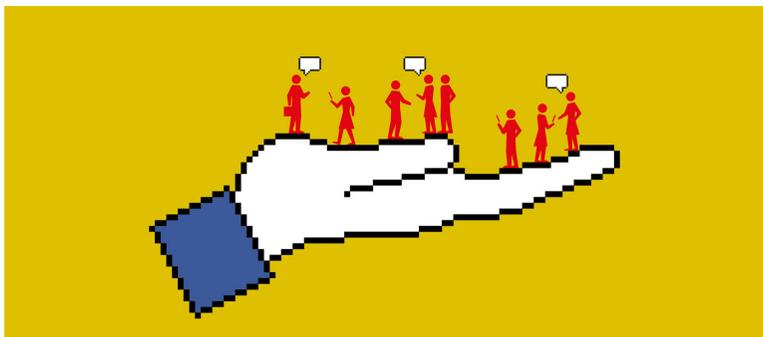

THE TECH GIANTS, MONOPOLY POWER, AND PUBLIC DISCOURSE



The Case for Digital Public Infrastructure

By Ethan Zuckerman



**KNIGHT
FIRST AMENDMENT
INSTITUTE**

at Columbia University



In November 2019, the Knight First Amendment Institute convened a major symposium at Columbia University, titled “The Tech Giants, Monopoly Power, and Public Discourse,” to address concerns arising from the dominance of a small number of technology companies over a wide range of economic and expressive activity. The essays in this series were originally presented and discussed at this two-day event. Written by scholars and experts in law, computer science, economics, information studies, journalism, political science, and other disciplines, the essays focus on two questions: how and to what extent the technology giants’ power is shaping public discourse, and whether anti-monopoly tools might usefully be deployed to expose or counter this power.

The symposium was conceptualized by Knight Institute staff, including Jameel Jaffer, Executive Director; Katy Glenn Bass, Research Director; Alex Abdo, Litigation Director; and Larry Siems, Chief of Staff. The essay series was edited by Glenn Bass with additional support from Lorraine Kenny, Communications Director; Sarah Guinee, Research Fellow; and Madeline Wood, Communications and Research Coordinator.

The full series is available at knightcolumbia.org/research/

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INTRODUCTION

THE INTRODUCTION OF NEW MEDIA technologies invariably brings about potent social and economic shifts. We are well into one of those shifts as the advent of the consumer internet has destabilized existing models of news production and distribution and enabled new hegemony to establish massive and powerful businesses. Two decades into this shift, societies are asking difficult questions about whether internet technologies and the business models that accompany them are dangerous for our citizens and our democracies.

At these moments of technological shift, it's easy to assume that the business models adopted by technological innovators are inevitable and singular. They are not. As Paul Starr established in his magisterial *The Creation of the Media*,¹ the paths taken by different nations in their adoption of new communication technologies (movable type, postal mail, telegraph, radio) depend on the politics and economics of the nation as a whole and vary widely from country to country.

This variance continues with the internet, even though the dominance of the United States – and Silicon Valley in particular – creates

the illusion that a single economic and legal system governs our online spaces. This illusion obscures possible solutions to the challenges arising around the socially corrosive effects of new media technologies. Because we see the dominance of the internet by Google, Facebook, and others as inevitable, the solution space we consider for combatting mis-/disinformation, polarization, and promotion of extremism is overly constrained. Our solutions cannot be limited to asking these platforms to do a better job of meeting their civic obligations – we need to consider what technologies we want and need for digital media to have a productive role in democratic societies.

At this moment, it's worth considering the historical introduction of new technologies – radio and television in particular – and examining the different models societies chose to regulate these technologies. In particular, it's worth reconsidering the history of public service broadcasting, an intervention pioneered in Britain in the 1920s that redefined the relationship between governments, media producers, and citizens and influenced policies around the world. While the spirit of public service media may have its roots in Britain, the specific interventions appropriate for the internet – already a mature and influential technology – may need to be modeled on the rollout of public service broadcasting in the United States half a century later. In that situation regulators acted many years after the advent of a new technology to correct market failures.

The goal of this essay is not to propose a specific plan to implement public service digital media in the United States or elsewhere but to introduce the question of what we might want such media to do – it's a possible strategy, not a discussion of the specific tactics needed to achieve it. Our responses to the challenges of the contemporary media ecosystem are marked by failures of imagination. So long as we are wedded to the idea that a few large companies will set the rules for speech and discussion online, we will constrain the solution space of possible interventions. My goal is neither to eliminate the powerful internet platforms nor to cede the future to them – it is to imagine possible futures where surveillant advertising delivered by monopoly providers isn't the only available option to build a thriving future of democratic communications.

RADIO 1912–1927: THE MAKING OF “THIS NEW NOISE”

ANYONE WHO MARVELS at the speed at which the internet has transformed modern life would likely find parallels in the history of radio. Guglielmo Marconi’s experiments in wireless telegraphy – sending bursts of static through the radio spectrum – began in 1894, and fifteen years later commercial telegraphy between nations was commonplace.² Consider that the first internet-capable computer, the Interface Message Processor,³ was built in 1969 and that fifteen years later, in 1984, email was used almost solely by academics and computer experts.⁴ Similarly, it’s now been thirty years since Tim Berners-Lee laid down the architecture for the World Wide Web,⁵ the user-friendly, graphical interface to the internet that’s now pervasively used. Radio reached full penetration of global political and cultural life far more quickly.

Radio as we know it – the transmission of speech, music, and organized sound via electromagnetic waves – became practical in 1912 with the advent of the triode vacuum tube amplifier.⁶ From the moment radio became practically possible to the moment it became a powerful cultural

force is roughly fifteen years, from 1912 to 1927. What occurred in those fifteen years was a gold rush that resembles the late 1990s internet boom in its passion and energy but differs sharply in the diversity of models pursued. A comparison between business models that emerged in the United States, the USSR, and the United Kingdom is helpful to understand how a single technology can lead to diverse techno-social systems.

