

Internet Futuring

How Communities are Connecting Themselves

Henna Zamurd Butt, Nicole P. Marwell, Nick Feamster

Abstract

In the United States, high-speed internet connectivity is ubiquitous in many places yet markedly absent in others. In the wake of the Covid-19 pandemic, renewed federal efforts toward universal broadband have mobilized billions of dollars aimed at closing infrastructural gaps. We bring together the cases of Detroit, Michigan and a Northern Michigan Tribe (NMT) – two communities where broadband has not yet fully arrived – to consider how ambitions for connectivity are articulated and realized in practice. Efforts to achieve more equitable distribution of the internet's benefits cannot be meaningfully disengaged from questions of power and control over the internet as both a discursive and material architecture. Adopting a decolonizing stance, this paper situates the contemporary experiences of these two differently marginalized communities within longer histories of settler colonialism and dispossession. Internet futuring and internet management operate as a dialectical analytic, attuned to the ways that power arrangements are unsettled through practices of futuring and stabilized through managerial mechanisms. The two communities we follow in this paper are each making connectivity efforts from their positions at the margins of robust, affordable broadband. In Detroit, we trace the Hope Village plan for an open access, municipally owned fibre network, a highly anticipated project that stalled before it began. Further north, in Michigan's Upper Peninsula, we follow NMT's path to build a fibre network to serve Tribal members across the region, whilst navigating multiple setbacks and policy constraints. Across both sites, we observe internet management operating through mechanisms of hypervisibility, conditional recognition, and temporality that structure the field of possibility for connectivity. Internet futuring emerges as a localized, relational, and iterative practice of self-determination, producing distinct connectivity demands and outcomes.

Keywords

coloniality, internet, broadband, access, digital equity, connectivity, internet governance, decolonizing, tribal connectivity, internet policy

1. Dreams and Strategies

"Dreamchasers built Detroit / our great city of possibility" (2020) the city's Poet Laureate jessica Care moore opens to audience chatter dying away, her rings glittering across every finger. It is the summer of 2024, and this is my eighth year of attending events concerning internet connectivity and expansion. It is also my first visit to the city of Detroit, Michigan, and the only time I have seen representatives from policy, industry and non-profit sectors alike, engaging with an artist's practice as a real source of collaborative thought. Reflecting the city's demographics, the audience is distinct too, with Black and Global Majority attendees filling up most of the room. "The rewiring of humanity needs humans / Requires delicate components that connect people," moore continues. The mood is kinetic. Many of the people in the room have lived through Detroit's hardships, which led to its 2013 bankruptcy – the largest municipal filing in U.S. history. They had stayed in Detroit to rebuild, and they wanted to be there for what is being called its renaissance, both locally and nationally. "Detroit," the poet pauses as we lean in, "is the starting line of the world's imagination."

FIELDNOTES, DETROIT, MICHIGAN, JUNE 2024

Participants from across Indian Country are gathered for a convening to share knowledge about how to build broadband for Tribal communities. We are tucked into a conference room in a casino; around us networking equipment is laid out to touch and tinker with. Seasoned veterans offer insights, alongside those taking the very first steps on a long journey which they hope will culminate in the moment our hosts are celebrating today. We have been welcomed to the lands of a Northern Michigan Tribe (NMT) who are presenting their \$ 30 million fibre broadband network. After three years of effort, the project is just weeks from finally breaking ground. Henry, the NMT planning lead, and Jim, the Tribe's economic development director, both demonstrate the meticulous planning which has been required to get this far, moving through a slide set numbering in the triple figures. The two are resolute: "We want our members connected wherever they are, whether that's [through] us or someone else." Even though the new network's design is grounded in community values, NMT remains pragmatic, with resilience their key motivation. "We'll keep the casino connected through our existing provider" Henry explains. "Our network will be the backup."

FIELDNOTES, EASTERN UPPER PENINSULA (EUP), MICHIGAN, AUGUST 2025

These contrasting vignettes begin to orient us to how two communities confront shared struggles in gaining high-speed internet connectivity in markedly different contexts. These are struggles not only to get online by any means possible, but efforts toward self-determination unfolding through contemporary information and communications (Duarte 2017). Both vignettes reveal distinct expressions of community. In Detroit, care and energy are nurtured within the locality; in the case of NMT, care and energy are being directed outward, toward other Tribal nations. Dreaming, here represented by moore, indicates the practice of envisioning the internet and what it can be. Strategy, illustrated by NMT, concerns how dreams are made material. Holding these elements apart allows us to see the internet as both a discursive and material object, where ideas and physical infrastructure exist in recursive relationship, shaped by conditions of power. To make this power visible, we apply an analytic framework rooted in decolonizing thought, situating contemporary experiences of differently marginalized communities within longer histories of settler colonialism and dispossession. We do this by applying the conceptual dialectic of internet futuring and internet management, a framework initially developed through ethnographic research at global internet governance settings. Internet futuring names a lens attuned to assertions of the internet that unsettle power hierarchies shaped by coloniality, whilst internet management names a lens attuned to practices and processes that operate to stabilize these hierarchies (Butt forthcoming). Together, they enable us to trace how varied dreams and strategies act on one another.

In the United States, the federal policy agenda concerning universal internet connectivity reflects earlier framings of universal telephony. The Telecommunications Act of 1996, echoed these aspirations, but unlike telephone service before it, internet service was not treated as a utility, but instead classified as an ‘information service,’ to be governed primarily through market mechanisms (Crawford 2013: 47). Under these regulatory conditions, provision has advanced in uneven ways, despite successive policy interventions. The advent of mobile internet contributed to a widespread impression that connectivity had been ‘solved’ (Samii 2009) even as profound inequities persisted. Research interest waned (Aissaoui 2021: 6) until the Covid-19 pandemic when the stakes of remote school, work, and healthcare rose (McClain et al. 2021), causing these disparities to re-enter public consciousness as an urgent policy concern.

The two communities we follow in this paper are each making efforts from their positions at the margins of reliable, accessible broadband. In Detroit, we trace the Hope Village plan for an open access, municipally owned fibre network; a highly anticipated project that stalled before it started. North of the Michigan Mitten, we follow NMT’s path to building a fibre network to serve their members across the Eastern Upper Peninsula (EUP), as they navigate setbacks and policy constraints. We are not only concerned with whether these communities are able to achieve connectivity, although that is part of what we are interested in. Rather

our inquiry concerns the goals (dreams) and methods (strategies) of our interlocutors, and what they demonstrate about the internet's possibilities.

