



Baseline Report: The People's Internet

Measuring Progress towards Healthier Digital Ecosystems

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Overview: Building More Equitable Digital Infrastructure

The digital divide is stubborn. Despite decades of attempts to expand internet access, 25-30% of US residents still do not have broadband at home (Pew, 2019). Those least likely to have secure, reliable access are people of color, immigrants, elders, and low-income families – our most vulnerable communities – who are also likely to live in disinvested urban and rural areas and face a tangle of interwoven social, ecological, economic and health challenges.

Unlike earlier critical infrastructure systems like water and electricity, communications systems have been designed and built by the private sector, guided almost solely by profit-driven market models (Ali, 2019). Expected return on investment has been the primary indicator governing where broadband infrastructure gets built, who gets connected, and how much people should pay for what quality of service. This has led to a systematic, ongoing market failure to connect hard-to-reach and under-resourced communities who do not have access to digital opportunity or (increasingly) to basic services, and so fall further behind, deepening cycles of inequality (Dailey et al., 2010).

Yet the digital health of communities cannot be determined by the simple metric of whether people have internet access or not. There is also the question of who benefits and who is harmed by networked technologies, from facial recognition and predictive policing to algorithmic decision-making about criminal justice, social scoring, or access to health services (Garvie, 2019; Richardson, Schultz, & Crawford, 2019). As the internet itself has become a critical component of civil infrastructure, paradoxes arise around democracy, social control, and therefore around social and community health and self-determination. Corporate ownership of network infrastructure itself, and the monopolistic market power of large technology corporations, appears monolithic and unaccountable (Bode, 2018).

In response, a growing movement of community leaders, local governments, cooperatives, and grassroots organizations is tackling this problem by exercising their right of refusal and building

their own networks designed to create healthier technological ecosystems from the ground up (Gangadharan and Petty, 2019; Mitchell, Kienbaum, & Trostle, 2019). This movement has faced many setbacks over the last two decades, including monopolistic legacy industry practices, regulatory capture, and an overreliance on technologists who may not understand the dynamics of communities where they are working. The result has been projects that fail to deliver on promises made, “parachute” projects that bring temporary technical support and resources to communities then fade away without a plan for community ownership, and projects which create underused assets due to a lack of local buy-in (Wiley et al., Digital Equity Laboratory, forthcoming 2020).

Yet at the same time there are success stories: thriving community wireless networks that are providing benefits for their communities from local air quality monitoring to workforce training opportunities. Especially in the context of the repeal of net neutrality and digital privacy regulation, community networks inspire people to take ownership of technology and develop alternatives to the existing marketplace (Wiley et al., Digital Equity Laboratory, forthcoming 2020). Many communities are curious about building grassroots or municipal networks as an alternative to big telecom -- yet these projects are also intensive in terms of human capital; they require time, resources, and attention applied to complex partnership efforts. And it takes sustained effort to get to the scale of community impact.

To understand the value of community networks to create healthier digital ecosystems, and to scale up the support infrastructure and shared technical resources for those who need them, we need an evidence base demonstrating the impact of community-led digital public infrastructure. In this report, participant researchers working in partnership with three communities -- in rural Tennessee, a small city in the Hudson Valley, and legacy sites in Detroit -- situate and describe the community digital ecosystems work we have conducted with the support of the Robert Wood Johnson Foundation since July 2019. We further suggest a hypothesis of change outlined in an evaluative logic model grounded in our experiences with this project, previous community network projects, and the literature of the field. We also suggest a set of impact metrics aligned

with our logic model, which will guide our next steps in our partner communities and allow us to begin measuring progress as the work continues. Finally, we will present a set of case studies that can also help guide and course-correct our work and expand our empirical knowledge base (underway).

With anecdotal success and a rising tide of excitement about community networks, it is time to bundle up learnings from existing projects to create a shared framework for impact, scale, and investment. We are guided by a central question: beyond simply connecting people to the internet, how can community-led digital ecosystems, built with intention and care and grounded in the challenges and vision of local leaders, have collective, positive impact for communities' health, opportunity, and wellbeing?

Literature Review

Broadband access allows for “happy, healthier, resilient communities” because adopters use the internet to learn skills, problem solve, build hobbies, learn about health to better manage symptoms, create community health resources, and learn about local issues and thus to have a tighter-knit community (Fishbane & Tomer, 2019). In the early-mid 2000s, “digital inclusion” agendas mostly focused on access and adoption – that is, ensuring that all communities benefit from digital communications technology and have the opportunity to develop a familiarity with technology and understanding of its relevance to their everyday lives. Usage and integration of information and communication technologies (ICT) in one’s daily life for a wide range of activities is also known as “digital citizenship,” the belonging, capacity, and potential engagement in the political, civic, and economic realms of society (Mossberger, et al 2008). Digital citizens collectively have an impact on their local communities and on the broader society as a whole, exceeding the satisfaction gained individually.

With access to information and channels online to engage with political and democratic processes and players, users are more inclined to participate, discuss issues, and mobilize

(Mossberger, et al., 2008). In the technologically-shifting job market, workplace, and educational environment, digital readiness requires the confidence and facility of using computers and the internet to work and learn (Dailey et al., 2010; Horrigan, 2016). Without broadband access, communities are digitally excluded and thus socially, economically, and politically so, hindering their full participation in society and exacerbating existing societal inequalities around race and class (Mossberger, et al., 2008; Reisdorf, et al., 2018 in Wiley, 2020). Rural and low-income urban communities alike are challenged. When they might have been once pushed out of the workforce due to a shift in industrialization they are not at risk or at serious disadvantage in the internet age without access or only intermittent access or the proper skills and proficiency in online lines to move up the ladder and look for better jobs (Dailey, et al., 2010).

In Detroit, lack of broadband access and adoption--40% of residents--can be linked to systematic disinvestment in low-income communities of color and the high unemployment rate (forthcoming: Wiley, et al. 2020). The National Digital Inclusion Alliance (NDIA) reported that AT&T, the major ISP serving Detroit besides Comcast, is in the practice of “digital redlining” low-income neighborhoods: it selectively offers its fast fiber-enhanced broadband service in higher income areas, skipping most of Detroit's census tracts with poverty rates above 35% (Callahan, 2017). Post-industrial rural towns like Jackson County, Kentucky, also experience this sort of impoverishment and unemployment, with no hospitals or broadband connectivity (Halpern, 2019). Outside of the US, in Macha, a rural village in Zambia's Southern province, the lack of basic infrastructure including electricity is intertwined with a climate of post-colonial capitalism, the invasiveness of resource-extractive industries, and an AIDS epidemic (Mweeta & Van Stam, 2018).

In these respective locales, communities are building local power against social and economic injustices and bridging the digital divide to enhance their wellbeing, quality of life, and future resilience. Coalitions of organizers and technologists have joined together to build and install community networks shaped by the process of social cooperation and from the bottom up

(Fuentes-Bautista, 2014; Comfort, 2018). In this act of “network self-determination,” affordable homegrown networks are designed to be more responsive to their users than traditional commercial networks (Antoniadis et al., 2020; Powell, 2008; Belli 2017; Wiley 2020; Gerety et al., 2016). Through organizing and building community power they are not only connecting people within and across neighborhoods but also sending a bold message that communities are willing to address the failures of the market (Wiley 2020).