Starting around 1920, hundreds of different organizations in the United States became radio broadcasters. Some were hobbyists, running tiny stations out of their homes, but due to the costs and technical expertise involved, most of radio's early adopters were existing organizations: universities and churches on the noncommercial side but also department stores, hotels, and other organizations eager to promote their brand through this new medium.⁷ John Wanamaker's department stores in Philadelphia and New York – which as early as 1911 had pioneered “remote” shopping by allowing customers on ships to order goods from his stores via wireless telegraphy – began broadcasting recordings of Italian tenor Enrico Caruso over the radio on May 13, 1914. (In an instance that will give pause to anyone hoping to increase civility online, one of the passengers on a ship sixty miles offshore heard the broadcast and telegraphed the Wanamaker station to say “Am hearing music clearly but that’s a rotten phonograph. Get a new one and some new records.”⁸ Haters gonna hate.⁹)

The business model for radio was not easily apparent, especially as early broadcasters worried that advertising in such a sensitive medium – one that reached into the privacy of the very home! – might offend sensibilities.¹⁰ Throughout the first decade of the broadcasts, radio inspectors warned Wanamaker and other commercial broadcasters not to clutter the airwaves with advertising content. That worry evaporated in 1922 when AT&T entered the broadcast market with a new business model known as “toll broadcasting.” On August 28, 1922, an official of the Hawthorne Court Apartments in Jackson Heights, New York, purchased ten minutes of airtime on WEAF from AT&T for fifty dollars and made a telephone call to deliver his sales pitch to anyone tuning in.¹¹ For AT&T, which sold time on its phone networks to long-distance callers, radio was a natural extension of their existing business, connecting a caller to many listeners instead of one.

WEAF became the flagship station of NBC in 1926 after AT&T exited

broadcasting, but the model that company introduced became the dominant one for commercial radio (and influenced the business models of television and the internet as well). Networks of stations, carrying a mix of locally created programming and national programming syndicated over telephone lines, came to dominate the airwaves. This business model provided advertisers with the ability to reach local and national markets, and the network radio business quickly became an enviable one, with CBS and NBC earning \$72 million in profits in 1934 and controlling 70 percent of the radio advertising market.¹² The dominance of those companies was aided by the Radio Act of 1927, which created ninety-six assigned frequencies on the radio dial.¹³ Six were given to Canada; forty were declared “clear channels” in which only one station could operate nationally, and the remaining fifty were assigned to the remaining six hundred broadcasters, whose assigned frequencies often had geographic or time restrictions. Due to this frequency squeeze and other policies designed to “professionalize” broadcasting requiring a sixteen-hour broadcasting day, by the 1930s non-profit broadcasters commanded less than 2 percent of the market.¹⁴

If the path of broadcasting in the United States – a chaotic period of excitement and expansion followed by commercial consolidation – exemplified American capitalism, broadcasting in the USSR similarly fulfilled expectations for Soviet structures. While early broadcasting experiments were underway in the United States, the United Kingdom, and the Netherlands, Russia was embroiled in revolution and an ensuing civil war. Once the Bolshevik revolutionaries established the USSR, Soviet leaders recognized that broadcasting could be a powerful tool for educating illiterate farmers about the benefits of communism, and helping to “reset the mental horizons of its population.”¹⁵ Because most Soviet citizens could not afford radios, loudspeakers were installed in public squares, factories, and in all places that large numbers of people would commonly gather. The spread of radio as a propaganda tool paralleled the industrialization of the Soviet Union; as workers moved from farms to cities and factory towns, they came into closer contact with the pervasive voice of *Radioperedacha*, the Soviet national radio broadcaster.

Once the Soviet economy grew to the point where private radios became common, the most popular were “wired radios,” hardwired speak-

ers offering a single channel of audio that connected virtually every building in the country. The radios of this period are fascinating to look at – their sole control was a volume knob, since tuning was both unnecessary and impossible. In the Brezhnev years, the wired radios gained second and third channels, an innovation that did nothing to diminish the control of the central authorities.¹⁶ Soviet citizens sometimes turned to shortwave radios to hear international programming via shortwave, but those broadcasts, often jammed, were forced to move frequencies. In a recent essay on participatory propaganda, my colleague Gregory Asmolov remembers, as recently as 1986, the ways in which a single broadcast entity worked to manage public opinion and how liberating encountering other “Vrazheskie golosa” (enemy voices) through shortwave radio could be.¹⁷

If the United States exemplified free market capitalism and the Soviet Union state control, radio in the United Kingdom was something else entirely. In both the United Kingdom and the United States, the need to coordinate technical standards and frequency assignment brought radio manufacturers together around 1920. In the United States, a set of patent agreements and attempts to ensure that the new technology would remain firmly in American hands led General Electric, Westinghouse, AT&T, American Marconi, and (oddly enough) the United Fruit Company to come together as investors in the Radio Corporation of America, also known as RCA.¹⁸ A similar set of meetings between radio pioneers in the United Kingdom led to the establishment of the British Broadcasting Company (BBC). But while American broadcasters had a long period of comparatively low regulation, the Post Office in the United Kingdom intervened in radio almost immediately, with the postmaster general declaring in 1922 that “it would be impossible to have a large number of firms broadcasting.”¹⁹ Instead of department stores, telephone companies, and churches competing to create this new medium, the Post Office charged the BBC with the responsibility of creating content for the nation.

The BBC had several enormous advantages over their U.S. counterparts. Not only did it have an enviable monopoly, it had a guaranteed revenue stream from the annual license fees levied on each radio receiver sold. The stability provided by this funding allowed the BBC’s first director, John Reith, to declare a social mission for the company above and beyond

market demands: radio was to be the British citizen's "guide, philosopher, and friend," seeking to "inform, educate and entertain," in that order.²⁰ BBC's success in meeting those lofty goals has been mixed over the years, but its success overall has been remarkable and influential, inasmuch as most European countries adopted a BBC-like model in establishing public service media as the primary form of broadcast media.