The research in this paper was conducted as part of a six-site ethnographic project and was carried out over two years, beginning in January 2024. From our broader set of urban, suburban, and rural sites across Illinois and Michigan, we selected the two cases presented here. Bringing together what one local interviewee called the nation's "Blackest city" and a Native American Tribe offers analytical purchase as part of a decolonizing approach. Ethnographic research has been carried out across the two communities by the first author. It has included: attendance and participation at three state conferences organized by the Merit Network (totalling 12 days) and two Tribal broadband convenings (totalling 6 days); ongoing participation in a state-wide community of practitioners; three visits to the Eastern Upper Peninsula (totalling 10 days); three visits to Detroit (totalling 10 days); 23 formal interviews along with many informal discussions spanning both sites; and conversations with interlocutors working across the state of Michigan. Interviews were transcribed and analysed thematically, alongside fieldnotes. As presented here, the two cases spotlight specific stories, and cite only a small number of interviewees, but draw extensively on the larger body of research. We have not sought to standardize the empirics across the two sites; rather, each case differs in register and presentation, reflecting its subject. Our comparative focus is not on matching variables across sites, but on tracing how shared mechanisms of internet management – hypervisibility, conditional recognition, and temporality – operate differently, and how internet futuring responds through situated strategy.

The paper is structured as follows. First, we explicate how theorizations of coloniality map onto aspirations towards universal internet expansion, showing the relevance of decolonizing thought for understanding unevenness in the distribution of connectivity alongside imbalances of power in internet governance. Next, we introduce the internet management and internet futuring dialectic as an analytic framework which applies a cognate decolonizing approach to questions of internet governance. The Detroit case follows, where we note that visibility drew national attention and a managerial gaze. Here relational resilience operates in steadfast ways to sustain connectivity goals. NMT's case demonstrates that whilst institutional recognition can enable access to resources, it can constrain possibility in ways that require working within and through bureaucratic systems creatively. In the discussion, shared patterns across the two sites are drawn out, including the operation of internet management through opacity, visibility, and temporality, and the emergence of internet futuring as an iterative, relational practice. The conclusion returns to the conceptual dialectic to show how internet management structures the field of possibility, and how internet futuring is enacted through situated practices within, around, and beyond these constraints.

2. From the Internet's Margins

2.1 Coloniality and Internet Expansion

To theorize how the internet reproduces lasting power asymmetries, we draw on the framework of coloniality (Quijano 2000), which describes relations that precede and persist through European colonization. The material and epistemic violence of colonialism enabled the unfolding of modernities in the metropole; as such, modernity and coloniality should be understood as two sides of the same coin (Mignolo 2011). The colonial matrix of power is structured by gendered (Lugones 2007) and racialized hierarchies that order peoples and geographies (Quijano 2000) in ways that determine which communities are positioned as central, and which are rendered marginal. These logics are continually enacted within the United States through the ongoing practice of settler colonialism; in this sense, the U.S. is not external to coloniality, but one of its central sites of articulation. Modern/colonial systems stretch to encompass all aspects of social life (Quijano 2000: 544-45). The notion of 'worlding' helps to conceptualize this as a discursive and material process that produces one fully knowable world, rendering other ways of knowing and being backward or subordinate (Spivak 1985). Worlding operates as a colonial power move, collapsing ontological plurality in favour of a singular and imposed expansionary worldview (Mavhunga 2017: 17).

The internet is both an expansionary sociotechnical system – a material network of networks – and an imaginary of global information and communications (Franklin 2013: 1). Universalist designs are entangled with the early internet's promise: a dream of humanity connected on equal footing. Yet, this promise has remained unfulfilled (Ávila Pinto 2019), with marginalized communities and regions living without the benefits that abound elsewhere. Our conceptualisation of power moves beyond procedural understandings of 'digital equity' and 'digital inclusion' (Tlostanova 2020: 166) which tend to characterize policy and adjacent literature. These views often treat the limited distribution of connectivity to be evidence of incomplete or improper deployment within a given group or context. Rather than questioning the mode of deployment, such approaches assume that the dominant, market-led model for internet expansion has the capacity to bring about universal connectivity, and further, that connectivity is necessary to overcome inequality (Castells 2002). This paper begins elsewhere, understanding the enduringly inequitable topography of power in internet governance as inseparable from the uneven distribution of the internet's benefits. This path is open to the broad range of expressions that internet connectivity takes in communities at the margins, and attentive to the negotiations of power that mediate them. For us, asymmetrical distribution of internet connectivity and its benefits are not an invitation to place a diagnostic microscope on locations and groups deemed lacking (Warschauer 2002). Instead, in a country where high-speed internet is ubiquitous in many places yet markedly absent in others, we ask what these uneven conditions

reveal about the internet as a sociotechnical system, and the vision of universality being enacted (Butt 2023: 9). Where the internet has not yet fully arrived, what are communities' ambitions for connectivity, and how are they being realized?

2.2 Internet Management and Internet Futuring

The analytic framework that follows operates as a dialectic. Internet management and internet futuring are not sequential stages nor opposing camps; they are co-present forces that shape the conditions under which connectivity is imagined, contested, and enacted. Taken together, the terms function both to name our approach, and to underscore the patterned processes they describe. Internet management encompasses hierarchy, control, and the stabilization of incumbent authority, whereas internet futuring involves the assertion of connectivity models that subvert this frame.

Internet management describes the dominant ordering logic through which colonial power is operationalized in contemporary internet expansion processes. Used critically, the term 'management' brings into relief the norms, agendas, and institutionalized frameworks that have become naturalized (and thereby invisibilized) whilst upholding the status quo in internet governance arrangements. Distinguishing internet management from adjacent concepts, such as "internet governance" and "infrastructure," clarifies its analytical contribution. The term 'internet governance' plays a useful descriptive role for the broad field of relations with which we are engaged. Contested in its own right, 'internet governance' names a field of scholarship with close ties to International Relations (Radu 2019), and conceptualizations of power that are oriented 'upstream' towards governments and geopolitics. By contrast, we repurpose the ostensibly everyday language of "management" to foreground the political work performed through procedural systems of coordination, prioritisation, and oversight. Scholarship on "infrastructure" offers important ways to understand how material systems are entangled with power (Larkin 2013), whilst simultaneously remaining obscured from view (Bowker/Star 1999). This study, however, is concerned with the logics that precede, organize, and legitimize the expression of some material systems, and the simultaneous foreclosure of others. Our emphasis on global mechanisms of coloniality attends to how these processes operate across different, legal-political, temporal, and spatial scales.

