

Managing Digital Infrastructures: Tactics of Getting Online in a Once-Divided City

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SURVEILLANCE TECHNOLOGY

The following passage is from chapter 5, “Scaling Media Infrastructures,” of Mobile City: Emerging Media, Space, and Sociality in Contemporary Berlin, by Jordan Kraemer, published by Cornell University Press. Kraemer is a media anthropologist and tech policy researcher who studies digital platforms, social inequalities, and urban life.

Mobile City tracks the rise of social media cosmopolitanism among an emerging creative class in early 2000s Berlin. For many young people in Berlin, social media offered a new, hip space to connect with friends. Sites like Facebook became associated with cosmopolitan networks, for meeting EU foreigners and others in Berlin’s all-night techno clubs. For young Germans in particular, it was possible for the first time to express German identity in a cosmopolitan context that was hip and acceptable. After the global recession of 2008, this vision of globalization and democratization in the digital era began to crack. By 2015, sites like Facebook and Twitter became more polarized spaces to share news and political views. Social media were supposed to build social connection; instead, they’ve become tools of division and polarization. But there’s nothing inevitable about technology leading to divisiveness and declining trust. These technologies are products of social relations that could be otherwise.

Logistical Labor, Tactical Consumption

Getting online—for social media, email, news, media sharing, and so forth—is never an all-or-nothing process, as many scholars writing against the “digital divide” argue. Beyond technical means, such as the availability of broadband or computing hardware, it involves learned competences to navigate new interfaces, evaluate service options, and decide what hardware to use. Devices and interfaces have become more user friendly since the early days of text-based operating systems, starting with the

graphical interfaces of the 1990s and moving to the more recent advent of “user-centered design,” usability testing, and the rise of “user experience” as a central concern for tech companies. Despite initial visions of technological “convergence” ([Jenkins 2006](#)), services and devices on the market multiplied, converging in some senses (devices like phones, tablets, personal computers, televisions, and gaming consoles bring together multiple services, platforms, and media channels, from video chat to streaming and messaging) but diverging in others, as types of devices and media platforms proliferated. Such proliferation entails more work on the part of user-consumers: managing digital music libraries, social media privacy settings and accounts, and endless end-user license agreements and performing other devolving, unpaid logistical labor.

By logistical labor, I mean the individualized work of managing technical and bureaucratic systems, from sifting through the fine print of service contracts to filling out endless customer-satisfaction surveys. One of the hallmarks of “Web 2.0,” the second-generation internet technologies that developed in the early 2000s, was its “user-centered” focus, specifically on unpaid user-generated content that provides value for for-profit tech companies (see [Wesch 2007](#); [Fuchs 2010](#)). These new platforms and services were described at the time as more interactive and social, defined by user-created content such as media sharing (e.g., Flickr, YouTube), social bookmarking (e.g., Del.icio.us), and blogging. This terminology atrophied in the mid-2000s with the ascent of “social” media, the umbrella term for social network sites organized around interlinked user profiles ([boyd and Ellison 2008](#)). These platforms typically depend on profits from users’ uncompensated labor, whether restaurant recommendations (Yelp, Qype), streaming video preferences (Netflix), or content on image-based sites like Pinterest and Instagram. Like affective labor, with which it overlaps, logistical labor involves managing settings, personal profiles, and friend lists for an ever-expanding roster of decentralized services. Logistical labor characterizes home life in late modernity more broadly, as the flip side of workplace managerialism. In this sense, it is closely entwined with “audit culture,” as described by Marilyn Strathern ([2004](#)) and others—that is, constant self-assessment, evaluation, and quantification in the corporatized university and elsewhere. Logistical labor and managerialism likely trace to the restructuring of the professional middle classes around bureaucratic labor in the wake of capitalism’s post-Cold War victory; this shift, as David Graeber argues, “has led to both a continual inflation of what are often purely make-work managerial and administrative positions—‘bullshit jobs’—and an endless bureaucratization of daily life, driven, in large part, by the Internet” ([2014](#), 77).