Beyond giving residents access to the internet, community networks provide local opportunities in employment and education while addressing larger environmental, social, and health issues through purpose-built, network-based technologies and through collaboration and solidarity. Detroit’s Digital Justice Coalition brought together environmental justice, welfare rights, and youth organizing (Breitbart, in Freedman, Obar, Martens, & McChesney, 2016), along with establishing a digital stewardship program, where local residents develop marketable network installation and maintenance skills and certifications (Wiley, et al., 2020). Jackson County’s member-owned cooperative Peoples Rural Telephone Cooperative (PRTC) partnered with job-training programs and technology and infrastructural projects to open Teleworks Hubs across two neighboring counties in 2015-2016, creating more than 600 jobs to date (Halpern, 2019). Another PRTC collaboration is addressing the need for quality healthcare, establishing a Virtual Living Room Telehealth Center (Ball, 2018). Working with the church and major universities, non-profit cooperative Macha Works developed educational programs, vocational training in health and ICTs, an eHealth initiative and medical research institute, among other local services and infrastructures in Macha, Zambia (Mweeta & Van Stam in GIS 2018). As evident in these case studies, community networks build local capacity and resourceful systems through broadband access and adoption, thus investing in the sustainability of the livelihood of the community and of its individual residents.

The right to informational self-determination -- sovereignty over personal data protection and disclosure -- is deeply intertwined with the right to network self-determination (Belli, 2017). Efforts to provide broadband adoption also have their setbacks and harms, particularly to

low-income and marginalized communities, potentially reproducing historical inequities by failing to engage in issues of users' digital privacy and the pervasive digital tracking and targeting of users by both state and corporate actors (Gangadharan, 2017; Madden, Gilman, Levy, & Marwick, 2017). Self-determination -- whether infrastructural or informational -- is to create a happy, healthy, and resilient future and to abolish the systems of oppression and control. cynthia el khoury and Kathleen Diga ask "How can technology be designed for liberation and resistance and not in reaction to fear? What value do machines hold when they are used to control us" (2019).

The response is within the abolitionist, holistic, and feminist frameworks. Designers and activists can rewrite the social and value systems around technology using the metaphor of a slow breath the basic requirement for healthy living and for a sustainable fight for resistance in opposition to the goals of market-driven and policing technologies to be newer, better, faster, (Benjamin, 2019). To move towards power reclamation and healthy communities, those building community networks need to relinquish any belief in the unlimited potential of technology but rather to engage in "dreaming a different future based on creative bending and twisting of technologies" (Medosch, 2014). Community networks can be constructed around intimacy, meaningful access, and mutual aid, while refusing surveilling, colonial and patriarchal modes of the Internet (el-khoury & Diga 2019; Toupin & Hache, 2015).

The Detroit Community Technology Project's Teaching Community Technology Handbook calls for overcoming the capitalistic "dehumanization" of communities for democratic, just, healing, and nourishing connections to people (Nucera, ed., 2015). Activating this vision of a "healthier digital ecosystem" is grounded in principles that center communities in the production of their own stories, local media, and art rather than only as consumers of internet content (Nucera, ed., 2015). Storytelling, memory, and discourse can be sites of activism (Feminist Principles of the Internet, 2014). Indigenous communities throughout the Asia-Pacific Region can now connect through their community network platforms, set up by the Southern California Tribal Village (SCTV). SCTV's Matt Rantanen shares that the exchange of stories is a

significant part of their efforts for power reclamation: “We all have very similar stories and histories of hardship and oppression, and could greatly benefit from sharing our individual solutions to overcome these obstacles and strengthen our communities as a whole” (Cenic, 2020). Similarly, Macha Works recognizes the importance of agency and communal love as values for long-term change, community engagement, and transformative justice. One main goal of the community network is to preserve cultural heritage as a form of uplifting the community, in opposition to narratives rooted in colonialism and imperialism (Mweeta & Van Stam in GIS 2018). Beyond affordable and sustainable access, community networks promote power reclamation and well being for historically marginalized communities who are establishing through their own local mutualistic care and media platforms as ways to sustain themselves and their imagined futures.

The People’s Internet

Scaling The Equitable Internet Initiative

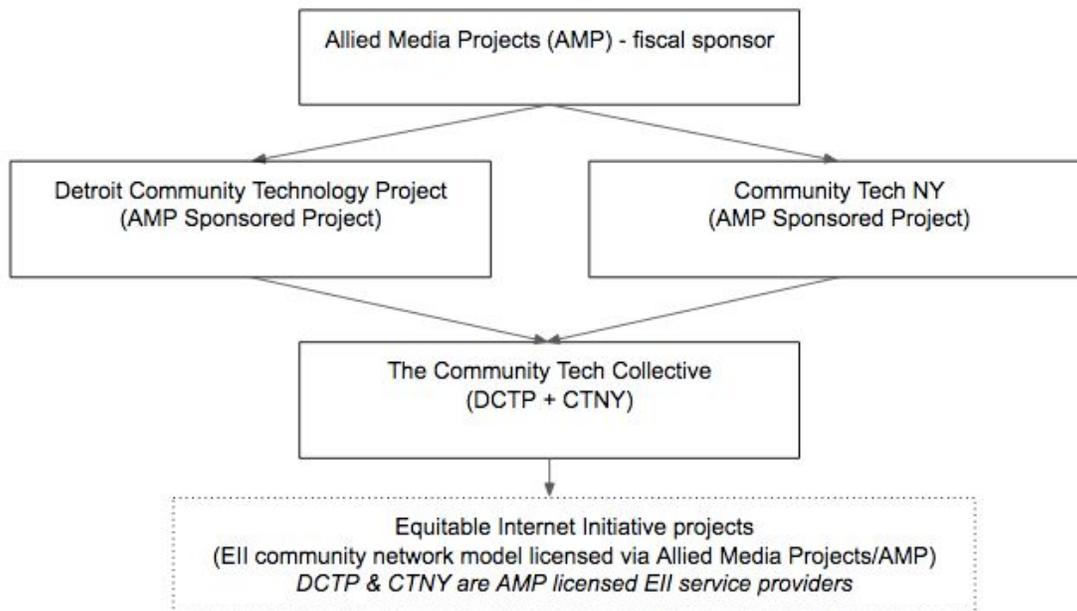


CTNY & SCCP/CCI testing WiFi frequencies at the home of a Clearfork resident, Sept 2019

A collective of organizers and researchers from Detroit, New York, and Tennessee has been working since 2011 to expand a groundbreaking model of community-led internet access to new communities. This project (The Equitable Internet Initiative, or EII) advances the work of community technologists (educators, technologists, artists, and community organizers) who have seeded nine community wireless networks with partners in Detroit and New York City since 2012 (Open Technology Institute, 2013; Rogers, 2017).

The EII is led by the Detroit Community Technology Project (DCTP) and Community Technology Collective (CTNY), a New York State-based group that applies community technology as a method of teaching and learning about technology with the goal of facilitating a healthy integration of technology into people's lives and communities, honoring the principles of Access, Participation, Common Ownership, and Healthy Communities (Nucera, 2016). The [Allied Media Projects](#) (AMP), a mission-driven collaborative non-profit based in Detroit, provides fiscal and organizational infrastructure for the EII team. Together, CTNY and DCTP build and support EII projects as the Community Technology Collective (CTC). AMP, a network of people and projects cultivating media for liberation including CTNY and DCTP, owns the EII trademark.

The Community Technology Collective



Since 2016, led by DCTP, the Equitable Internet Initiative (EII) has brought community-built residential high-speed internet service to 200 underserved households in Detroit (forthcoming: Wiley et al., 2020); led by CTNY members, a sister initiative (Resilient Communities NYC) brought neighborhood preparedness networks in five coastal New York City neighborhoods (Byrum and Nucera, 2018; Byrum, 2019). Aside from internet access, these neighborhood networks also offer applied community benefits when applications and uses are added to the basic infrastructure: e.g, air quality measurement in the South Bronx and Southwest Detroit; and in both cities, platforms to help neighborhood businesses organize and grow their local tech ecosystems, and for local organizations to provide tech job training and placement.