A critical part of the BBC model was the independence of the corporation from government control over programming. Without this distinction, it's possible to imagine UK radio following a path closer to the USSR model of government control. The BBC's independence was tested early in its existence, when a national strike in 1926 shuttered the nation's newspapers, briefly making the broadcaster the sole source of news. Anxious to be seen as independent, Reith gave voice to both government and labor leaders. The unique experience listeners had of hearing both groups offer their arguments in their own voices and words transformed UK politics and put the BBC at the center of the nation's political dialogues.²¹

Reith articulated the public service vision of the BBC, but the vision was implemented most visibly by Hilda Matheson, the BBC's first Director of Talks. The BBC initially used Reuters for its news reports, in deference to newspapers, who feared competition in reporting, but began original reporting under Matheson in 1928. She also invented the modern interview format, replacing lectures and speeches with conversational presentations and panel discussions and broadcasting the first live political debate. Matheson was a fascinating and complicated figure, avowedly liberal, sympathetic to socialism and to the League of Nations, vocal about women's rights and widely known to be a lesbian.²²

She was also an intelligence officer, serving with MI5 during the First World War and becoming the director of the Joint Broadcasting Committee during the Second World War, countering German propaganda with pro-British propaganda. Matheson saw the political and social power of "this new noise" to shape public opinion and sentiment early on, and her vision for the broadcaster, combined with Reith's more conservative one, helped shape the BBC into a model of media in service to the public. What could have been purely the voice of empire became something more complicated, a powerful force dedicated to amplifying distant and underheard

voices that provided a factual anchor for an energetic and sometimes florid press. The importance of BBC's fiscal independence is impossible to understate. It's unclear that there was a market for the BBC's most ambitious experiments, and difficult to imagine what the BBC might have programmed had it answered primarily to the dictates of the market rather than the social mission Reith and Matheson articulated.

The three models explored by the United States, the USSR, and the United Kingdom were not the only possible ones. We can imagine a world in which the government had not intervened to manage the radio spectrum, one where the chaotic model of American radio in the early 1920s held sway globally. Equally, we can imagine a dedicated public service broadcaster with market competition for audiences, the situation the BBC faces now, rather than the protected market they were born into. But the diversity of these existing cases demonstrates how different the introduction of the same technology can be in different political and economic contexts.

THREE MODELS FOR THE INTERNET

ARMED WITH THE HISTORICAL LESSONS of radio, we can consider the various ways the internet has been adopted globally, a single set of technologies leading to sharply different techno-social models. The goal, as with radio, is not to provide a comprehensive overview of all models for internet adoption – the decision of North Korea to limit internet access only to political elites is a possible model, though not a very interesting one – but to examine representative models embraced by major players on the internet. Again, the lesson is that a particular business model is not inevitable but the product of political, economic and cultural forces.

As with the advent of radio in the late 1910s, the commercialization of the internet, beginning around 1995, was a both creative explosion and a gold rush.²³ Many of the early players were universities, which had been using the internet well before the advent of the World Wide Web – Netscape, the first internet company to go public in 1995, was a product of the Mosaic project at the University of Illinois,²⁴ while Yahoo! began as a side project for two students at Stanford.²⁵ Other pioneers were established

publishers who saw an opportunity to repurpose their preexisting content online. Time Warner's Pathfinder service was an early internet leader, as was tech chronicler *Wired* magazine.²⁶ These publishers were used to a display advertising model: Advertisers were billed for advertising impressions, whether or not those impressions led to a sale, as in magazine advertising.

The adoption of display advertising as a default business model led to a rush of interest in sites that generated many pageviews, as those pageviews represented billable ad views. Asking users to create content, as early homepage hosting sites Geocities and Tripod²⁷ did, was a more efficient way of generating pageviews than using professionally edited content, as social networks later discovered. The problem with social media and participatory publishing, advertisers found, was that ad performance was terrible: Very few people who saw ads clicked on them, and far fewer purchased products. In order to better target these ads, advertising networks began collecting detailed behavioral data on their users, tracking their movements from one website to another. Social networks like Facebook could go a step further, combining behavioral data with information their users posted on their websites, creating complex profiles of information on web users that could be used to better target ads.

How well this targeted advertising works is a matter for debate, but the emergence of the surveillant model of advertising²⁸ as a default strategy for monetizing the internet put Google and Facebook in positions of immense power. Google could connect a user's stated interests as expressed in search terms to their online behavior, while Facebook could match a user's path through the web to personal details they shared with their friends. Both built powerful and pervasive ad networks, selling space not only on their sites but across the web as well – Google's AdWords product is a default tool for many small website owners seeking to generate revenue from their websites. Together, the two companies control 59.3% of the global ad market, and in recent years, the only growth in the market has been the growth of ads on the duopoly's network.²⁹

The power of large web companies like Google and Facebook comes not only from their dominance of online business models but also from their ability to direct attention, the fundamental currency of the media

world. As Facebook has become a key source of referrals to new websites, news companies have begun publishing directly to Facebook and sharing a fraction of the revenue Facebook generates from the accompanying advertising. The net result is that these publishers are no longer wholly on the web – a significant part of their publishing is in the closed, un-auditable ecosystems controlled by the platforms. This phenomenon has dangerous implications: The “pivot to video” many news organizations attempted, firing writing staff in the process, was predicated on false information from Facebook designed to encourage the publishing of more video content.³⁰ In a real sense, Google, Facebook, and a few other large companies like Amazon control significant parts of the digital economy – it’s impossible to run a media retail business without considering Amazon, just as it’s impossible to run a content business without considering Google and Facebook.