If we use "management" to describe the machinery of control, "futuring" describes practices of resistance, subversion, and creativity. Building with heterogeneous traditions that theorise from margins (hooks 1988; Tuhiwai Smith 1999; Mignolo/Walsh 2018), the term 'internet futuring' communicates an epistemic and political shift rooted in expressions of internet connectivity that are contesting managerial orthodoxies of deployment. In so doing they are materially re-making what the internet can be. Where management identifies processes of worlding, futuring identifies ongoing struggles of reworlding (Haraway 2016),

thereby putting into question what is taken to be knowable about the internet by demonstrating that other options already exist. Our stance makes decolonizing moves across epistemic, political, and ontological registers. Epistemically, we shift analysis toward theorising from enactments, treating those at margins as producers of knowledge (Haraway 1988). Politically, we recognize self-determination and relationality as integral to how sociotechnical systems are made and unmade (Duarte 2017). Ontologically, we understand that connectivity is plural, situated, and socially produced. These moves stand in contrast to work that is more procedurally focused, research that can provide tidy outputs (Lugones 2010: 373), but at the risk of narrowing the terms through which problems and possibilities are articulated (Tuhiwai Smith 1999; Bacchi 2012).

Marginalized groups often find themselves at the bleeding-edge of technological visioning (Noble 2018; Benjamin 2019), whilst simultaneously being imagined as perpetually in the past, never to catch up (Quijano 2000: 522). Technologies of oppression have long been honed using people and places at peripheries before they are applied at centres (Sardar 1995; Aouragh/Chakravartty 2016: 563; Nyabola 2018: 214). To be compelled to confront challenging circumstances ahead of time – that is to be engaged in futuring. Conceptually, the practice of futuring shares an ethos with thinkers that posit imagination as a political practice to reclaim memory and identity (Hartman 2008; Villareal 2024; Benjamin 2024). Yet it also names a material struggle for futurity; the negotiations and creativity through which a future is brought into being that must be enacted in the present (Camp 2017; Simpson 2014). Where futurity often appears as a horizon, futuring is a verb, an ongoing process of birthing what is to come; work that is without end.

In this paper we are concerned with how those who remain at the margins of high-speed internet connectivity in the United States negotiate the national connectivity landscape as a site of power struggle. Further, we ask what their connectivity efforts reveal about the possibilities of the internet. By bringing the cases of Detroit and NMT together, we render the broader system of internet management legible, assembling a picture of its logics and limits from two distinct vantage points (Icaza 2017: 33) to offer greater visibility of the occluded whole.

3. Detroit

3.1 Visibility and the managerial gaze

In April 2022, the City of Detroit unveiled a bold initiative to pilot a \$ 10 million municipal, open access, fibre network in the Hope Village area on the city's western side. The area had become a priority for broadband development after AT&T customers had endured a 45-day internet and phone outage in late 2021 (City of Detroit 2022). The failure brought to light residents' ongoing troubles with service disruption alongside an absence of mechanisms by which to hold

AT&T to account, and a dearth of alternative provider options. With the length and severity of the failure, appetite for an alternative was high, and so the City government entered the fray. With the announcement, residents could finally expect high-speed, reliable broadband service at an affordable price, whilst the city could pilot a novel model to address the City's connectivity challenges by leveraging federal pandemic recovery funds granted through the American Rescue Plan Act (2021) (ARPA). Detroit's Digital Inclusion Director at the time, Joshua Edmonds, planned for the City to retain ownership over the new fibre system, telling the press: "Private internet providers will make decisions based on a quantifiable return on investment related to profit. In this case, our profit is public good" (in Barrett 2022). A City-owned network would enable open access provision: providers could pay the City a fee to deliver service using the municipal network, rather than having to bury their own fibre. Not only did the plan offer fibre-to-the-home, widely regarded as the most robust and future-proof medium of connectivity (Cyphers 2019), it also introduced provider competition. Where legacy providers had previously dominated, under the open access model redundancy and consumer choice would become possible.

The plan for Hope Village came after the City of Detroit had built significant momentum tackling internet challenges under the leadership of Edmonds, and through the Connect 313 partnership, which brought together the City with community partners and philanthropic funders. During 2021 they led a large-scale effort to distribute tens of thousands of laptops, tablets, and hotspots to households. Detroit was among the first cities nationwide to publish its Digital Access Policy and Strategic Infrastructure Plan (City of Detroit/EntryPoints 2022). Additionally, the City led the country in recruiting households for broadband subsidies offered under the federal government's Affordable Connectivity Program (ACP) (Benton Foundation 2022). Detroit's successes saw the city held up as a national leader, with the Hope Village project to be the next step in an ambitious trajectory. Amie, an interviewee active in national broadband policy, described the city's digital equity leadership at the time:

"They were young, upcoming, and all people of colour, and it was exciting. The three of them, Joshua [Edmonds], Autumn [Evans], and Art [Thompson] were talking about Hope Village at all the conferences that year."

The presence of the team in spaces that are "often older and whiter," in Amie's words, had been a source of inspiration, both for her and for others. For Jaden, a local entrepreneur and organizer, the sudden visibility was troubling, and he shared his concerns with City staff:

"You can't have those conversations with AT&T and Comcast, and think they're going to be your friend. You come and take their lunch. Nobody wants to get their lunch taken from them."

A life-long Detroit resident, Jaden felt that national attention would draw scrutiny from incumbent providers for whom a high-profile municipal network would constitute a visible encroachment.

“They said the wrong things in the wrong arenas. You can’t do that. You can’t. And that’s why it didn’t get done, and then it don’t exist. How could you be in a city, the number one unconnected city in America, Blackest city in America that’s unconnected, and you can’t get a piece of fibre in the ground, to go from one spot to another spot.”

In June 2022 the City announced that no contractors had submitted bids to install the fibre network in Hope Village. Edmonds explained that although vendors had attended information sessions, none had responded to the formal Request for Proposals (RFP) – purportedly because the City had not designated an area for storing construction materials, a seemingly benign logistical oversight. Edmonds apologized publicly to residents, reassuring them that the RFP would be reissued with improvements, and affirming the City’s commitment to moving forward. However, the RFP did not materialize again. In September 2022, three months after the unsuccessful bid process, Edmonds announced his departure from the City of Detroit for a new position in Cleveland, Ohio, as CEO of the non-profit internet service provider, DigitalC. Funds allocated for the Hope Village project were reallocated. Autumn Evans, the City’s Deputy Director of Digital Inclusion joined the Rocket Community Fund, a new Detroit-based philanthropic organization, whilst Art Thompson remained as the City’s Chief Information Officer. Attention turned to public internet and broadband subsidies and the City did not announce another open access network again.