In 2018, a [Vice Motherboard documentary](#) about EII in Detroit brought a flood of requests for assistance from networking groups around the world (Rogers, 2017). Two new community technology partners - one in the Hudson Valley of New York State and another in the Clearfork Valley of Tennessee -- started spinning up EII network projects with plans to create

community-defined goals to advance digital ecosystem health. Community Tech NY formed and joined DCTP in the Community Tech Collective to help these two groups to seed and grow their networks on the East Coast.

The growing alliance created by these partnerships is expanding and testing the EII model. To document and evaluate progress, the People's Internet -- a joint venture between The New School for Social Research and the Community Technology Collective in partnership with EII communities -- is engaging in participatory action research to document how these groups work to collectively set the course for growing and improving the impact of community networks.

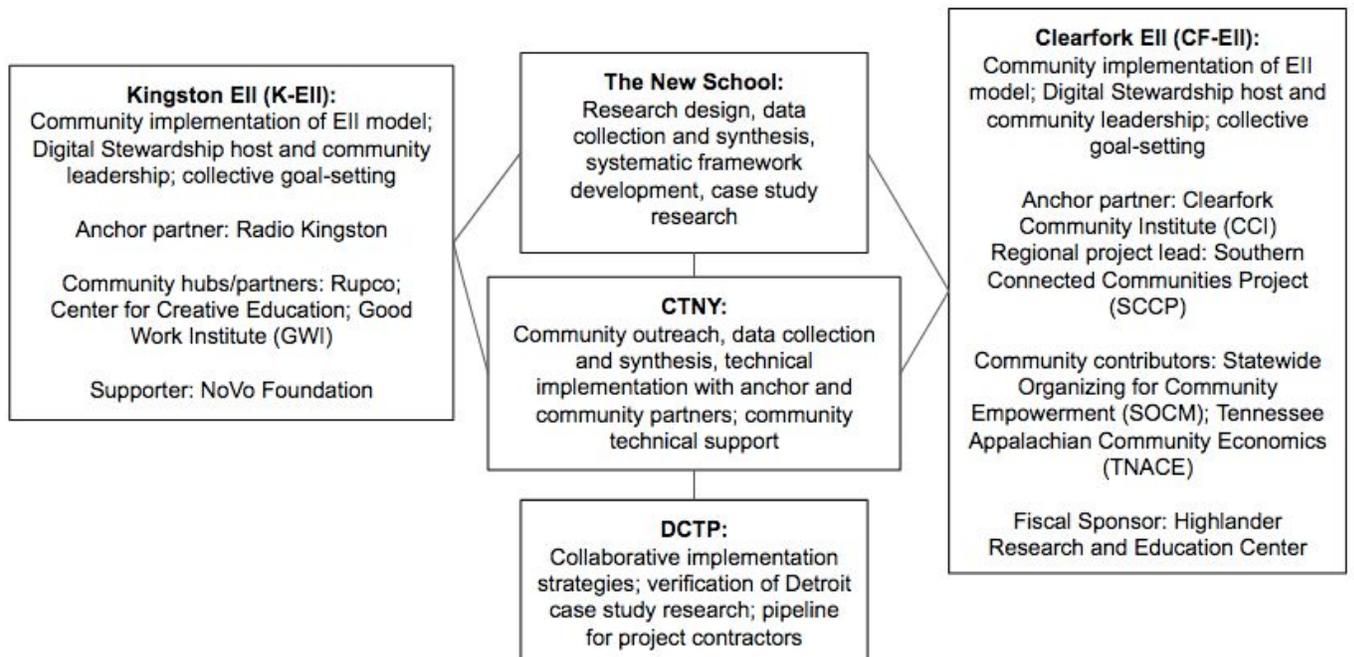
The People's Internet applied research project has two interconnected goals: 1) Seed new community networks in the Tennessee and Hudson Valleys in collaboration with local partners who seek to foster healthy neighborhood-based digital ecosystems and address local challenges; and 2) In collaboration with existing and new partners, develop a shared framework for measuring and evaluating the success paths and equity impact of community networks.

Methods: Participatory Action Research for Impact Evaluation

As described, the Equitable Internet Initiative (EII) is an application of community technology -- a method of teaching and learning about technology with the goal of facilitating a healthy integration of technology into people's lives and communities. By collaboratively planning, designing, and building wireless networks with local communities, the EII provides communities with the knowledge and skills to build and govern a digital infrastructure in a way that is truly community-rooted. Supporting community organizing that spans community groups, mission-led service providers, activists, community leaders, and researchers, the EII takes a participatory action approach: we prototype implementation plans, test them across our partnership, rapidly iterate and course-correct as we go, documenting each step.

The People’s Internet applied research project is a collective of EII partnerships and allies -- in effect, a network of networks:

Equitable Internet Initiative Research Partnership



In Kingston, New York, the lead community anchor partner is Radio Kingston, a non-commercial platform dedicated to a vibrant, just, and healthy Kingston centered around community storytelling, artistic and musical expression, conversation and connection. Radio Kingston’s local partners include local non-profit the [Good Work Institute](#), mission-driven housing provider [Rupco](#), and the [Center for Creative Education](#).

In rural Clearfork Valley, Tennessee, CTNY works with the [Southern Connected Communities Project](#), the Highlander Research and Education Center, and SOCM (Statewide Organizing for Community eMpowerment). The local anchor partner is the [Clearfork Community Institute](#) (CCI), a resident-led nonprofit and community center that nurtures partnerships and collaborates in a safe space to build the Clearfork area into the wealth that is reflected in its beautiful

surroundings and culture. CCI works closely with the Woodland Community Land Trust locally, sharing values of ecological practice and land stewardship.

Both partnerships are supported primarily in the EII partnership by Community Technology NY (CTNY), though CTNY works in close collaboration with the Detroit Community Technology Project (DCTP). Both are founding partners in the Community Technology Collective, and hires from within the Collective to support the growth of new project sites. The New School Research Team includes co-PIs Greta Byrum (Digital Equity Laboratory) and Anthropology Faculty Shannon Mattern, with research associates Erica Kermani and Ever Bussey, as well as advisor Maya Wiley.

Since July 2019, the research team has conducted a literature review; collected in-person interviews; reviewed reports collected and coded by local community organizers;¹ held community outreach events and focus groups; and conducted observational ethnography; the CTNY implementation team has led workshops, information sessions, engineering surveys, and initial installations at both sites, also working to support local partners' capacity-building. The research activities take place within and alongside the work of laying the groundwork for, and starting to build, network infrastructure.

Background: Clearfork Valley, Tennessee

Rural Clearfork Valley, in the Cumberland Mountains of Eastern Tennessee, spans Claiborne and Campbell Counties. As with other communities in the Valley, Eagan, the unincorporated community where EII anchor organization Clearfork Community Institute is located, has seen its population dramatically grow and shrink as coal camps moved in and out of the area.

¹ In 2018 a group of community members and volunteers in the Clearfork Valley assembled to create a listening survey and asked upwards of 140 residents questions, ranging from what they love most about the region to what workable skills they possess. The results were shared in a public document by the Woodland Community Land Trust at over three community meetings.



Clearfork residents at a rooftop installation at the Clearfork Community Institute, July 2019

In recent years, as the demand for coal has hit an all-time low, the mining industry has dramatically reduced its footprint and activities in the area, and has turned to surface mining practices instead of deep-vein mining. Kopper Glo, the coal mining company that has ruled the economy of the Clearfork Valley of Eastern Tennessee for the last sixty years, claims a *legacy of environmental stewardship and community involvement*. Yet its stock in trade is surface mining. Instead of tunneling into a mountain, the company uses explosives to remove ridgetops, scrape out low-quality coal reserves, and wash them with chemicals, dumping dirt and toxic coal ash into nearby valleys and streams. Residents of the Clearfork Valley's Eagan and Clairfield communities experience high rates of environmental illnesses, chronic high unemployment, and poverty levels 2.5 times higher than the national level and 2.2 times higher than the state level, according to the 2015 census. The community has no ambulance service, and on the Campbell County side of the Valley, the highest death rate in Tennessee due to the opioid crisis. The closest hospital -- 30 minutes away in Jellico -- is in danger of closing in the coming months.