I am less inclined to see this shift as driven by the internet; rather, I propose the question, how do digital technologies intersect with managerial regimes of labor and living? Here I draw on Chandra Mukerji’s ([2009](#)) analysis of material objects that challenged the agency of human actors like engineers. In her history of the seventeenth-century French Canal du Midi, a monumental engineering (and infrastructural) undertaking, Mukerji documents how the material force of water challenged the limits of engineering expertise and modes of political governance. The water’s agency, in this sense, exceeded individual human will or authority to shape the development of the canal. She terms this counteragency of objects “logistical power,” the significance of ordering and mobilizing natural things as “a form of dominion or regulation of the natural order” (215), in contrast to strategic forms of political domination. Logistical power marks the ways infrastructure’s material qualities shape socio-technical systems and practices as much as human intent does. Getting online, similarly, entails navigating logistical, technical, material,

and bureaucratic systems at the conjuncture of infrastructure (including its material qualities) and increasingly technocratic management.^[1]

The challenges of logistical labor in internet and computing access became evident in my fieldwork when Daniele decided to purchase a new laptop. She had been sharing an older PC with Katrine, but after making new friends in Berlin, especially EU-Ausländer (foreigners), she began using Facebook more frequently, which was difficult for her during work hours. She managed a small boutique in Prenzlauer Berg but could not use the store's computer for personal use. Like many eastern Germans I knew, Daniele did not have a computer at home as a child; the Wall came down when she was still in primary school. Her first time using a computer by herself, she told me, was at work when she was twenty, though she had played computer games with a cousin before that. She had taken a computer course at school, but it was not "hilfreich" (helpful). She had begun accessing the internet a few years before in 2004, when a roommate set up DSL service. She did have an iPod music player, which may have contributed to her choice of an Apple laptop.



A Mediamarkt store in Berlin similar to the one where Daniele bought her MacBook. Image source: [A.Savin/Wikimedia Commons](#).

The only Apple Store in Germany at the time was located in the wealthier western German port city of Hamburg.^[2] Although Berlin has been the seat of reunified Germany's federal government since 1999, it remains one of Europe's poorest metropolises. Daniele headed instead to a consumer electronics superstore, Mediamarkt, in the Alexa mall at Alexanderplatz and brought along me and Katrine. Alexanderplatz, a capacious commercial and transit hub in Mitte, comprises a large, open concrete plaza dominated by the iconic Soviet Fernsehturm (television tower). The tower, which looms over much of the

eastern half of the city, is situated over a nexus of rail train, subway, and tram lines alongside shopping strips, apartment towers, a mall, and department stores. The plaza's redevelopment was the subject of much contention among residents and urban planners in the early 2000s, as described by Wieszkalnys (2010), and it sits in stark contrast to the narrow cobblestone streets of adjacent Prenzlauer Berg, with sidewalk cafés, small boutiques, and old churches, or the grand monumental architecture of imperial Mitte.

On the top floor of Mediamarkt, one section simulated the look and feel of an Apple Store—uncluttered rectangular white tables, hardwood floors, streamlined displays of Apple MacBook computers and iPod music players. Mediamarkt had a special offer on the purchase of an entry-level white MacBook, but Daniele was unsure of what to get. Apple products and other consumer electronics were expensive compared to subsidized necessities like food, making the purchase that much more significant.^[3] We spent nearly an hour browsing and waiting for Daniele to decide. In the meantime, I noticed a large flat-screen display, an iMac computer, showing a picture of a white student on an exchange program—to Germany. Consuming Apple products in an ersatz Apple store in Berlin enabled participation in global consumption but also positioned German consumers as outsiders, as had accessing US music videos on YouTube. Daniele solicited our input and finally settled on the latest MacBook model.

The new purchase triggered further work to set up the computer. She brought her laptop to the house of another friend, Nina, who had invited us over, and asked me for assistance. Initial setup required an internet connection, but Nina lived alone and used a mobile surfstick. The stick was branded with the logo for O2, a UK-based mobile service provider with a German subsidiary, popular for their monthly contract data plans. The surfstick allowed Nina to purchase monthly service without committing to a long contract or activating a landline. She hoped to order DSL service with WLAN, but the surfstick provided on-the-road internet access, which was especially useful in her work as a film production assistant. As Michel de Certeau (1984) has articulated, informal means of consumption can constitute decentralized resistance to dominant, institutional modes of power. Building on Foucault's formulation of power as diffuse and capillary—operating through the regularization of space and place and of bodies and gestures, as well as through the proliferation of discourse—de Certeau theorizes diffuse means of resistance. He identifies power with the monopoly over official places and discourses, whether institutional buildings or maps. Ordinary practices of consumption and use in his account can constitute opposition to these dominant regimes, through ways of getting by and “making do,” such as devoting company time to personal pursuits (29–30). Ways of making do occupy, in de Certeau's words, “no proper space,” always borrowing from formal spaces and asserting agency through “practices of use” (xix), such as reading practices or ways of moving through space. Tactics of resistance are in this sense continually unfolding, as subordinated subjects react to conditions that they cannot determine. Where hegemonic, strategic forms of power inhabit formal, institutional spaces (and ways of organizing space), tactics are by definition without place:

“A tactic is a calculated action determined by the absence of a proper locus. No delimitation of an exteriority, then, provides it with the condition necessary for autonomy. The space of a tactic is the space of other” (37–38).