Several interlocutors suspected that incumbent ISPs had stood in the way of the Hope Village plan, although the mechanisms of this intervention have remained unclear, or difficult to share. The absence of a designated storage site offered a plausible concern; however, the lack of any bids was notable. Interviewees gestured towards the position of local contractors whose primary clients were the very same incumbent ISPs; would bidding have jeopardized future business? The politically, if not ideologically, contested nature of such a project was a lightning rod. “Detroit has an internet affordability problem, not a broadband deployment problem”: Jarrett Skorup (2022), writing at the time for the Mackinac Center, a pro-market, small-government think tank, is demonstrative. His critique reflects a prevalent view in which the high cost of broadband subscriptions is recognized as a key barrier to uptake, yet analytically decoupled from the mode of deployment. Under this logic, once ISPs claim they have infrastructure in a given location that is reason enough to block further investment, even if their pricing is inaccessible for large proportions of residents. This framing forecloses alternative models, such as open access, that could structurally reconfigure provision by introducing consumer choice, lowering costs, and enhancing network resilience.

A managerial gaze does not register Black communities in the context of prolonged service failure and inadequate provision. Yet when Detroit's City government sought to intervene and challenge dominant arrangements to ensure connectivity in Hope Village, its actions were rendered hypervisible. These dynamics reflect paradoxical expressions of racialisation that are both socially rooted (hooks 1992) and sociotechnically enacted (Benjamin 2019: 97). As Amie observed, the City's broadband team was "young, upcoming, and all people of colour," characteristics that marked the trio within national broadband policy spaces. This visibility was further shaped by Detroit's national positioning as "America's Blackest city," a historic site of technological innovation and a renowned cultural centre. The proposal for an open access municipal network – capable of disrupting incumbent ISP control over infrastructure and pricing, and of becoming entangled in Detroit's broader renaissance narrative – further intensified the attention the City attracted. The City's team drew heightened attention precisely when they sought to intervene in arrangements that had long held places like Hope Village in a condition of infrastructural stasis without accountability. By contrast, the project's subsequent stalling through opaque means reveals how power operates by selectively mobilising visibility, while retaining the capacity to recede from view.

3.2 Relational Resilience and Continuity

The federal Broadband Equity Access and Deployment (BEAD) program offered new, albeit measured, hope. The City rallied to participate in state processes required to demonstrate need for infrastructural development. Despite significant planning and efforts to mobilise local action, the City was met with disappointment once again. As organizer Darren explained, by 2024 it had become clear that BEAD would not be relevant to the city:

"Our challenges weren't accepted. All the BEAD money is gonna go to rural areas. We tried to submit challenges, we put a lot of work into it, but they haven't been accepted."

Even with BEAD proving a dead end, other plans were already in motion. In the intervening years since Hope Village, the City, under Thompson's leadership, had explored another avenue that was more self-contained in its methods. This new project relied on trusted partnerships, rather than federal support. In August 2025, the pilot for Canopy launched, developed in partnership with Edmonds at Cleveland's DigitalC. Using backhaul provision from Merit Network, Canopy brought service to three multi-unit dwellings housing approximately 450 households. Household service was subsidized for the first three years by the Rocket Community Fund (where Evans now worked) and Microsoft. The new offering delivered 500/100 Mbps service, exceeding the federal broadband benchmark of 100/20 Mbps (NTIA 2024). Organizers were explicit that the three-year subsidy was not conceived as a long-term solution. The pilot was designed to test not only

uptake, but also retention once service was no longer free. As a key team member noted, “if it’s just continuously free, we’ll never really know the effect.” The pilot thus marks an opportunity for learning, and organizers described ambitions to use this experience to explore expansion to other parts of the city.

An interviewee involved in the project reported ninety-two per cent uptake within the first ninety days of launch. Prior to the pilot, AT&T was the primary provider in the three buildings, yet only a minority of households subscribed, largely due to cost. For residents who had previously relied on subsidies, the cost of service rose sharply following the end of the ACP subsidy in 2024. Canopy’s risk-free, subsidized provision played a decisive role in adoption for the target communities. The pilot underscored distinctions between municipal and incumbent-provider approaches. The City and its partners were able to convene additional forms of engagement alongside connectivity rollout, including support with digital literacy and telehealth access. In contrast to the Hope Village initiative, Canopy was not widely publicized in advance. The project was announced only at launch, reflecting a far more measured approach to visibility. This restraint shows learning from prior experiences. Canopy illustrates futuring as a practice built on the strength of trusted relationships and lasting commitment. The ambitions of local leaders did not disappear, even as individuals moved into new institutional roles. Instead, these ambitions were carried forward through partnerships when Evans and Edmunds were both in strategically relevant positions. Key to Canopy’s success has been attunement to the constraints of the existing political and infrastructural landscape; learnings that could have easily been lost had the team not remained committed.

4. Northern Michigan Tribe

4.1 Constraints and Recognition

We have worked with a large Tribal nation as part of this research. Some members live on Tribal lands, but the majority of members are spread across Northern Michigan. This population distribution shapes the Tribe’s connectivity needs. Speaking at Merit Network’s autumn conference, Jim, the Tribe’s economic development director, shared that allocating limited resources to broadband connectivity was challenging to justify when members were dealing with housing instability and poverty. He added that the Covid-19 pandemic changed the picture somewhat as “members saw that connectivity had become essential,” spurring investment in connectivity efforts. With strategy and planning lead Henry working alongside Jim, NMT has made significant progress toward greater connectivity for members. Since the pandemic, the Tribe has secured grants from the U.S. Department of Agriculture’s (USDA) ReConnect program and the National Telecommunications and Information Administration’s (NTIA) Tribal Broadband Connectivity

Program (TBCP). NMT sought to build a fibre network across and between reservation lands, whilst also connecting premises along the way, whether currently occupied by members or not. The Tribe had hoped to fund this through a large award from application to the TBCP. However, that application was unsuccessful, as Henry explained:

“TBCP awarded the diminimus amount, which was a blow to the efforts, but will still have value as the funds will be used to temporarily offset broadband costs for membership. Our understanding is that there was some error in the way that our application was reviewed. We’re not sure exactly what it was, but there were rumors of internal discussions. But because of the process, [NTIA] couldn’t go back and award us the full amount.”