Multi-million dollar mining company Kopper Glo pays no local taxes; it pays only a “coal severance” tax to the state of Tennessee—\$393,664 in 2016—little of which makes it back to the Valley. Residents say that the community, located 45 miles from the nearest county seat, has little political power or resources to organize for reform. Increasing automation in the mining industry has created high rates of surplus labor, so workers are unable to unionize. As of the 2015 census, 29.8% of Clearfork residents were unemployed and 51.8% were outside of the labor force, with a majority of residents on disability benefits due to injuries and illnesses such as black lung disease. Transportation is also a major challenge – the nearest grocery store is 30 minutes away – but gas prices are high, and many people do not own cars.

Despite all of this, Eagan and Clairfield, two population centers in the Clearfork Valley, model a legacy of local environmental stewardship and resilient and innovative leadership in collective community development. The Woodland Community Land Trust, which works closely with CCI, has a history of ecological advocacy and stewards previously mined land in the Cumberland Mountains. The group Statewide Organizing for Community eMpowerment (SOCM) works with both organizations to build community power.

The quality of infrastructure in the Clearfork Valley is also a challenge, since it has a low tax base and is experiencing industry disinvestment. A few years ago Clearfork residents banded together to build a water system in the town of Clairfield, yet the community has been skipped over by telecommunications companies. No high-speed internet service is available, let alone fiber-optic service; residents report that they must rely on satellite service that is very slow and only works intermittently, with most citing an average cost of \$230/month. Cellphone service is unreliable and does not work at all in many locations, complicating the lack of ambulance and emergency response services. A new cellphone tower is in construction on the Claiborne/Campbell border, but residents have not received any information about what to expect, or when.

Background: Kingston, New York



CTNY Portable Network Kit Building workshop at Radio Kingston, September 2019

Kingston is a city of 23,000 people located in rural Ulster County, New York, in the upper Hudson Valley. Since 2011, the population has declined, a trend that appears alongside the recent increase in property value and investment, where some buildings are being flipped -- in one case, a building was bought for \$485,000 and then rapidly sold for \$925,000 (Smith, 2017). The skyrocketing prices have contributed to an increase in displacement and the trend of rental rates exceeding the rate of homeownership. Census data shows the rate of poverty in Kingston is also 1.5 times the national average.

The city's major industry is health administration. The Midtown neighborhood is home to both campuses of HealthAlliance Hospital, part of the Westchester Medical Center Health Network; HealthAlliance Broadway Campus (formerly The Kingston Hospital) and HealthAlliance Mary's Avenue Campus (formerly Benedictine Hospital).

Local organizations have sprung up thanks to area philanthropy, especially the NoVo Foundation, which is investing in a comprehensive vision of change informed by the theory of “just transition.” Kingston is also home to the O+, a national nonprofit working in cities around the country “that builds long-term relationships between creatives and health and wellness providers to help strengthen local communities.” The annual O+ festival connects underinsured artists and musicians with doctors, dentists and complementary care providers.

Lead anchor partner Radio Kingston is a non-commercial broadcast platform dedicated to a vibrant, just, and healthy Kingston. They provide a space for community members to talk about local issues, share cultural events, and build relationships. The station’s content is centered around community storytelling, artistic and musical expression, conversation and connection; they also bring the content out into the community, facilitating and broadcasting performances and events. Radio Kingston sees development of community internet as an expansion of its mission and the role it plays in the community, an opportunity to give more residents a voice and enable the further building and deepening of relationships through a collective enterprise, as well as a way to materially support residents by creating better access and lowering the cost of connection.

While broadband service is widely available in Kingston, the cost of service is disproportionately out of reach for poorer longtime residents, with gentrification also raising the prices of other everyday needs.

Implementation and Community Activities

From July 2019 through December 2020, EII partnership activities have comprised:

- Radio Engineering Survey (Clearfork) - completed September 2019

- Phased Network Design (Clearfork) - completed September 2019 and adopted by the Southern Connected Communities Project October 2019
- Hands-On Workshops (Kingston, Clearfork, and Detroit) – Dates in July, September, October, and November 2019
- Public Outreach Events
 - Tennessee focus group July 2019
 - Kingston meetup December 2019
 - Kingston community information session February 2020
- Hiring Outreach/Recruitment
 - Clearfork December 2019-ongoing
 - Kingston January 2020-ongoing
- Interviews (Tennessee & Kingston)
 - Ongoing, July 2019-present
- Pilot Network Build-Out (Clearfork) - July-September 2019
- Portable Network Event Test (Kingston) - October 2019



CTNY Portable Network Kit Demo at the O+ Festival in Kingston, October 2019

Research Activities

- Literature review and case study compilation
- Analysis and verification of collected community data
- Contextual research on project sites
- Eugene Lang New School for Social Research Spring 2020 class “Anthropology of Networks” focusing on healthy digital ecosystems (co-taught by Greta Byrum and Shannon Mattern)

Upcoming Implementation and Research Activities

- Train-the-Trainers workshop for Kingston and Tennessee leaders (April 2020)
- Clearfork Network Build-Out/Barnraising (April)
- Community Tech NY Curriculum Development (current as of mid-January until April)
- Kingston Radio Environment Survey (May/June 2020)
- Local Leadership On-Boarding (February-April in Tennessee and Kingston)
- Partnership Development Support

Achievements

High-Speed Demonstration Network in Clearfork

Clearfork, Tennessee has never had high-speed internet service. The only available option until now was expensive, slow satellite service -- which cost up to \$250 per month in this high-poverty community, and according to residents often stopped working “when the wind blew the wrong way.”

In July 2019, the CTNY team visited Clearfork to explore networking options in partnership with the community. Without access to a high-speed internet provider in the area to connect residents to wired cable, DSL, or fiber-optic internet, the partners worked together to research mobile broadband options. Using a mobile data plan connecting a cellphone tower to antennae on the roof of the Clearfork Institute, we were able to bring a data signal and connect it to a modem inside the building. Together, CTNY, SCCP partners and local residents built a Portable Network Kit to distribute the mobile signal across the Institute's building and grounds.



CTNY Portable Network Kit building workshop at the Clearfork Community Center, July 2019

The Kit, which CTNY prototyped in New York City for flood-prone neighborhoods searching for resilient emergency connectivity options, is a collection of off-the-shelf consumer hardware that can be configured easily to make a local Wi-Fi network accessible by mobile device or computer. Ideal for building decentralized, resilient, uncensored communications infrastructure, the PNK connects devices in a small area – anywhere from one building or public square to about a half square mile – and can be meshed with others for wider range. PNK offer an opportunity for learners to get hands-on with internet protocols and power systems, demystifying technology and helping to move learners from consumers to producers. The Tennessee PNK

network is now available to CCI visitors and the surrounding area, providing high-speed service for the first time. In April 2020, we plan to add bandwidth and build out additional community hotspots.

Capacity and Workforce Development

Our collective work has created employment opportunities for local residents at both new EII work sites. Radio Kingston and SCCP are both hiring, widening the circle of knowledge about community networking and creating jobs at both sites. We have also made progress on our goal to create opportunities for folks trained through previous EII community network projects. CTNY has also hired a Detroit-based consultant to bring her skills and knowledge of the process to assist Radio Kingston as they set up their EII project.