One country where Google and Facebook have very little power and influence is China, where government censorship, designed to control online expression, had the interesting side effect of protecting China’s domestic internet market from foreign competitors. While many Chinese dissidents, journalists, and fans of western movies became skilled at “jumping the Great Firewall,” China’s domestic market and linguistic isolation were significant enough to enable a rich and complex local internet ecosystem.

American scholars make two predictable mistakes in explaining the Chinese online ecosystem. The first is to assume that because there is pervasive censorship on the Chinese internet, conversations are boring, sterile, or apolitical. Nothing could be further from the truth. Chinese online culture is rooted in bulletin board systems based around local universities, where online conversations are rowdy and free-flowing, stepping up to and occasionally across government-mandated red lines. That spirit has continued as China has built its own set of social networks, starting with the Twitter-like Sina Weibo and continuing with WeChat/Weixin, which superficially resembles WhatsApp. Censorship is baked into these platforms, as platform operators must monitor online content and remove offending posts or risk losing their operating licenses. But Chinese netizens have reacted to this environment with creativity, developing complex

visual vocabularies to talk about forbidden topics, employing humor and wordplay to carve out freedom of expression under censorship.³¹

The second mistake scholars make is to assume that the Chinese internet is a copy of American internet services, a narrative that aligns with broader dismissals of Chinese technical innovation by American commentators.³² WeChat, the dominant social platform in China, looks a bit like WhatsApp to a non-Chinese user. Users chat with friends, one on one or in groups, trading photos and other digital media. But WeChat is much more: a marketplace for downloadable and streaming digital content, a currency and payment system, an ecosystem that supports thousands of third-party applications, including taxi and delivery services. When we see Facebook proposing to launch a global digital currency, it's best understood as Facebook trying to catch up to Tencent, WeChat's parent company, which has the sort of closed and controlled internet environment that Facebook can only dream of.³³

The result of China's decisions to censor foreign social media platforms and develop domestic alternatives has been an ecosystem that's even more controlled and walled off than Google's and Facebook's environments. While Google and YouTube feel like different sites and user experiences, united by a common user authentication and advertising networks, WeChat feels like an immersive environment, more like pre-Web internet services like America Online than the chaos of the Web. Unlike state control of radio in the USSR, which led to drab and boring propaganda, China's unique forms of control have led to a hypercapitalist concentration of monopoly power and wealth surpassing the wildest dreams of American monopolists and the darkest nightmares of privacy advocates.³⁴

With the models of capitalist monopoly and capitalist hypermonopoly to choose from, it's helpful that a third business model exists, even if it's significantly less widespread. Outside of China, where it is blocked, Wikipedia consistently ranks in the top 10 most popular websites. Unlike the most powerful U.S. and Chinese sites, Wikipedia and its sister sites accept no advertising, conduct no user tracking, and sell no user data. Wikimedia, Wikipedia's parent organization, is a nonprofit with an annual budget of \$80 million per year.³⁵ That makes it large in nonprofit terms,

but Wikimedia spends roughly 0.25% of what Facebook spends a year providing services to a comparable userbase.³⁶ Wikimedia's primary source of revenue is from donations,³⁷ though it has accepted a small number of multi-million-dollar foundation grants. The majority of donations to Wikipedia are small contributions from individual users or community members.

Beyond being financially supported by its community, Wikipedia is able to operate at such low costs because its content is provided by an army of volunteer authors, editors, and administrators who have worked out a system that provides remarkably high-quality content through an elaborate process of robust online debate. Active Wikipedians spend dozens of hours a week refining sentences and claims in articles until they converge on a "neutral point of view" . . . or are locked by administrators who despair of bringing online peace to debates like the legal status of Israeli settlements in Palestinian territories. While Facebook and other social networks rely on their users for content – your status updates and baby photos are ultimately Facebook's core product – Wikimedia recognizes user labor as a valuable contribution and celebrates the effort as such.

While Wikipedia has been a remarkable success, its model has been difficult to apply to projects beyond encyclopedias. Wikinews, a project to create an editable, contributor-driven daily newspaper, often finds itself competing with its far larger sibling, as breaking news is often reported in Wikipedia articles before it enters Wikimedia's virtual newsroom. Projects like Wikibooks, which creates open-source textbooks, and Wikidata, which provides open databases, have had more success but don't dominate their sectors the way that Wikipedia does. While the server software that operates much of the World Wide Web is open-source software, as is the Firefox web browser, the online content and services business is dominated by the U.S. and Chinese models, with Wikipedia as the sole noncommercial site in the worldwide top 100 sites.³⁸

Wikimedia is a form of public service media, though it resembles the role of public radio in the United States, which is supported by a mix of listener donations and commercial sponsorship rather than a license fee, as in the BBC model. Its decisions are driven by a set of articulated and

well-debated values about access to knowledge and information and not by market signals. That it is able to survive without government support or a license fee is not an argument against public support for media – instead, it’s an open invitation to ask what other services we could build if we innovated outside the logic of markets more often.

The victory of the U.S. and Chinese models has a strong tendency to make other models seem impractical. What results is a failure of imagination, an assumption that new media and services must be quickly sustainable through existing market models of advertising or subscription. To open our thinking about what’s possible online, it’s helpful to consider the consequences of market failures and the past systemic responses to those failures.

NEWT MINOW AND THE “VAST WASTELAND”

WHEN YOUNG LAWYER and Democratic Party political activist Newt Minow became chair of the U.S. Federal Communications Commission in 1961, television industry executives had reason to be worried. After television became the defining medium of the 1950s, a scandal over rigged quiz shows late in the decade had rocked the industry, and leaders braced for government regulation. Worse for them, Minow was in frequent conversations with President Kennedy’s brother Robert about the social and civic power of television, and executives knew that Minow was likely to demand a stronger public service mandate for broadcasters.