Writing a federal grant application is highly demanding, and the Tribe had invested both time and funds in professional grant writers. Signaling the importance the Tribe sees in the future of broadband for its membership. TBCP was designed to rectify an imbalance that had disadvantaged Tribes when competing for funds with high-resource corporations (U.S. Government Accountability Office 2024), and embodied an understanding of relational sovereignty. Yet the review process error, to use Henry’s words, left membership at the mercy of internal oversights within the agency; errors may be human, but the absence of mechanisms for course correction reveals a structural lack of accountability.

Fortunately, NMT had a backup plan. The Tribe applied for the USDA’s ReConnect Program for internet development in rural areas while the Tribe was still awaiting an outcome from NTIA, so they decided to apply to USDA too so as to ensure that a project would be funded. To the Tribal government’s relief, the USDA application was successful, however, the shift from NTIA’s program to USDA’s was not smooth. Although ReConnect was open to Tribal entities, it was designed for rural areas more generally (USDA 2024b). As Henry said: “NTIA felt as if they had worked with Tribal communities for decades, and you can tell; USDA not so much.” He went on to explain that TBCP operated under a more expansive understanding of Tribal service:

“The TBCP program was a completely different beast because they did not have the limitations... If you went off reservation, anybody that was along the way, you were allowed to hook up.”

By contrast, ReConnect defined eligibility primarily through geography (USDA 2024a). Eligible service areas had to qualify as rural according to USDA definitions, with broadband connectivity lacking for more than 90% of residents. Tribes or Tribal entities could only develop service “on Indian Lands; or land that they own, provide services to, or administer” (Federal Register 2024). Henry explained how these policy rules impacted NMT’s plans:

“Our perspective is that both on the geographic and the individual basis is that our [non-Tribal member] neighbours are part of our community... So many of our Tribal members will be living in a [non-Tribal person's] house the next couple of years or they may be married to that individual in the next few years.”

Gesturing to a map showing homes close to the line demarcating NMT's territories, he was frustrated: “I'm not allowed to hook up any of these people all along here with this wire. It's unallowed. You can't do it.”

Here management operates by tying much-needed resources to constraints that, if met, undermine how Tribal sovereignty is understood and practiced by NMT. When internet connectivity is reduced to a consumer service, as is the case in U.S. policy, this stands in contrast to understanding of network design as an expression of self-determination (Duarte 2017). NMT's claim to USDA funding is recognized, but the circumstances of its members' residency are not; conditions that risk enforcing a bifurcation between members living on Tribal lands and those residing elsewhere. Across Rounds Three and Four of ReConnect, the Tribe secured approximately \$ 30 million to build nearly 400 miles of fibre connecting Tribal homes, government facilities, and enterprises. However, to realise their goal of connecting everyone in the region, they ultimately required a combination of ingenuity and partner support.

4.2 Within and Against Bureaucracy

To extend connectivity beyond their lands, NMT sought out a partner they could trust. This would be an ISP that could make use of the newly developed Tribal middle mile to bring last-mile connectivity to nearby areas. The approach required designing around constraints. Michigan Broadband Provider (MBP) emerged as a suitable partner. This was a locally-owned and run company, operating with an open access model and thereby well-aligned with the Tribe. For Henry, funds coming from federal grants needed to be kept in the region, rather than being spent with a national corporation that would just as soon siphon it away: “When we get access to these federal dollars... if we can get [the money to] stick to our community, that's gold.”

MBP would offer services to the broader public, whilst entering a revenue-sharing agreement with the Tribe. This arrangement enabled NMT to extend connectivity beyond their administrative boundaries, whilst creating a source of revenue to support Tribal services. With their ReConnect project well underway, the NMT-MBP partnership set its sights on BEAD funding to support additional development, maximizing their build further. Speaking in summer 2025, when BEAD subgrantees were yet to be determined, Henry and Jim expressed confidence that they could bid with MBP on BEAD sites competitively. MBP's founder was also optimistic, citing local knowledge and regional commitment as distinguishing factors. At the time of writing, MBP is reported to have secured an allo-

cation of nearly \$ 16 million in BEAD funds (Doescher 2025). This comes despite late-stage changes to the NTIA's assessment process, indicating a strong application that could sustain these shifts, and that had garnered sufficient support from Michigan's state broadband office.

In addition to providing broadband connectivity to members, the the network already underway with MBP and due for completion in 2026, adds resilience to NMT's existing information and communication provisions. In early 2025, the Tribe experienced a serious ransomware attack on their casino systems, bringing these crucial businesses to a standstill. The incident bolstered the decision to deploy dedicated fibre strands connecting all Tribal facilities, keeping selected data off the public internet. In spite of this, the casinos will rely primarily on commercial provision from their existing provider, with the Tribal network serving as a backup rather than the primary link. Potential revenue and autonomy are tempered to ensure redundancy, highlighting contrasts between the Tribal government's priorities and private providers' profit-oriented design logics.

NMT's plans for recruiting members onto the new network involve sending staff into homes to assist members who are new entrants to high-speed internet. Drawing on precedents seen in the Tribe's food sovereignty initiatives, this strategy considers that later entry may come with distinct challenges and risks. To fund the work NMT was part of a coalition which received a significant award through the Michigan Transitions Through Technology for Equity and Navigability (MITTEN) grant by the state broadband office. In May 2025 the U.S. Department of Commerce terminated Digital Equity Act grant funding, which was the source for MITTEN, marking another sudden shift for the Tribe. Even with the funding gone, NMT is committed to ensuring this transition work, and given their record on finding workarounds, the picture remains optimistic.

Watching NMT present their journey at the 2025 Tribal broadband convening, what was immediately evident was their consistent factoring of risk. Strategic flexibility characterises their expression of futuring, enabling pivots without compromising core priorities. Serving all members remained non-negotiable, even as institutional conditions shifted. The cyberattack did not prompt NMT to disengage from connectivity, but instead reinforced the importance of more robust internal connection. While the option exists to rely on the Tribal network to serve the casinos, the decision to maintain their existing commercial provider reflects a deliberate commitment to redundancy and resilience. Setbacks did not lead to retreat, but to rapid re-routing that involved a deeper grounding in principles of localism and network sovereignty.