Publishing

New School researchers have published articles in [Urban Omnibus](#) and the [MIT Network Sovereignty Blog](#) featuring this work. A forthcoming article in the Hudson Valley-based Chronograph will also discuss the initiative and its plans for the Kingston network.

Key Understandings

By reviewing data and feedback compiled through literature reviews, in-person interviews, public datasets, the Clearfork Community's publicly released asset mapping data and Kingston organizers' work towards a community needs assessment, as well as reports from local organizers, we have gathered a sense of some of the dynamics at play in our two partner communities. While both research sites offer their own idiosyncrasies, reflections upon initial data gathering has yielded strong parallels between the two. The initial data begins to tell a story of communities mobilizing to mend their respective social fabrics and the systemic elements

facilitating things like **isolation** and **dependency on outside interests**, instead of inside the community. These themes provided a strong foundation to build our power indicators (listed below) by highlighting the gaps and mechanism keeping residents from uniting to collectively reclaim power. We have organized observed themes into three major categories that individually include layers of intersecting data points: 1) physical and mental health and healing; 2) economic deprivation; and 3) social/physical infrastructure.

Theme 1: Physical and Mental Health and Healing

The Opioid Crisis and Health Ecosystems

I usually don't keep up with that many people cause there ain't many people around. The whole drug crisis has slaughtered this whole area.

-resident of the Clearfork Valley

Ulster County is a hotspot in New York's opioid epidemic. In 2018, Ulster led the state's 62 counties in opioid deaths per capita. Between 2015 and 2018, opioid-related overdose deaths rose by 93 percent.

-representative, Hudson Valley One

Clearfork Focus Group transcript, July 2019:

P1: There is a big underground economy in drugs. People drive off of the mountain for work, but transportation is a big issue — lots of people don't have cars, can't maintain them.

P2: Late 90s/early 2000s, everybody used to use ATVs, messed around in the woods, etc. Now — nothing. Everybody I went to high school with is on drugs.

P3: Every 8th grader who graduated with my son is on drugs.

Facilitator: Do you think that having internet programs here would help with the drug problem?

P3: There is nothing in this community for young people to do. I like to hope that if they had something else, drugs wouldn't pull them in quite as bad.

As in so many areas of the US, the opioid crisis is a critical issue in both of the new EII communities, and relates to conditions shaping access to health resources and information. Both the Clearfork Valley and Ulster County, New York -- where Kingston is located -- have experienced a dramatic increase in opioid use and related deaths in recent years.

In Clearfork, the crisis is amplified by the lack of basic ambulance services and the likely closure of the nearest hospital. According to the CDC, Tennessee was ranked 9th nationally in drug-related deaths. In 2014 and 2015 Campbell County, which houses part of the valley, saw the highest distribution of drug-related deaths (Hanson, 2017). Claiborne County, also representing a portion of the Valley, consistently yielded unreliable data to even determine the drugs impact between 2010-2015.

While the lack of infrastructural and institutional support for Claiborne and Campbell County present difficulties to consistently and accurately measuring the deadly impact of the crisis, the research site in Kingston, NY does appear to have the resources to study and address the problem -- yet reducing the toll still proves elusive. According to the Ulster Coalition Against Narcotics (UCAN), 2004-2013 carried the number of heroin and prescription opiate treatment admissions in New York from 63,793 to 89,269 (2015). The increase in drug arrests in Ulster County, where Kingston resides, helped to introduce and pass Resolution 371 in 2014, creating UCAN to research methods of helping residents to prevent abuse of opiate drugs.

Theme 2: Economic Deprivation

Poverty and Race

There's a hospital in Jellico but maybe they'll close it. My husband works there and he has not been paid...They're not sure when they'll be paid. Apparently we lost our insurance in July and did not know this...So, this is a new owner that came in February not able to make the payroll and they bought three hospitals in the surrounding counties. The first one has already been closed, the second one is on the verge and this one, that we're at, it could easily close. They're rural hospitals. They don't get the support of the

government paying out for insurance cost, covering the cost for people. And it used to be the largest employer in the area. I don't know if they employ 50-100 people, if that.

-Interview transcript (resident of Clearfork Valley)

The Census Bureau's 2011-2015 American Community Survey indicates that Clearfork Valley's poverty level is 2.5 times higher than the national average. The 2010 Census shows that Claiborne County had 6,217 residents below the poverty level, while Campbell County had 9,446. The number of white residents accounted for 96% of the population. The level of poverty, in relation to the racial make-up of the valley provokes a connection between the impoverishment in the region and how the rising number of drug-related deaths appears to be impacting white, male residents more than other members of the population, according to the CDC's 2010-2015 statistics (Hanson, 2017).

In addition to potentially exacerbating the drug crisis in the region, the initial round of data gathering revealed how this dynamic emerges from amid a cycle of poverty. As indicated by the 2015 Census, the unemployment rate in Clearfork was 29.8%. According to some interviewees, the nearest hospital is one of the major employers but, as mentioned above, based on conversations with residents whose friends and family work at the facility, it will likely close soon, and workers have not received paychecks for months. Interviewees also mentioned that most residents would need to travel 30-40 minutes to the nearest employment opportunity, which is a further disappointing reality considering how few people have cars and can afford gas and other transportation expenses. Social worker and community researcher Harry Chase focuses on how schools in the valley have poor attendance and a dropout rate of 40%, which could be correlated with the transportation issue.

In Kingston, 2012 Census data reports that white residents account for 73.2% of the population and only 13.6% fall below the poverty level. Conversely, African American residents represent 14.6% of the population and account for 35.2% of those considered impoverished. Poverty and race in Hudson Valley are intimately tied to each other and both find themselves embedded within the issue of gentrification. As reported in local publications like *Hudson Valley One* and

The Rise, the influx of wealthy real estate investors has inspired skyrocketing rent prices and property values that have unfortunately spelled displacement for older residents. As patterns of displacement persist, interviewees spoke of concerns that the impoverished -- mainly black -- residents will fall victim to the historical racial politics of settler-colonialism.

Theme 3: Social/Physical Infrastructure

Internet Access Addressing Issues of Isolation and Fractured Communities

I hope to see people being connected, using that connection to become part of society. When you live without a connection you don't feel like part of society.

-Clearfork resident

Places like Good Work Institute are practicing Just Transition because we recognize that humans are living in a moment of transition and historically these changes have not been equitable. Just Transition looks to prioritize things like racial justice, ecological restoration and localized production in Kingston.

- Micah Blumenthal, resident of Kingston and Worker Trustee at Good Work Institute

I think [wireless internet access] is needed. I think it's going to be a way to hopefully pull folks more together and connect them to outside the world cause some of these kids have never left this holler. Yeah, I think it's going to be a really good way to show folks there's a world outside this holler.

-April Jarocki, Clearfork Community Institute

Radio Kingston's priority is community connectivity. It's meant to be the people's platform. The country is deteriorating at a rapid pace and we need to be connected, come what may.

-Kale Kaposhilin, Chief Technology Officer, Radio Kingston

Representatives from both the Clearfork Community Institute and Radio Kingston have expressed the belief that building capacity for affordable, reliable and decentralized broadband has potential to serve specific goals related to connecting and organizing neighbors and community members. While the goal of developing social infrastructure for healthier inter-community relationships is shared by research participants in both sites, there are thought-provoking differences among them with regard to motivation. In Clearfork, for instance, residents express the hope that collective self-determination in stewarding wireless internet ecosystems will unite neighbors, encouraging them to confront the scars of corporate and outside dependency. Participants in Kingston, on the other hand, are in the process of engaging the larger community to solicit ideas about how to transition justly out of harmful capitalist systems and prepare for changes emerging due to threats related to climate change and resulting economic upheaval.