Minow did not disappoint. In his first public speech as FCC chair, he addressed the annual conference of the National Association of Broadcasters, challenging those in the audience to take a close look at the product they were creating:

I invite each of you to sit down in front of your television set when your station goes on the air and stay there for a day without a book, without a

*magazine, without a newspaper, without a profit and loss sheet or a ratings book to distract you. Keep your eyes glued to the set until the station signs off. I can assure you that what you will observe is a vast wasteland.*³⁹

Minow's term as FCC chair was brief, but he is remembered both for his "vast wasteland" speech and the sentiments behind it. Some considered his dismissal of entertainment television as elitist – the producers of *Gilligan's Island*, which ran from 1964 to 1967, named the sunken ship the S.S. *Minnow* in his honor – but his insights shaped the future of public service media in the United States. The All-Channel Receiver Act of 1961 mandated that television sets be capable of receiving UHF channels, a space used for creative experimentation and public service media by smaller broadcast outlets. The Communications Satellite Act of 1962 made possible the wireless "backbone" that public broadcasters used to syndicate their programming nationally.⁴⁰ Ultimately, in 1967, Lyndon B. Johnson signed legislation establishing the Corporation for Public Broadcasting (CPB), which went on to form public television (PBS) and radio (NPR) networks in the United States. Rather than pushing existing media organizations out of the way, as broadcasters had feared, PBS and NPR acted more as complementary media, filling holes in existing programming.

The initial success of PBS was seen as addressing a market failure in providing educational programming, a niche that broadcasters had mostly filled with entertainment for kids, with educational messages squeezed in via public service announcements. Shows like *Sesame Street* became surrogate parents to a generation of Americans, creating an emotional bond strong enough that public broadcasting defenders repeatedly raised the specter of Congress killing beloved character Big Bird after government skeptics sought to cut CPB funding. (Big Bird and his pals have since decamped to the lush corporate campus of HBO, considerably weakening this argument.)

More recently, as political polarization in the United States has increased, the importance of NPR has become clear in addressing another market failure: the disappearance of trusted news brands. According to a recent University of Missouri study, the most trusted media brands in the United States are local public television stations, NPR, and PBS. The

widely trusted television networks that dominated the news industry when NPR was introduced currently all have neutral or negative trust ratings.⁴¹ Additionally, a small number of public radio stations associated with NPR have maintained local newsrooms in communities that have lost broadcast and newspaper reporters, remaining a key source of local news as the broader news landscape struggles to maintain local coverage.

Public media in the United States has a very different history than in the United Kingdom: Public broadcasting was the sole player in the UK broadcast landscape for years, and its principles and practices shaped the ecosystem, while public broadcasting in the United States came late to the game as a way of addressing market failures. While UK public media still benefits from license fees, public media in the United States is heavily dependent on small donations, much like Wikipedia, and from corporate largess via sponsorship. What's helpful about these two examples of public service media is that they combine two ideas we need to imagine public service digital media: the ambition and comprehensive vision of the early BBC and the ability to complement commercial media exemplified by PBS and NPR.

HOW WE MIGHT BRING ABOUT PUBLIC SERVICE DIGITAL MEDIA

AT THE ADVENT of the new medium of radio, John Reith and his colleagues imagined radio as a powerful, pro-social force, capable of enlightening and entertaining the UK public. Their imagination was paired with a revenue model that supported innovative experiments and an institutional structure that allowed successful experiments to thrive and failures to fade away. There was no shortage of idealism at the advent of the commercial internet, and the success of projects like Wikipedia and open-source software suggests that values-driven projects have an important role to play online. And while extraordinary projects like the Mozilla Foundation have provided support for pro-social projects online, there's never been a mechanism at the national scale comparable to public broadcasting to support pro-social online innovation.

The American model of introducing public media as a correction to market failures suggests that it's possible to build ambitious public service media well after the advent of a new medium. That we've missed the BBC moment at the advent of the commercial internet is no reason to abandon

the idea. What's needed is the willingness to think creatively about what we might do if we built public service digital media with the vitality and scale of something like the BBC. It's worth asking how we would fund it, but it's more important to ask, what would it do?

Consider a thought experiment on funding: The digital advertising industry is currently a \$333 billion global market, and the share of advertising that's digital continues to grow.⁴² Three companies that use intensely surveillant advertising practices – Google, Facebook, and Alibaba – represent \$200.3 billion of that market. If we posit a 1% levy on highly surveillant advertising – advertising that incorporates user tracking, combines demographic and psychographic data to create user profiles, or targets using factors other than a user's stated intentions and geography – we can easily posit a \$1–2 billion annual fund to support public service digital media.⁴³ What might we do if we thought on the scale of a \$2-billion-a-year project, twenty-two times the scale of Wikimedia⁴⁴ and thirty-six times the size of Mozilla?⁴⁵

This is not a new idea, to be clear. Free Press has proposed a targeted ad tax that they anticipate could generate support for “diverse, local, independent and noncommercial journalism that's gone missing, and to support new news-distribution models, especially those that don't rely on data harvesting for revenue.”⁴⁶ They propose a “Public Interest Media Endowment” to manage the funds generated. In May 2019, Nobel Prize–winning economist Paul Romer proposed a progressive digital ad revenue tax designed to encourage platform companies to explore models other than surveillant advertising, like subscription-based models.⁴⁷ The Romer model is designed to discourage companies from using surveillant advertising, so the tax is likely to be significantly higher than 1-2 percent and increases with the size of surveillant ad revenues earned by a company. In February 2017, Emily Bell of Columbia's Tow Center earlier proposed an endowment to support independent journalism, funded with billion-dollar donations from tech giants like Google and Facebook.⁴⁸

A subsidy for independent journalism would be a worthy use for funds generated from a tax on surveillant advertising, but the questions of scale are problematic. The global newspaper industry collected \$150.2 billion in advertising and circulation revenue in 2017, down more than

\$10 billion from 2013.⁴⁹ While the revenues from a \$5 billion endowment would be significant (\$250 million a year), they cannot fill the hole in revenue that newspapers and other organizations are experiencing from a shift to digital advertising. In addition, direct support for news production is likely to raise concerns within the United States, where conspiracy theories about the “deep state” and “elite media” are cited as reasons for mistrust in the news. The survival of high-quality, independent news demands a conversation about news as a public good, but the scale of the need makes even a Romer-style tax unlikely to solve the problem fully – on this topic, we need a broad-based consensus on the need for news as a public good for the health of democracies.