5. Across the sites

Although the Northern Michigan Tribal context and Detroit differ substantially, a decolonizing approach brings them into relation by revealing how both are positioned within the same system of internet management, and how they nevertheless enact alternative connectivity pathways. In each case, the universal market model has failed; not because these communities are anomalous, but because it was never designed with them as reference points. This failure produces more than exclusion from service provision. It also marginalizes local visions of what the internet could be, rendering them unsupported, deprioritized, or actively blocked. Yet this does not mean that nothing has happened in these places. Our decolonizing perspective is attuned to distinct expressions of connectivity at the margins that both persist within, and push against, the vision of universality bound up with colonial power.

5.1 Opacity and Unseen Machinations

Across both sites, internet management operates through opacity – mechanisms that are difficult to locate, contest, or hold to account. It rarely appears as explicit denial; instead it takes the form of opaque procedures, deferred decisions, and administrative gaps that shape which projects can proceed, while leaving little trace of responsibility. In Detroit, Hope Village stalled without a decisive refusal: no bids materialized, a logistical explanation stood in for an account, and the project quietly dissolved through reallocation. For NMT, management appeared as procedural opacity: an internal assessment error could not be corrected, and shifting program terms redefined what was permissible. Read together, these episodes show how managerial power produces accountability gaps not despite its benevolent rhetoric, but through the everyday architecture of program design and implementation.

5.2 Exposure and Opacity

In Detroit, visibility draws the managerial gaze as a disciplinary force. The Hope Village project became vulnerable not only because it challenged incumbent arrangements, but because it did so with high visibility. For NMT, management involves recognition with strings attached; ReConnect's requirements, taken as they are, would risk fragmenting Tribal membership. They assume a consumer-service logic that sits uneasily with how sovereignty is practiced through network design and governance. Resources are ostensibly made available for Tribes, but they can just as easily be taken away when the rules shift. Where Detroit encounters management through exposure, NMT encounters it through procedural opacity and constraint. In this way colonial control – manifest through manage-

ment – is not applied uniformly, but through different mechanisms of ordering what kinds of connectivity projects are acceptable.

5.3 Failure as Learning

In both Detroit and NMT, moments of apparent failure – Hope Village’s stalled rollout; the denial of a major Tribal broadband application – function as diagnostic moments through which actors come to understand how they can re-route. In Detroit, the collapse of Hope Village reshaped subsequent action. The Canopy pilot reflects a recalibration that is not open-ended like an RFP, but more enclosed and relationally grounded, and thereby somewhat shielded from the forms of exposure that had destabilized the previous project. In NMT’s case, denial and revocation did not halt momentum but prompted innovative new pathways that expanded the reach of their fibre network even further. Across both sites, futuring emerges as iterative learning. Failure does not end action; it teaches communities how to proceed differently.

5.4 The Internet as Plural

Both Detroit and NMT’s efforts foreground local context and need as their key structuring logic. Detroit’s Canopy pilot has a specific model that seeks to tackle a specific population; that is offering affordable service to multi-unit buildings in low-income areas. NMT and MBP are committed to their regional community, and are able to demonstrate their strength even as BEAD decisions switched to a cost-based assessment. Taken together, the two cases illustrate everyday assertions of the internet as plural and local, not universal. They show each community seizing active governance through situated decisions about ownership, partnership, and standards.

5.5 Shifting roles

Key actors are required to take different institutional roles to support their efforts. In Detroit, individuals carry commitments from municipal government into non-profit and philanthropic positions. NMT’s government simultaneously occupies the role of infrastructure owner, service provider, and peer support for other Tribes. These movements enable relational continuity across shifting institutional landscapes. Read together, the cases show how futuring is bolstered by fluidity, whilst management demands fixity.

5.6 Temporal Misalignment

Finally, both cases expose a temporal tension at the heart of internet expansion. Management operates through fixed timelines: grant rounds, application windows, one-off decisions, and policy reversals. Futuring unfolds durationally, through long-term relationship-building, incremental design, and commitments that extend beyond funding cycles. This temporal misalignment helps explain the accountability gaps visible in both sites. When managerial timelines end, communities are left with the consequences.

6. Conclusion

This paper has asked what connectivity efforts at the margins reveal about how internet management operates, and how alternative futures are enacted despite these constraints. Across Detroit and the Northern Michigan Tribe, we show that internet management functions in opaque ways through hypervisibility, conditional recognition, and temporality, while internet futuring emerges as a situated practice of learning how to act within, around, and beyond these limits. Taken together, the two cases demonstrate that communities at the margins of high-quality internet access are not waiting passively for inclusion. They are actively designing connectivity in ways that reflect their values, priorities, and lived conditions. What differs is not the presence or absence of ambition, but the conditions under which ambition becomes administratively legible. Read through the conceptual dialectic developed in this paper, these cases clarify internet futuring as a form of decolonizing praxis: not a speculative horizon of what might happen, but the material and relational work of making other internet arrangements in the present.

In Detroit, futuring requires careful negotiation of visibility, where projects that attract too much attention risk derailment. For the Northern Michigan Tribe, futuring involves navigating recognition that reduces sovereignty to land. These are not failures of implementation. They are expressions of how internet management structures the field of possibility. Seen together, these cases show that decolonizing the internet cannot be reduced to “expanding access” within an inherited frame; it requires shifting who defines the problem, the unit of service, and the terms of connection. Placing these cases in dialogue shows that futuring is not a singular model to be replicated, but a situated practice of working within and against managerial constraints. These enactments challenge the assumption that universal connectivity must appear uniform. Instead, they reveal the internet as a plural sociotechnical terrain, shaped by ongoing power struggles. In this sense, internet futuring names both an analytic stance and an ongoing practice: it foregrounds enactments that exceed managerial scripts even when they tactically move through them. Rather than resolving the contradictions of internet

expansion, Detroit and NMT's projects render those contradictions visible and actionable.

Our findings support scholarship that emphasises the importance of localized approaches to internet expansion in the U.S. (Dagg et al. 2025; Auer 2025). We argue that these should not be understood as temporary responses to market failure, but as enduring articulations of connectivity that must be recognized as constitutive of the internet's story writ large. Such recognition broadens the horizon of what connectivity can be, and whom it can serve. These forms of localized information and communication are not new; they are continuous with long-standing social practices. More broadly, this paper offers an account of how coloniality operates on the ground in contemporary internet expansion. Totalizing accounts that frame the internet as inherently and irreconcilably colonial risk conceding the collective contributions of humans, connected or not, to this resource. Our approach instead calls for integrating plurality into our understanding of what the internet already is, and what it must always be, as a counter to the dreams and strategies of powerful actors.