In addition to CCI, there are other organizations mobilizing to empower the mountaineers of the Clearfork Valley. The Woodland Valley Landtrust and the Southern Connected Communities Project are just a few of the tackling issues like restoring land and homeownership to residents or organizing community-wide door knocking campaigns. The Clearfork Valley Asset Mapping Project is an example: a coalition of these organizations surveyed their neighbors to collect feedback about residents' perceptions of the community and changes they'd wish to make. This asset map provided some heuristic insight when coupled with the interview responses. For instance, out of 173 survey responses, the majority of respondents (71%) declared that people helping each other is something they love about living in the valley. While this was echoed in some interviews, many interviewees said that the community was no longer a home to neighbors who trust each other, groups can be cliquish and people remain isolated from each other. These conflicting sentiments, rather than contradict the research, provide an entrypoint to the complex relationships formed amongst these residents after hundreds of years of dependence on corporate mining powers, violence targeting union organizers and histories of government officials prioritizing profits over people. The work of researchers like John Gaventa (see below) and

Harry Chase help to put these power dynamics and issues of dependency into perspective with regard to life in the Valley.

The UnSurvey Project in Kingston is, similar to the Clearfork Community Asset Mapping Project, is conducting a campaign across the city to solicit opinions and suggestions from residents. This practice will hopefully inform a democratic and equitable transition in a city in the process of gentrifying. The UnSurvey Project launched in 2019 and forgoes the traditional survey and door-knocking methods for community engagement sessions. Efforts to avoid hierarchies and establish collective leadership have caused delays in data analysis. Once these organizational practices have been determined, the UnSurvey Project could prove a nuanced data source than the traditional survey.

Based on these similarities and differences, we anticipate that these communities may define their goals in related but different ways.

Building Healthy Digital Ecosystems

A Framework for Understanding Impact



As the People’s Internet team and partners endeavor collectively to scale up the work of the EII in Detroit to our new sites in Tennessee and the Hudson Valley, we have collectively developed a hypothesis addressing the relationship between community-led infrastructure development and a perceived sense of collective power and self-determination. At both sites:

We hypothesize that as a community builds and stewards its own digital ecosystem, so does it reclaim collective power and capacity to be self-determined.

The conceptual understanding of power as being *reclaimed* instead of simply *claimed* is an important and intentional declaration. In the context of both research sites, for instance, it would not be surprising if one were to inquire about how a community without any historical control over a symbol of power -- in this case communications infrastructure -- could retake control. As one Clearfork resident put it, “internet would make that goal closer.”

Put plainly, how can a community reclaim something they did not have to begin with? To find our answer, we must look to examples in the evolution of language. Groups of people that have been historically oppressed, for reasons precipitated by differences in race, class, gender, etc., have also not only found their oppression to be material but linguistic as well. Obvious examples of oppressive language include terms like “negro,” “bitch,” and “faggot” to connote the feeling of shame, inferiority and control over Black people, women and gay men. That said, as all three of these groups have gained relative freedom, considerable wealth, and political power, so have we witnessed the reappropriation of these terms to express a certain unity and unapologetic celebration by the groups they were formerly used to shame.

It is in this way that we observe an understanding and reappropriation of power in our partner communities. The Clearfork Valley’s journey to reconnect and become self-determined is in direct contrast to the corporate and municipal powers that have historically facilitated rampant poverty, dependency and trauma in the region. The community in the Clearfork Valley has experienced harms from corporate extraction and environmental and social degradation that have contributed to intergenerational trauma. We would characterize this community’s pursuit in creating a networking project as *healing from*.

According to Marie Webster, the Executive Director of the Clearfork Community Institute, there is a demand for fast and reliable internet, specifically in response to the issue of isolation of the community from the seats of both counties it straddles (Campbell and Claiborne). In regard to corporate extraction, Webster names that mining companies “suck out all the natural resources. We want people to be able to stand and fight.” In their mission to reclaim, residents are reconceptualizing power **not as a means of ripping a community apart (as residents have experienced it historically), but to heal and bring it back together.**

The goal of building community networks serves different purposes for each community. The Kingston site has been quickly building an infrastructure to support a *just transition* to a

post-capitalist economy. We propose that this exercise in power reclamation can be categorized as *preparing for*. The Good Work Institute, Radio Kingston's partner, describes just transition this way:

As the full extent of the ecological and cultural destruction wrought by an economic system that values the pursuit of profit and endless growth over the welfare of humans and the biosphere becomes clear, we believe that people are more ready than ever to usher in something radically different. More and more of us are reconnecting to our hearts, to our communities, and to the earth, and committing to building a future that works for all.

These pursuits are not mutually exclusive: both *preparing for* and *healing from* are present and ongoing in both communities. However, next phases of research will begin to systematize an understanding of the conditions as part of understanding what kind of collective impact internet infrastructure development projects may be expected have on a reasonable timescale.

There are two main questions we hope to answer in the study of community-led internet access:

- How can we measure power reclamation?
- What role does community-led internet access (see ***Power Indicator 8*** below) play in improving overall health and quality of life?

To achieve desired community impact at the new EII working sites in Clearfork and Kingston, we have distilled this theory of change into a set of draft impact indicators. In the next phase of the project, we will work in collaboration with our partners to verify and refine goals and indicators customized to each community's goals and vision for itself.

Community Power and Digital Ecosystem Health Themes and Indicators

The term *baseline indicator* refers to a set of measurable community-level indicators that can be studied over time alongside local network development to understand the potential impact of community-led network-building activity, not only on levels of internet access and adoption, but

on community wellbeing. We believe that monitoring gradual change in these indicators will reveal useful insight into the relationship between building community-led internet infrastructure and overall community health and self-determination (a sense of collective power to affect the community's path). We have organized these indicators into eight themes based on the literature, our observations, and conversations with community members.



Antennas on the Clearfork Community Institute pulling a signal from a cell tower, July 2019

Although not all of the themes and their related indicators may seem directly related to the development of community-led internet infrastructure, we are proposing that the ongoing work of collectively building and governing communication infrastructure over time is only one form of collective action, and that process itself may address some other themes as well in the continued effort to *reclaim power*.

We further hypothesize that an increase in perceived community power and self-determination has a strong inverse relationship with a sense of corporate dependency. Following this argument,

power is defined as the ability to collectively create a prosperous and connected community according to the standards collectively decided upon by the members of said community, with limited prioritization of outside corporate and institutional interests.