Another worthy use for a digital ad-related subsidy would be support for the systemic study of the social and individual effects of digital media. Scholars and commentators have raised concerns about the addictive effects of social media, the idea that social media is increasing political polarization and isolating people in ideological echo chambers, that social media might push vulnerable individuals towards extremist political views and that targeted advertising might be so effective that it subverts democratic processes. There’s little scholarly agreement about whether these phenomena are real, how widespread they are, and how important they might be⁵⁰ – a recent meta-analysis of forty studies of political persuasion finds little evidence that *any* form of political persuasion works to change opinion,⁵¹ so there should be strong skepticism of claims from companies like Cambridge Analytica that they can sway votes and subvert democratic choice through online methods.

These questions are hard to study because they require the analysis of vast datasets, which requires costly server space and programming skills. This field of research would benefit from a dedicated pool of funding, and the funds imagined here would represent a massive increase over current funding levels. But in addition to funding, such research requires vastly better access to the data collected and controlled by the platform companies. Previous efforts like Social Science One have been largely unsuccessful in persuading the large platforms to give scholars significant access to their data, and both commercial (Crimson Hexagon, Crowdtangle) and non-commercial (Media Cloud, Pushshift) efforts to index and make avail-

able for study the social web are incomplete and limited in their scope. Significant progress in answering the major social science questions that center on the social web likely have to wait for legislation requiring platforms to make their data more available, technical advances in differential privacy to make data releases more possible, as well as funding.

In addition to any content creation or research roles our new entity takes on, it has ample opportunity to innovate by creating new tools and services that market-based models have been unable or unwilling to support. In this role, it might model two existing digital public service entities. Mozilla Firefox is the widely known open-source web browser that emphasizes user privacy, arguably a top priority in the digital public services space. Mozilla's revenue comes almost exclusively from licensing deals with the web's largest search engines – Google in the United States, Yandex in Russia, and Baidu in China.⁵² Despite the irony of sending web searchers into the arms of some of the world's most surveillant companies, Mozilla creates key consumer tools to navigate the web more safely, including a plugin that counters Facebook's cross-site tracking. Additionally, Mozilla's revenues fund the Mozilla Foundation, which is a major advocate for consumer protection online and a convener of open-source developers.

Working on a much smaller scale, Public Spaces is a coalition of Netherlands-based organizations dedicated to redirecting government funding from large U.S. tech providers to open-source alternatives. Members of the coalition include the largest Dutch public broadcasters as well as major Dutch festivals and arts organizations. As creators of cultural works with broad reach in Dutch society, they seek to host online conversations about the works they're commissioning and creating. Rather than hosting those discussions on a surveillant platform like Disqus, they are trying to move discussions to an open-source platform based on the open-source ISSO project, using IRMA for login and user management.⁵³ To help public service organizations decide what software they might choose, Public Spaces is developing a badging system that certifies the compliance of software while adhering to open-source and privacy principles.

Public Spaces offers a possible model for the widespread adoption of new public service digital media tools – through public broadcasters

and public institutions that share the values of providing public services through media. Firefox points to the viability of large-scale nonprofit public service digital media projects, one that is not only self-sustaining but can also support other public service digital media efforts through its surpluses. Both invite us to think about what we could build beyond open-source versions of existing web tools.

SOME POSSIBLE PRINCIPLES FOR PUBLIC SERVICE DIGITAL MEDIA

PUBLIC SERVICE BROADCASTERS have argued over the principles of public service since John Reith prescribed a duty for the BBC to inform, educate, and entertain. The European Public Broadcast Union has determined a set of values that are laudable, if rather broad in the guidance they provide, asking that public service media strive for “universality, independence, excellence, diversity, accountability [and] innovation.”⁵⁴ Some possible principles for public service digital media might include:

Publicly Spirited, But Diverse in Funding

The goal of public service digital media is to fill gaps in the media landscape that have gone unfilled through market solutions, with an emphasis on the creation and adoption of tools that strengthen open and democratic societies. Such tools seek to inform their users. They enable groups to assemble and deliberate either through solidarity around a common identity or through productive encounters with diversity. They allow citizens to

mobilize groups to civic action online and offline.⁵⁵ They seek to give users choice about how and when they share their personal information online and how and where they are tracked and to give users more insight and transparency into the algorithms that control what they see and experience online.

Some of these tools may not be sustainable through market mechanisms, while others may be self-supporting after investment in development and startup costs. The business model is not what characterizes a public service tool – Mozilla Firefox is both profitable and public-spirited – but its values and goals.

Plural in Purpose

Facebook supports over 2 billion users from all over the world through the same basic set of tools that were originally designed to link Harvard students to one another. While it's a testament to Facebook's design skills that such a platform works as well as it does, one size really doesn't fit all. Some of the serious problems in online spaces stem from the fact that a toolset and accompanying ruleset that's appropriate for one form of online interaction may be wildly inappropriate for another context.

Bahraini activist Esra'a al Shafei created Majal as a special purpose social network for Arab LGBTQ teens. The network enforces anonymity, and no profile pics are permitted – users create cartoon avatars instead – in order to ensure that the network can't be used by local political or religious authorities to persecute users. To prevent trolls from disrupting the space, participants aren't allowed to comment until they've logged in a certain number of times to read and can't open new conversations until they've posted a number of supportive comments. These likely aren't the right rules to talk with your high school friends on Facebook, but they're appropriate for a community that's highly surveilled and persecuted.