After de Certeau, I read many of my interlocutors' technology practices as ways of managing a variegated, uneven communications infrastructure. The early 2000s were a period of rapid change for Berlin and its built environment and for networked communications broadly. Relative to internet access in many places, the German system was well developed and affordable, but Berlin was poorer than other German cities. Services like broadband—necessary for content like streaming video—were just taking off. Combined with divergent histories of internet access and competences, this rapid shift engendered unevenness in getting online, as illustrated by the experiences of young people in service and knowledge sectors. One graphic design freelancer I interviewed, for example, depended on tethering his laptop to the internet through his iPhone or worked from internet cafés for higher speeds, as he did not have WLAN at home: "I have no internet access at home. Just the iPhone. I connect over Bluetooth—I use the Bluetooth connection in the iPhone, and I often work in internet cafés."

Although tethering was possible with a special data plan, it was illicit otherwise. To communicate with clients, he relied on his relatively fast, current iPhone, in contrast to his older, slower laptop, which he could not afford to replace. Using surfsticks, tethering, or working from cafés (otherwise an atypical practice in Berlin; see [Kraemer 2022](#)) constituted tactical forms of internet access, ways of responding to formal systems of mobile networking and WLAN from no proper place. Nina could use her surfstick at home as from her car, circumventing the need to install service at home; cafés provided internet access (and office space) to mobile, sometimes contingent knowledge workers. Even once these users got online, connecting to the internet from a German IP address limited the content they could view. This limitation stemmed not from expense or the technical capacity of the system but from formal telecommunications policy, like international licensing agreements. Purchasing computers and service plans entailed new forms of logistical labor, further bureaucratizing home life and thrusting managerial work onto consumers. Yet young people in this emerging middle class found ways to manage infrastructural unevenness and respond to dominant orderings of space through informal tactics that often enabled participation in cosmopolitan worlds.



Many young Germans used surfsticks, like this one, to access the internet cheaply and outside their homes. Image source:

[Raimond Spekking/Wikimedia Commons](#).

From Surfsticks to File Sharing

By the late aughts, television series and movies were increasingly available to stream on demand online, from Netflix in the United States to Zattoo in Germany. Numerous factors contributed to the rise of streaming video, such as high-speed internet connections and more powerful mobile devices. But US copyright law requires that distributors secure licensing from the relevant copyright holder (or a licensing agency), an increasingly expensive proposition as streaming services expanded their catalogs. Although Netflix since offers service in Germany—that is, to German viewers—at the time, US-based subscribers could not view videos on their Netflix accounts from Germany. While German network television was freely available online, such as through Zattoo, few people in these friend circles watched it. Many did not own a television set at all.

But, as with other media, most people were interested in shows and movies from the United States (and elsewhere, like the United Kingdom). Some US titles were available through cable or satellite, but few people subscribed (with the exception of the music fans in Amsterdam, as I will describe). Myriad semi-licit services, however, had sprouted online, usually on domains in countries with few regulations, like

Tonga (.to), popular with torrent sites (file-sharing sites often used for pirating).^[4] These included Kino.to and MegaUpload/MegaVideo (both since taken down, and the owner of MegaUpload arrested^[5]). While setting up Daniele's laptop, we discussed the possibility of watching US shows, and Nina jumped in to ask, "Could I do that? To watch American shows?" I had looked into ways to watch US shows that I otherwise would have viewed on Netflix, and I offered to demonstrate: "Sure, what would you want to watch?"^[6] "*Grey's Anatomy*," she suggested. The German-language search results on her laptop, however, differed from what Google returned on mine—even when connecting from the same place. When Nina realized these services were quasi-legal streaming sites, however, she quickly objected, "But that's illegal!" She reported hearing stories of Germans who ran into legal trouble downloading pirated music. While she was enthusiastic about watching shows like *Grey's Anatomy*, she was more concerned about potential legal risks.