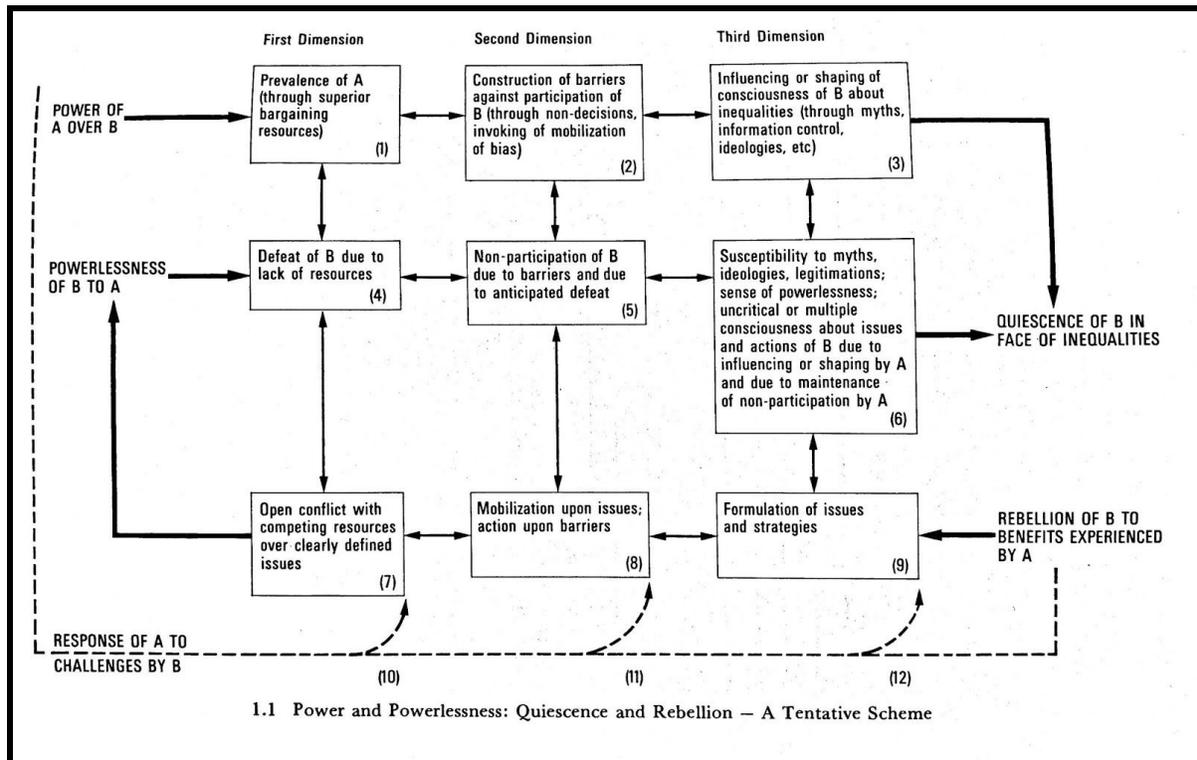
Our power analysis relies also on John Gaventa's 1982 study *Power and Powerlessness: Quiescence and Rebellion in an Appalachian Valley*, which explores a dimensional matrix of power through a long-term study of the Clearfork Valley. According to Gaventa, the inner workings of power, in a democratic society, can be conceptualized in three dimensions. As Gaventa walks through the three dimensions, each goes deeper in illuminating the ground possibility of *power reclamation* within a community.

We found Gaventa's work particularly relevant to our EII sites, not only because he provides a long-view analysis of the particular community in Tennessee where we are working, but because this conceptual framework articulates the layered systematic and historical dimensions of how power has operated, especially with relation to the availability of information for oppressed communities. Gaventa's originally-sourced history of the brutal suppression of miners' uprisings in the Clearfork Valley dating back to the late 19th century shows that over and over, narratives about the uprising itself were more available to those *outside* the community than *within* it -- that is, these narratives were not available to those who might join and strengthen movements to challenge the power structure from within. A documented, common, longstanding tactic of the international conglomerates operating in Appalachia has thus been to block potential organizing by manipulating the information ecosystem so that those who are most oppressed do not conceptualize or even become aware of any challenge to power.

In Gaventa's analysis, the first, most obvious layer of power and control is expressed through participation in effective democratic arenas, for example through debate, voting, and finding representation in the political process, where all participants' voices *should* be heard.

Gaventa's second dimension of power illustrates how top-down power may be used to undermine the ability of certain communities to participate in functional democratic institutions -- that is, to make their voices heard via civic action. The expression of this dimension of power is in powerful entities imposing barriers upon political participation, materially suppressing particular populations' ability to air grievances or attain control of their circumstances.

The third dimension addresses how discourse, symbols, and misinformation or lack of information may be manipulated to keep those without power from even recognizing grievances, and to utterly undermine any belief oppressed communities might have in the potential or viability of civic action. Within the third dimension of power, oppressed communities believe deeply that power is not attainable for them, because their access to the political imagination has been manipulated through discourse to the point where they have no frame of reference to build power.



From Gaventa, *Power and Powerlessness*, 1982

For example, Gaventa demonstrates how, during a miners' uprising that took place between 1931-1932, information about events was so fractured and manipulated as to effectively suppress local organizing. After popular miners' organizer Harry Simms was slain in retaliation for his activities, the *New York Times* published an article about the aftermath, when Simms's body was brought to New York City:

Simms's body lies in rest in New York while hundreds of sympathizers file by. A parade from Penn Station through the 'strike grappled' garment district to Union Square consists of fifty girls wearing khaki shirts and bandanas of the young Communist league, followed by men in miners' caps, including many Negroes, followed by over 2,000 mourners (Gaventa quoting the New York Times).

Meanwhile, in the local newspaper, the Clearfork Valley's *Middlesboro Daily News*, the only mention of the uprising was in an editorial -- no mention was made of Simms or the response in New York:

The outside leaders hoodwinked our poor people into believing that they were part of a movement to better labor conditions (Gaventa quoting the Middlesboro Daily News).

Differing claims were published in the local versus national press even over whether a particular meeting was held at all:

"National Miners' Union Claims Victory: Meetings Held Despite Machine Guns" in the Knoxville News Sentinel, 18 Jan. 1932; versus "All Quiet as Union Meetings Do Not Materialize" in the Middlesboro Daily News, 18 Jan. 1932 (both quoted in Gaventa, 1982).

The clear manipulation of narrative and even of reality in the discourse is a clear example of the operation of Gaventa's third dimension of power, and has uncomfortable echoes in our era of "fake news" and manipulation in an environment of social media echo chambers. This exercise of power, which Gaventa describes as occurring not only at the behest of international monied concerns, but at the hands of regional "middlemen" who were relatively empowered through

appointments to governmental and law enforcement roles, served to isolate the oppressed community from potential outside allies such as Communist party sympathizers (who were also reviled by local church leaders).

Ironically, outsiders who attempted to intervene on behalf of organizing miners also received more attention and resources than the miners themselves in the crisis, as they had better access to information and amplification purposes. Clearfork Valley organizers, perceiving no outside help in their efforts when calls for reinforcements were blocked (via the exercise of the second power dimension), became further isolated within their communities. Receiving payment only as scrip, they also had to rely on the mining companies for health care, infrastructure, and any sort of social support. Self-isolation reinforced itself, producing a codependent, cyclical trauma in which groups which might have risen up to resist oppression understandably came to mistrust any outsider offering support, and had to rely upon their oppressors for the basic needs of life.

Gaventa's analysis has shaped the development of our "power reclamation" hypothesis, and of the following impact indicators. We hope these indicators may express the process of reclaiming power not only through increased political participation -- but also, the slow process of reclaiming even an expression of belief in collective power to organize -- and for dispossessed groups to find common ground among themselves and organize across geographic and other barriers. We aim to recognize collective progress in the areas expressing belief in the potential of civic participation at all -- and the purpose of expressing both grievances and positive visions, even in the context of misinformation and the manipulation of narratives.

Thus the process of organizing to build healthy information ecosystems is in itself a powerful first step towards effective resistance to oppression via the third dimension of power. Our partner communities have already made a meaningful change by organizing themselves for that purpose.

In her book *Emergent Strategy: Shaping Change, Changing Worlds*, adrienne marie brown speaks about fractals -- never-ending geometric patterns in which each detail is self-similar

across different scales, created by repeating a simple process over and over in an ongoing feedback loop. brown proposes fractals as a conceptual model for social change that reconnects families and neighbors: what happens on the scale of a neighborhood via the creation of digital stewardship and healthy information ecosystems to provide hope and infrastructure to address, e.g., the opioid threat or a lack of opportunity -- could become the points of healing that begin to restore the larger social fabric.

Power Reclamation Indicators

Political Participation (Power 1- P1)

As discussed in discussion of Gaventa's framework, political participation is a clear indication of a sense of belief in collective power-building to effect change. Change in the following indicators should illustrate a clear progression toward collectivity and community strength.

