me, the Indigenous scientist, as I began methodically asking the question "What is the relationship between Indigenous peoples and ICTs?"

This book is organized into eight chapters. Chapter 1 utilizes the example of Idle No More to introduce a basic way of understanding flows of information within the relationship between the technical and the social and how these flows manifest in Indigenous contexts. Chapter 2 explains how the scientific inability to perceive the rhythms of colonialism has led to the current need for a way of understanding the impacts of ICTs in Indian Country beyond the depiction of Native peoples as have-nots in a technically advancing postcolonial global order. Chapter 3 builds on the lessons learned in the first two chapters to explain the close tie between access to technical systems and contemporary exercises of tribal sovereignty, giving examples from five cases of Native ICTs projects. Chapter 4 looks at the inner workings of four sociotechnical systems in Indian Country and one intertribal multi-organizational forum: the tribally owned broadband Internet networks operating out of the Southern California Tribal Chairmen's Association, Coeur d'Alene, Cheyenne River Sioux, and Navajo Nation and the Tribal Telecom and Technology Summit. Chapter 5 utilizes these cases to identify the practical needs of tribes who command their own Internet infrastructures. Chapter 6 theorizes the sociotechnical dimension of future exercises of tribal sovereignty and what this means in terms of how we conceptualize the technological fabric woven throughout Native homelands. Finally, Chapter 7 approaches colonial assumptions about social studies of technology and lays out an approach that we, as scientists and Indigenous thinkers, can take in decolonizing the disciplinary practices and discourses surrounding technology studies.