References

- Aissaoui, Najeh (2021): "The Digital Divide: A Literature Review and Some Directions for Future Research in Light of COVID-19." In: *Global Knowledge, Memory and Communication* 71/8-9, pp. 686–708. <https://doi.org/10.1108/GKMC-06-2020-0075>.
- Aouragh, Miriyam/Chakravartty, Paula (2016): "Infrastructures of Empire: Towards a Critical Geopolitics of Media and Information Studies." In: *Media, Culture & Society* 38/4, pp. 559–75. <https://doi.org/10.1177/0163443716643007>.
- Auer, Jessica (2025): "Seeking the Commonwealth of Connection: How Small-Town Volunteers and Public Partnerships Transformed Internet Access in Western Massachusetts." Institute for Local Self-Reliance, November 18. <https://ilsr.org/article/community-broadband-networks/commonwealth-of-connection/>.
- Ávila Pinto, Renata (2019): "«The Internet of Creation Disappeared. Now We Have the Internet of Surveillance and Control»." CCCB LAB, October 1. <https://lab.cccb.org/en/renata-avila-the-internet-of-creation-disappeared-now-we-have-the-internet-of-surveillance-and-control/>.
- Bacchi, Carol (2012): "Introducing the 'What's the Problem Represented to Be?' approach." *Engaging with Carol Bacchi: Strategic Interventions and Exchanges*, pp. 21–24.
- Barrett, Malachi (2022): "Detroit's Plan for Equal Internet Access Starts with Hope Village." *BridgeDetroit*, April 14. <https://www.bridgedetroit.com/detroits-plan-for-equal-internet-access-starts-with-hope-village>.

- Benjamin, Ruha (2019): *Race After Technology: Abolitionist Tools for the New Jim Code*, Cambridge: Polity.
- Benjamin, Ruha (2024): *Imagination: A Manifesto*, New York: WW Norton & Company.
- Benton Foundation (2022): "Affordable Connectivity Plan Enrollment and Digital Equity Planning." Benton Foundation, June 16. <https://www.benton.org/blog/affordable-connectivity-plan-enrollment-and-digital-equity-planning>.
- Bowker, Geoffrey C./Star, Susan Leigh (1999): *Sorting Things Out: Classification and Its Consequences*, Cambridge: MIT Press.
- Butt, Henna Zamurd (2023): "Gendered Coloniality and the Politics of Internet Access." Goldsmiths Research Online, University of London. <https://research.gold.ac.uk/id/eprint/34322/>.
- Butt, Henna Zamurd (forthcoming): "Beyond Access Management." In: Henna Zamurd Butt/M.I. Franklin (eds.), *Internet Decolonized*, Oxford: Oxford University.
- Camp, Tina M. (2017): *Listening to Images*, Durham: Duke University Press.
- Castells, Manuel (2002): *The Internet Galaxy: Reflections on the Internet, Business, and Society*, Oxford: Oxford University Press.
- City of Detroit (2022): "City Tech Officials to Discuss Digital Equity Plans, \$ 10M Fiber Optic Pilot Project at Wednesday Community Meeting." City of Detroit, April 19. <https://detroitmi.gov/news/city-tech-officials-discuss-digital-equity-plans-10m-fiber-optic-pilot-project-wednesday-community>.
- City of Detroit/EntryPoints (2022): "Digital Access Policy and Strategic Infrastructure Plan." March. <https://detroitmi.gov/sites/detroitmi.localhost/files/2022-03/DETROIT%2C%20MI%20-%20DIGITAL%20ACCESS%20POLICY%20AND%20STRATEGIC%20INFRASTRUCTURE%20PLAN%20-%2003%2001%202022%20%281%29.pdf>.
- Crawford, Susan P. (2013): *Captive Audience: The Telecom Industry and Monopoly Power in the New Gilded Age*. New Haven: Yale University.
- Cyphers, Bennett (2019): "The Case for Fiber to the Home, Today: Why Fiber Is a Superior Medium for 21st Century Broadband." Electronic Frontier Foundation, October 16. <https://www.eff.org/wp/case-fiber-home-today-why-fiber-superior-medium-21st-century-broadband>.
- Dagg, Pierrette Renée/Knittel, Megan/Rhinesmith, Colin/Oh, Joon (2025): "Beyond Access and Infrastructure: Evaluating the Impact of Local Contexts on Digital Equity Strategies through the Lens of the Digital Opportunities Compass." In: *Journal of Information Policy* 15. <https://doi.org/10.5325/jinfo-poli.15.2025.0006>.
- Doescher, Ian (2025): "Comprehensive List: BEAD Benefit of the Bargain Provisional Awards - Telecompetitor." December 3. <https://www.telecompetitor.com/updated-comprehensive-list-bead-benefit-of-the-bargain-provisional-awards/>.

- Duarte, Marisa Elena (2017): *Network Sovereignty: Building the Internet across Indian Country*. Seattle: University of Washington Press.
- Federal Register. 2024. "Notice of Funding Opportunity for the Rural eConnectivity Program for Fiscal Year 2024." In: Federal Register 89/35. February 21. <https://www.federalregister.gov/documents/2024/02/21/2024-03484/notice-of-funding-opportunity-for-the-rural-econnectivity-program-for-fiscal-year-2024>.
- Franklin, M. I. (2013): *Digital Dilemmas: Power, Resistance, and the Internet*. New York: Oxford University Press.
- Franklin, M. I. (2019): "How Does the Way We Use the Internet Make a Difference?" In: Maja Zehfuss/Jenny Edkins (eds.), *Global Politics: A New Introduction*. 3rd edition, London: Routledge.
- Gonsalves, Sean (2024): "New Map Displays Nationwide Trends in Municipal Broadband Networks." Institute for Local Self-Reliance, September. <https://ilsr.org/articles/new-map-displays-nationwide-trends-in-municipal-networks/>.
- Haraway, Donna (1988): "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies* 14/3, pp. 575-99.
- Haraway, Donna J. (2016): *Staying with the Trouble: Making Kin in the Chthulucene*. Durham: Duke University Press.
- Hartman, Saidiya (2008): "Venus in Two Acts." In: *Small Axe* 12/2, <https://doi.org/10.1215/-12-2-1>.
- Hendrickson, Klara/Tanner, Kristi/Afana, Dana (2023): "Detroit May No Longer Be Largest Majority-Black City in US." In: *Detroit Free Press* May 2023 <https://www.freep.com/story/news/local/2023/05/23/detroit-largest-black-city-census-population-duggan/70235685007/>.
- Hooks, Bell (1988): *Feminist Theory from Margin to Center*. 4th ed, Boston: South End Press.
- Hooks, Bell (1992): *Black Looks: Race and Representation*, Boston: South End Press.
- Icaza, Rosalba (2017): "Decolonial Feminism and Global Politics: Border Thinking and Vulnerability as Knowing Otherwise." In: Marc Woons/Sebastian Weier (eds.), *Critical Epistemologies of Global Politics*. E-International Relations Publishing.
- Larkin, Brian (2013): "The Politics and Poetics of Infrastructure." In: *Annual Review of Anthropology* 42, pp. 327-43.
- Lugones, María (2007): "Heterosexualism and the Colonial/Modern Gender System." In: *Hypatia* 22/1, pp. 186-219. <https://doi.org/10.1111/j.1527-2001.2007.tb01156.x>.
- Lugones, María (2010): "Toward a Decolonial Feminism." In: *Hypatia* 25/4, pp. 742-59. <https://doi.org/10.1111/j.1527-2001.2010.01137.x>.
- Mavhunga, Clapperton Chakanetsa (2017): *What Do Science, Technology, and Innovation Mean from Africa?* Cambridge: MIT Press.