Public service digital media tools shouldn't seek to dominate markets through scale – they don't need to assemble millions of eyeballs for resale to advertisers. Instead, they should support diverse use cases, more like WordPress, a flexible open-source publishing platform, than like a commercially funded entity like Facebook. Further, a public service digital

media model allows a diversity of platforms to serve a diversity of cultures with locally customized and appropriate tools, likely by giving communities more control over the rules that govern these new fora and how they are enforced.

Participatory in Governance

Robert Putnam's lament *Bowling Alone*⁵⁶ placed great weight on the civic implications of the shift from neighborhood-based civic organizations to mailing list-based lobbying organizations as the centerpiece of associational life in America. Critics rightly point out that the organizations Putnam mourns were often popular because they excluded people by race or gender and provided a network of "loose ties" that could often serve as barriers to members of socially marginalized groups. But Putnam was right about one aspect of associational life: It helped train participants on the art of participating in self-governing communities, a critical skill for democratic practice outside of formal government structures.

A new generation is learning the lessons of community participation via online tools. Reddit, a massively popular online community platform, relies on its many volunteer moderators to allow their community to function. Each subcommunity – subreddit – has a set of rules about what conduct is allowable and what's forbidden, and moderators enforce these rules, often putting in dozens of hours a week to ensure that content meets community standards and that participants understand why their content was permitted or banned.⁵⁷ The process of setting these guidelines and discussing their enforcement is an ongoing civics lesson for those who keep the community running, and scholars have begun studying the strategies for civic behavior used on Reddit to understand how communities learn and make decisions.⁵⁸

Many of the problems faced by existing digital service providers come from moderation issues. Facebook is now moving toward a "supreme court" that allows outside reviewers to advise the company on its thorniest content moderation issues, in addition to the tens of thousands of professional moderators it pays to enforce its terms of service. Even with these resources, Facebook is only able to function because it has a single

set of rules that – theoretically – applies everywhere across their site. The multiple rulesets anticipated in digital public infrastructures require self-governance both as a social good and to make possible a functionally diverse web.

Publicly Auditable and Reviewable

In August 2019, President Donald Trump latched onto a widely discredited academic paper that posited that Google might have swung millions of votes to Hillary Clinton in the 2016 election through posting pro-Hillary search results and suppressing pro-Trump ones.⁵⁹ While the paper’s claims were overbroad and unsupportable, they build on a real phenomenon. In 2012, Facebook conducted a study on 61 million users that demonstrated that users could be encouraged to participate in elections by showing pictures of their friends who’d reported that they had already voted.⁶⁰ The effect was small – people exposed to the treatment were 0.39 percent more likely to vote – but significant enough that Harvard Law School professor Jonathan Zittrain observed that a close election could theoretically be swung by encouraging voters of a known political affiliation to vote and not mobilizing others.⁶¹

There is no good way to ensure that what Zittrain speculates is not actually happening – the effects are so small that it would require a massive, coordinated audit to reveal such action. Further, it’s not clear that some audits are legal under the U.S. Computer Anti-Fraud and Abuse Act (CFAA).⁶² We rely on Google’s word that they are not skewing search results of a particular political affiliation and on Facebook’s word that they’re not suppressing conservative news (as Trump and others have accused them).

We need new tools to enable scholars and public interest advocates to review the algorithms that rank search results and order social media posts while balancing the privacy rights of users. This raises a rich and complex set of problems that will require study as the large internet platforms have not yet been subject to audit pressures. But the opportunity to build new platforms offers the possibility of engineering them from the ground up to be audit compliant and transparent about their operations.

WHAT COULD WE BUILD?

DUE TO THE PAUCITY of engineers and entrepreneurs thinking about digital tools that meet civic needs instead of market needs, we don't yet know what's possible in this space. Tim Berners-Lee, the inventor of the World Wide Web, is experimenting with a new architecture called Solid, in which user data remains under a user's control and is shared with applications when they need it, rather than being owned by those platforms. Early in his thinking about Solid are a set of services that replicate existing services but protect user privacy and rights, as well as new applications that could leverage user ownership of transactional data to create new services.⁶³ A parallel for what's possible with Solid may be the transformation beginning in the European banking industry with the implementation of PSD2, a major financial services law requiring interoperability between digital banking services.⁶⁴ We know a transformation is coming and that exciting new things are possible; we just don't know what exactly to expect.

One obvious, but difficult to build, set of services are **auditable and transparent search and discovery tools**. Anyone who has maintained

an online presence, especially an online sales platform, understands how enormously powerful search engine ranking algorithms are – moving off the first page of search results often results in a crash in online referrals and sales. People who find themselves in such a predicament are desperate to understand why their Google ranking has changed . . . and Google is wholly unwilling to share the details of their algorithm out of the understandable fear that any information they release will be used to game the algorithms, allowing unscrupulous companies and SEO professionals to advance their interests over public interests.

Yet opaque ranking and discovery algorithms are becoming less publicly acceptable by the day. Concerns that YouTube’s recommendation algorithms are leading viewers to extremist content point to the need for the auditability and explainability of these discovery systems. My lab, MIT’s Center for Civic Media, has experimented with user-tunable filtering systems for social media through Gobo.social; users of the tool are able to choose what algorithms and thresholds eliminate or include content from their feeds. Designing more complex discovery systems around search and recommendation should be possible, if challenging.

Building a new search engine would be a moonshot, a massive undertaking. A better start might be avoiding going head to head with Google on their best competency but taking on a subfield of search. Wikimedia briefly explored a Wikidata-powered question-answering search engine that would have directly challenged Wolfram Alpha and been a useful component for services like Siri or Alexa, but they abandoned the project when community members expressed concerns about feasibility and scale.⁶⁵ French and German programmers began work on a European rival to Google for indexing videos, images, and cultural works. The project, named Quaero,⁶⁶ never led to a final project, but the goal – indexing the European cultural heritage – is entirely consistent with the spirit of public service digital media.