Others evinced fewer compunctions, however, and many turned to torrents, ad-supported streaming services, or other means to acquire unlicensed content. Another acquaintance of Daniele's, Karoline, recounted watching American comedies such as *Scrubs* and *Friends* on Kino.to, which streamed episodes uploaded by other users at no cost but limited how many minutes each user could watch per day. Among the electronic music fans, many devoted considerable time to configuring their home electronics, including network setups to share files, primarily audio. Alex, Sal, Viktor, and others, like many music enthusiasts, consumed music voraciously through multiple channels, including purchasing actual records and sharing digital files. File sharing offered them a means to access hard-to-find music like rare albums and imports, more than to avoid legal purchase, as the music industry often contends. One music promoter described how his computer connected to the internet to upload and download files in the background: "I would say that my computer is running about 12 to 16 hours a day. Even if I'm not home or I'm sleeping, then it might be uploading torrents, or downloading torrents, or uploading stuff to my server, because I do have a server, where I share music with friends. A lot of my work is computer-based, so I have to spend a lot of time in front of the computer and since I don't watch TV or have money for newspapers, most of my information, like news-related information, comes also through the computer."

He mentioned an exclusive torrent site for sharing files, a "private tracker . . . which is like a gated community for sharing music." Such services were seen as affording protection by vetting participants, in contrast to public sites like the Pirate Bay, widely panned for users' lack of sophistication. One music producer explained that he preferred Skype over other messaging services because of its file-sharing capabilities, which allowed him to share music both with friends and for professional collaborations. Others, such as a music fan who found that file sharing made watching television a "more active process," described torrenting through invite-only sites.

The circle of Dutch music fans (connected through events and festivals like Musikfest, described in chapter 1) reported similar activities. Marc and his friends Sophie and Matthew, who often visited their friends in Berlin, paid for cable television and owned large flat-screen TVs. But the many TV channels available in Amsterdam often did not include the hit US or UK shows they were most interested in watching, which they downloaded online instead. As Marc explained: "I have a ton of movies and TV series in my watch list, most hit shows of course. *Lost*, *Dexter*, *Justified*, *Breaking Bad*. All American

shows, exclusively. Some Brit shows I watch too.”

Even when such shows were available, they were broadcast sooner in the United States, making Dutch viewers wait to access them: “I have a TV, and I have a projector, but it’s not hooked up now. I have my total package of all channels available, but I actually don’t watch that much TV anymore, because I download most of my TV shows. I can record on my cable box, [but] the torrents are earlier on the internet than they would broadcast them here in Holland. On-demand here is ridiculously expensive.”



Image source: [Marques Kaspbrak/Unsplash](#).

Marc, Sophie, and others in their circle were employed in technical and creative fields, like IT, research, and journalism, and were more able to afford television sets or cable service than many of their friends in Berlin. They turned to torrenting and file sharing not because of the cost but because licensing agreements meant that international programming aired later in the Netherlands, positioning them as outsiders to these cosmopolitan media worlds. In contrast, torrents, disseminated through a peer-to-peer protocol, could be available near instantaneously, once a show aired and was recorded and shared (typically illicitly).^[7] Downloading and sharing torrents was popular not to avoid paying for content but to participate in transnational circuits of popular culture, circuits in which licensing structures rendered them secondary. Place, specifically the scale of the nation, reasserted itself in these media practices through national (and international) regulatory regimes. Like surfsticks, file sharing made it possible to circumvent infrastructural unevenness, eliciting tactical forms of consumption for those with the right tech competences. Yet such tactics were the purview of those whose location, both geographic and social, required managing these place-based regimes, in some ways reinstating their own peripheralness.

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Footnotes

- 1 Ways of managing this infrastructure also recall what Nikhil Anand (2011) describes in analyzing the political engagements generated by poor water pressure in Mumbai's municipal water system.
- 2 In 2001, Apple was the first computer company to open consumer retail operations, making computer buying a carefully "curated" experience, with minimalist tables displaying the company's signature streamlined laptops, iPods, and more.
- 3 Germany has some of the lowest food prices in Europe, while electronics are proportionately more expensive than in places like the United States.
- 4 According to Wikipedia, ".to is one of the few ccTLDs that (officially) do not maintain a (public) WHOIS database providing registrant information" (".to." n.d.). This is likely why the country code domain is popular with illicit services, though it also attracts licit URL-shortening services, similar to bit.ly or ow.ly (.ly is the country code for Libya, as Sandvig [2013] discusses).
- 5 See, for example, Jonathan Hutchison, "Megaupload Founder Goes from Arrest to Cult Hero," *New York Times*, July 3, 2012, <https://www.nytimes.com/2012/07/04/technology/megaupload-founder-goes-from-arrest-to-cult-hero.html>.
- 6 Another option was to use a VPN service, which can connect to the internet through a server in another country, like the United States, but these were typically pay services and were not always reliable.
- 7 HBO's *Game of Thrones* a few years later, for example, was distributed extensively over BitTorrent, partly because it aired only on premium cable and, initially, HBO offered no digital-only subscription option.