- Proposed Indicators
 - Eligible voter participation rates
 - Political & Community Organizations/Associations
 - Political representation
 - Volunteering & community service
- Data sources:
 - Voting records
 - IRS data (registered 501c3s)
 - Responses by local government to issues raised by community
 - Qualitative/community interviews

Relationship to Land (Power 2- P2)

Through initial data collection, the importance of place in the strength of community ties has been echoed by many research participants. Our EII partnership sites -- coincidentally both having historical ties to resource extraction economies -- are reckoning with the threats to

ownership over homes and land where they have historically lived and built long-term relationships. Threats of foreclosure and gentrification represent a negative feedback loop that maintains a sense of precarity and powerlessness for residents.

- Proposed Indicators
 - Home ownership
 - Land ownership
 - Land stewardship
- Data sources:
 - County records - land and home sales
 - Census (homeownership rates)
 - Land bank activity
 - Qualitative/community interviews

Health (Power 3- P3)

The process of reclaiming power and becoming self-determined is strongly linked to a community's ability to advocate for, maintain, and build its own health infrastructure for mitigating, reducing and recovering from health risks. In particular, the harms associated with the opioid crisis for both [Ulster county \(Kingston, NY\)](#) and Claiborne county (Clearfork Valley, TN).

- Proposed Indicators
 - Health care infrastructure, capacity, and resources
 - Environmental health
 - Community preparedness and resilience
- Data sources:
 - Public health data (CDC, HHS, County)
 - Community-stewarded environmental data (air/water quality)

- Availability of hospital and emergency services
- Availability of mental and preventative health services, including telemedicine
- Availability of recovery and rehabilitation services, including telemedicine
- Qualitative/community interviews

Income & Economic Opportunity (Power 4 - P4)

Economic, upward mobility will prove to be a significant metric, as it relates to a community's collective power. Both EII partner sites have unique relationships with income inequality and poverty that continue to exacerbate issues of powerlessness as they relate to home and land ownership, health, and the ability to invest in one's own community.

- Proposed Indicators
 - Local employment opportunities (independent, cooperative, other)
 - Tax base
 - Local entrepreneurship
 - Localized production capacity
- Data sources
 - Bureau of Labor Statistics records
 - Census/ACS
 - % Below poverty line
 - % Unemployed and/or in the workforce
 - Inventory of local businesses (including online entrepreneurship)
 - Qualitative/community interviews

Education (Power 5 - P5)

Low rates of educational attainment also represent hurdles for both EII partner sites on their respective journeys to establish upward economic mobility and self-determination. Low high

school and college completion rates only begin to tell the story of barriers to gainful employment for the majority of residents of Clearfork and the majority of Black residents of Kingston, who have a college graduation rate of only 12.8%.

- Proposed Indicators
 - Educational attainment
 - Educational resources, including computers and internet
 - Arts and culture profile
- Data sources:
 - Census/ACS
 - Educational attainment
 - DOE data (also state/county)
 - School attendance
 - Available community programming
 - Adult education programs
 - Outdoor education/training
 - STEAM and arts programs
 - Digital literacy, media literacy, and Digital Stewardship programming
 - Qualitative/community interviews

Youth + Families (Power 6 - P6)

Relationships within the household exist as microcosms of the larger community. In some cases, the initial data has shown that the scars of intergenerational trauma, like poverty and addiction, have direct impact on the community's youngest members who endure child abuse and have a more difficult time maintaining academic success (Chase, 2010). Efforts to mend relationships and connect families and children with the larger community and mental health resources can hopefully alter these patterns of harm over time.

- Proposed Indicators
 - Availability of child welfare interventions, programs, and social workers
 - Family programming access/attendance
 - Household composition
- Data sources
 - Census/ACS
 - State/County DOE
 - State/County HHS
 - Community inventory of available resources
 - Qualitative/community interviews

Mobility (Power 7 - 7)

Many of our research participants spoke about the difficulty of accessing employment and educational programs and resources due to the expense and difficulty of maintaining private transportation, especially in rural areas. To create collective engagement in internet development or other community organizing, people need to be mobile within their communities.

- Proposed Indicators
 - Car ownership (owned, leased)
 - Public transportation available and utilized
 - Ridesharing/carpooling
- Data sources
 - Census/ACS
 - County and municipal transit agencies
 - Qualitative/community interviews

Information Ecosystem (Power 8 - P8)

A digital infrastructure is a robust resource for staying aware of the goings-on within and outside of the community. As discussed with relation to Gaventa's third dimension of power, the lack of

information or the manipulation of information environments deepen and underscore the plight of forced isolation and stresses the need for connectivity. As research participants mentioned, this power indicator is intimately tied to that of income and economic opportunity (*P4*), in that residents in both research sites are finding the cost of internet connectivity to be more than what they can afford or maintain.

The creation of a digital ecosystem stewarded and governed by residents, will hopefully encourage healthier inter- and intra-community relationships while allowing residents to collectively determine the politics of pricing, information sharing, and digital participation. It also represents an opportunity for communities formerly with no means of communicating a narrative to larger national and international audiences, to become contributors to (not simply consumers of) media dialogues that may or may not misrepresent them. Throughout our case study research, collective storytelling via digital community platforms has demonstrated a critical opportunity for collective power-building.

- Proposed Indicators

- DIGITAL STEWARDSHIP
- Inter- and extra-community awareness, participation
- Functional telecommunications services
- Online organizing, entrepreneurship, media making, storytelling
- Increased access to opportunity (educational, economic, mobility, etc.)
 - Interrelationship with P1, P3, P4, P5, etc.

- Data sources

- Case studies and/or articles and other documentation of storytelling
- Digital Stewardship programming and numbers of trainees
- Uptake of telemedicine, health information, remote learning, online entrepreneurship, etc.
- Qualitative/community interviews



Community information session in Kingston, February 2020

To measure impact using these indicators, the following logic model below provides a schematic understanding of how the project activities lead towards a systematic knowledge base to understand the impact of collective power reclamation in the service and process of building healthy digital ecosystems.

Logic Model: Building Healthy Digital Ecosystems

Inputs	Activities	Outputs	Short-term impact	Progress/Power Indicator	Long-term impact
Funding; Tech capacity; Curriculum; Equipment; Organizing networks	Develop shared impact goals and indicators	<ul style="list-style-type: none"> - Baseline report & proposed indicators - Community verified indicators 	<ul style="list-style-type: none"> - Community unifies around shared goals and vision 	<ul style="list-style-type: none"> - % increase in voting participation - # community organizations 	<ul style="list-style-type: none"> - Networks used for improving health, education, employment, etc. outcomes in line with community vision
	Design and build networks	<ul style="list-style-type: none"> - # nodes - Throughput rates - # unique users etc 	<ul style="list-style-type: none"> - Community based internet available - Residents expand use and leverage for goals and wellbeing 	<ul style="list-style-type: none"> - % of internet access - rate of information sharing 	<ul style="list-style-type: none"> - Internet producers not just consumers - Networks become means of building collective power
	Knowledge transfer	<ul style="list-style-type: none"> - # Digital Stewards trained - # workshops held 	<ul style="list-style-type: none"> - Community able to build, maintain, and expand network 	<ul style="list-style-type: none"> - # of community engagement sessions - measurable skills training - employment rate 	<ul style="list-style-type: none"> - Network becomes self sustaining ISP
	Develop partnerships	<ul style="list-style-type: none"> - # and types of partners - # community events 	<ul style="list-style-type: none"> - Partnerships expand uptake and use of network 	<ul style="list-style-type: none"> - # of meetings and trips with partners outside the community - % of outside funding sources 	<ul style="list-style-type: none"> - Alliances among partners builds and expands vision to challenge existing power relationships

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