- McClain, Colleen/Vogels, Emily A./Perrin, Andrew et al. (2021): "The Internet and the Pandemic." Pew Research Center. <https://www.pewresearch.org/internet/2021/09/01/the-internet-and-the-pandemic/>.
- Mignolo, Walter D. (2011): *The Darker Side of Western Modernity*, London: Duke University Press.
- Mignolo, Walter D./Walsh, Catherine E. (2018): *On Decoloniality: Concepts, Analytics, Praxis*. Durham: Duke University Press. <https://doi.org/10.1215/9780822371779>.
- Milan, Stefania/ten Oever, Niels (2017): "Coding and Encoding Rights in Internet Infrastructure." In: *Internet Policy Review* 6/1, pp. 1–17. <https://doi.org/10.14763/2017.1.442>.
- Moore, Jessica Care (2020): *We Want Our Bodies Back*, New York: Amistad.
- Mueller, Milton L. (2013): *Universal Service: Competition, Interconnection, and Monopoly in the Making of the American Telephone System*. Syracuse: Syracuse University. <http://dx.doi.org/10.14305/01-00.bk.2013.1>.
- Noble, Safiya Umoja (2018): *Algorithms of Oppression: How Search Engines Reinforce Racism*, New York: New York University.
- NTIA (2022): "Broadband Equity, Access, and Deployment (BEAD) Program." <https://www.federalregister.gov/documents/2022/05/04/2022-09466/broadband-equity-access-and-deployment-bead-program>.
- NTIA (2024): "Broadband Equity, Access, and Deployment Program: Notice of Funding Opportunity." National Telecommunications and Information Administration, U.S. Department of Commerce. <https://broadbandusa.ntia.gov/sites/default/files/2022-05/BEAD%20NOFO.pdf>.
- NTIA (2025): "All 56 States and Territories Receive Approval to Begin 'Benefit of the Bargain' Round under the BEAD Program | National Telecommunications and Information Administration." June 21. <https://www.ntia.gov/press-release/2025/all-56-states-and-territories-receive-approval-begin-benefit-bargain-round-under-bead-program>.
- Nyabola, Nanjala (2018): *Digital Democracy, Analogue Politics: How the Internet Era Is Transforming Politics in Kenya*. London: Zed Books.
- Quijano, Anibal (2000): "Coloniality of Power, Eurocentrism, and Latin America." In: *Nepantla: Views from South* 1/3, pp. 533–580. <https://muse.jhu.edu/article/23906>.
- Radu, Roxana (2019): *Negotiating Internet Governance*. Oxford: Oxford University.
- Samii, Roxanna (2009): "Mobile Phones: The Silver Bullet to Bridge the Digital Divide." In: *Participatory Learning and Action* 59/1, pp. 44–50. <https://www.iiied.org/go2838>.
- Sardar, Ziauddin (1995): "Cyberspace as the Darker Side of the West." *Futures*, September. <https://ziauddinsardar.com/articles/altcivilizationsfaq-cyberspace-darker-side-west>.

- Simpson, Audra (2014): *Mohawk Interruptus: Political Life Across the Borders of Settler States*. Duke University Press. <https://doi.org/10.1215/9780822376781>.
- Skorup, Jarrett (2022): "Detroit's Broadband Network Destined for Failure." Mackinac Center, October 15. <https://www.mackinac.org/viewpoints/2022/detroits-broadband-network-destined-for-failure>.
- Spivak, Gayatri Chakravorty (1985): "The Rani of Sirmur: An Essay in Reading the Archives." In: *History and Theory* 24/3, pp. 247-72.
- The New York Times. 2025. "52 Places to Go in 2025." Travel. The New York Times, January 7. <https://www.nytimes.com/interactive/2025/travel/places-to-travel-destinations-2025.html>.
- Tlostanova, Madina (2020): "The Postcolonial Condition, the Decolonial Option, and the Post-Socialist Intervention." In: Monika Albrecht (ed.), *Postcolonialism Cross-Examined*. London: Routledge. <https://doi.org/10.4324/9780367222543>.
- Tuhiwai Smith, Linda (1999): *Decolonizing Methodologies: Research and Indigenous Peoples*. Reprint 2013. London: Zed Books. <http://doi.org/10.5040/9781350225282>.
- U.S. Government Accountability Office. 2024. *Tribal Broadband: Additional Assistance to Recipients Could Help*. GAO-24-106541. U.S. Government Accountability Office. <https://www.gao.gov/products/gao-24-106541>.
- USDA. 2024a. "ReConnect Program - Tribal Fact Sheet." United States Department of Agriculture, February.
- USDA. 2024b. "Rural eConnectivity Program (ReConnect) Overview." <https://www.usda.gov/sustainability/infrastructure/broadband/reconnect-loan-and-grant-program>.
- Villareal, Vanessa A. 2024. *Magical/Realism: Essays on Music, Memory, Fantasy, and Borders*. New York: Tiny Reparations.
- Warschauer, Mark. 2002. "Reconceptualizing the Digital Divide." In: *First Monday* 7/7 <https://doi.org/10.5210/fm.v7i7.967>.