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INVISIBILITY AND HYPERVISIBILITY: FAILURES OF IMAGINATION IN URBAN BROADBAND NETWORKS

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Introduction

Connectivity has become a hallmark of post-industrial society, with both corporate leadership and policy makers promoting social cohesion through online access. This ethos of connectivity typically manifests in "digital divide" initiatives, where policymakers are often concerned with the supply-side of internet access in the form of infrastructure efforts or computing centers. As a whole, digital divide initiatives have been critiqued for the determinist implication that simply providing online access can overcome a complex array of structural inequalities (Graham, 2011; Warschauer & Ames, 2010). More narrowly, policies about internet access as a public good are not just about providing a resource, but about making that resource visible, usable and accessible. In our investigation of urban internet access projects as invisible versus hypervisible, we examine how imaginations of internet access and modes of infrastructure control critically reshape both the meaning of public and of connection.

We approach the study of connectivity as a public good through the juxtaposition of inactive networks that are buried under the streets and have always been "turned off, " with activated networks that are "turned on" and prominently displayed on city streets. In our consideration of invisible connection, we focus on "dark fiber" networks that are purposefully constructed as inactive and are effectively invisible. In contrast, we consider WiFi enabled digital kiosks that provide free internet access to pedestrians, drawing attention to the public-ness of infrastructure provision. These case studies highlight the shifting parameters of inclusion in both imagined urban communities and imagined internet publics. Through an ethnographic and archaeological analysis of

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hypervisible and invisible networks, this project investigates what is at stake in “our digital rights to the city” (Shaw & Graham, 2017).

Dark Fiber

Dark fiber refers to privately-owned fiber optic networks that have always been “dark” or “turned off.” Throughout the 1990s, telecommunications companies were contracted to lay internet-ready cables across the United States, and many companies over-invested in anticipation of increased public demand. In metropolitan areas across the US, only a fraction of the installed cable is activated. Although members of the public are often ignorant of dark fiber until it is lit, these networks are not entirely forgotten. On the contrary, these fiber networks are for sale or lease to Internet Service Providers (ISPs) who can light and extend them for residential, commercial, or government use. Broadband activists are enthusiastic about the potential of dark fiber for more equitable Internet provision (Crawford, 2016), although the purchase of dark fiber networks for public use is still rare. Recent federal “dig once” policies and high-profile smart city initiatives have generated attention to city streets as spaces where technologies for internet access need to be installed anew, rather than a space that has already been outfitted with digital infrastructure that just needs to be turned on. The persistent invisibility of dark fiber networks alongside highly visible initiatives that frame city streets as sites for digital access, complicate institutional investments and understandings of public connectivity. If the streets are already paved with digital infrastructure, why not invest in activating these networks? Why choose to keep these networks “turned off” and what are the understandings of internet access that drive these decisions?

LinkNYC

In 2016, New York City (in partnership with companies like Qualcomm and Google) transformed 7500 of the city’s payphones into a mutli-faceted hub of digital technology support. LinkNYC kiosks (called Links) are free to use and originally provided four key functions free of charge: a USB charger, a WiFi hotspot, phone calls (provided by Vonage) and a web browser. Within six weeks of their launch, Links became controversial, largely because of the free web browser. Reports emerged about people watching porn and playing loud music late at night. Residents and shops complained about homeless people hanging out in front of Links for hours. A distinctly moral dimension emerged in this battle over legitimate versus illegitimate uses of Links, where the Manhattan borough president “likened turning off the browsers to the decision during the crack cocaine epidemic of the 1980s to block pay phones from accepting calls” (McGeehan, 2016). Eventually, LinkNYC bowed to pressure to address the perceived misuse of its services, and has shut off the web browsers while they work with the city to find a solution.

Research questions and methodological approach

Influenced by theories of infrastructure and urban media archaeology our project maps both the physical and discursive infrastructures of dark fiber and LinkNYC in order to identify policy challenges and identify how publics are imagined in urban environments. Our analysis is guided by several key questions:

- Dark fiber networks and corporate-supported WiFi kiosks both require the privatization of public connectivity. In comparing invisible and hypervisible wifi networks, what are the implications of blurring boundaries between public utilities and private ownership?
- What policies and imaginations of public connectivity allow a wealth of dormant networks to remain “off”? How do these policies compare to those that shape the design and activation of hyper-visible digital access points?
- Are either of these cases really serving urban communities? If so, which populations and uses are imagined as part of these publics?

In both case studies, we concentrate on the class-based encodings and the privatization of public space and utilities. We argue that these encodings reconfigure how the internet and the city street are and are not public, who is supposed to be using these utilities, and who gets to decide their use.

We employ multiple methods to study infrastructural entanglements or the ways that digital infrastructures become embedded within physical and social environments. In particular, we combine Mattern’s (2015) “urban media archaeology” with Parks’ (2013) call for mapping and fieldwork for exploring materialist histories and infrastructure ownership models. In addition, we conduct ethnographies of infrastructure (see Star (1999) and Larkin (2013)), which account for different socio-cultural conditions that shape meaning, affect, and experience of infrastructure. Our project compares maps and master plans for dark fiber networks and Links in the New York metropolitan region with demographic data about the areas in which these networks are installed. We have already conducted on-the-street interviews with Link users while web browsers were still available. Moving forward, we will re-visit these sites, as well as sites where dark fiber is buried under the sidewalk.

At its root, these debates are about two kinds of publics: who gets to use the internet and who gets to use the street, where the stakes involve thinking about what kinds of behaviors are viewed as appropriate, and whose uses will win as this technology stabilizes. As dark fiber networks lay in wait for institutions who can pay to turn them on, the space beneath urban streets are filled with potential public connectivity controlled by private entities. By analyzing LinkNYC as a public spectacle of connectivity and the buried potential of dark fiber networks, this paper re-envisions the street as a contentious space where the constitution of publics, both as civic and as internet users, are discerned and debated.

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