The ultimate impact of a project on transparent and auditable search might not be a nonprofit competitor to Google but the emergence of a strategy that allows review – either by a select set of academics and regulators or by a segment of the public audience – and resists gaming, which might then be incorporated by Google and others, allowing their claims of

unbiased search to be independently verified.

Another project that could directly challenge existing market leaders would be a **non-surveillant advertising network**. Google AdSense is the most popular tool used by webpage owners to monetize traffic to their pages. Google combines information from AdSense with tracking information from any page running Google Analytics, running ads from Double-Click or embedding YouTube ads to enable a surveillance system with a presence on as much as 80 percent of the web.⁶⁷ Alternatives to AdSense include the Facebook Audience Network and Amazon's Affiliates Program, which maintain similar webs of surveillance.

Sunil Abraham of the Centre for Internet and Society, a Bangalore-based research organization, proposes an ad network that could be based on machine parsing of the contents of a webpage to determine targeting information. Combining this targeting data with loose geodata – targeting a user to their city, perhaps, rather than their street address – could result in an ad product that allows users to monetize their content without surveilling their users, one that advertisers might choose to use as a socially responsible alternative to existing online ads. The popularity of podcast sponsorship, which offers far less information about user behavior, but associates ads with high-quality content, suggests that there might be a market opportunity for this model and that a non-surveillant ad network could ultimately be self-sustaining or capable of cross-subsidizing other projects.

Finally, public service digital media need to help create an ecosystem of alternative social networks, designed for use by a wide range of communities for conversation, deliberation, and mobilization. The problems social networks face – high prevalence of misinformation, polarization, and echo chambers, among others – are aggravated by their scale. The centralization of a network like Facebook means that a misinformation campaign that succeeds in Myanmar can be tried in Maryland, and there's a decent chance that the lessons learned will be transferrable. Simultaneously, the opacity of these networks makes it impossible for anyone other than Facebook to fix the problems – unlike Reddit, where communities can experiment with different rulesets and interventions with the help of NGOs like CivilServant. Facebook is the only group that can solve Facebook's problems.

An alternative to the dominance of Facebook and Twitter in the social media space is a wave of alternative social media platforms designed to meet the needs of local geographic communities and communities of interest. Some of these communities might feature novel technical capabilities, like the karma and moderation framework used in Majal; others might use preexisting tools like Asterisk or Mastodon and experiment with different community standards and rules of the road. Collectively, the growth of healthy communities could bring to light approaches to rules, norms, technological affordances, and moderation strategies that are more tolerant and equitable, which could lead to more widespread adoption. Early experiments like WikiTribune, which combines aspects of Wikipedia-style moderation and news discussion, and Gell.com, which asks users to list the pros and cons of controversial issues in a civil fashion, show great promise for alternative models of interaction online.

A wave of pro-civic social media communities requires both technical advances around single sign-on (to make it easy to join and manage communities without different passwords for each one and without relying on Google or Facebook for login services), aggregation (to build a single client, a social media browser, that allows users to access all of their networks in one place), and interoperability (to ensure that networks can create new kinds of content while still enabling aggregators to read these new content types), and changes to legal frameworks. Case law in the United States suggests that platforms can refuse requests to aggregate their content or make it accessible through an API,⁶⁸ although the success of the Data Transfer Project, a common standard for exporting social media, holds out the possibility that platforms may be decreasing their resistance to interoperability.⁶⁹ Experiments like gobo.social and existing tools like Hootsuite suggest what social media browsers and aggregators might look like in a world with a wide array of social networks.

The real civic impact of a wave of innovation in special-purpose social networks would go beyond learning about how online communities can be better managed. It would contemplate the true integration of online and offline civic processes. My town of three thousand is governed by an annual town meeting, a highly ritualized exercise in which hundreds of citizens sit in an elementary school auditorium, arguing about the annual

town budget line by line. A social network active for the three days before and one day after the town meeting might transform a process that's grown increasingly complex, intricate, and time-consuming since its introduction in the eighteenth century.

FIRST STEPS

IT TOOK YEARS from Newt Minow’s warning about the “vast wasteland” until the establishment of the Corporation for Public Broadcasting and the founding of NPR and PBS. The BBC’s role as a neutral provider of news and a host of public conversations didn’t emerge fully formed under Reith and Matheson’s leadership but accumulated over decades. Achieving the goal of public service digital media as a powerful counterweight to surveillant and censorious models of platform control is a project that might take years to accomplish. But there are steps that can be taken today that would test the viability of the larger vision.

Legislators in the United States are expressing interest in regulating the tech platforms. Some of these regulations, including the ACCESS bill proposed by Senator Mark Warner, seek to increase competition by making it easier for users to export their data and relationships from existing platforms.⁷⁰ This logic echoes number portability, a policy change that unleashed growth in mobile telephony, as users suddenly were able to leave wireless carriers for competitors without losing the valuable real estate of their phone number. It’s not clear whether this is the appropriate

model for increasing competition for social media, as most social media users participate in multiple platforms, while most individuals have a single mobile phone carrier.

Legislation focused on interoperability may be more important than legislation focused on data portability. Much as Senator Warner’s legislation requires companies with annual revenues over \$100 million to adopt portability measures, we could push for these large companies to maintain APIs that allow third parties to develop tools to enable users to interact with multiple social media streams through the same interface. Like RSS readers that allow readers to follow dozens of news sites through the same interface, these tools would support users who experiment with new, special-purpose social networks. Without these tools, it’s likely that users will try an experimental social network once or twice but then not make it part of their regular routine. Further, a policy that enables third-party readers would allow privacy-respecting alternatives to existing social media applications, which relentlessly track a user’s behavior and clickstream.⁷¹

Solutions that focus on interoperability won’t have an impact without a wave of innovation in creating new digital public infrastructures, especially social networks. While the philanthropic community is rightly focused on countering surveillance and limiting the power of platforms through legislation, this agenda runs the risk of continually “playing defense” without offering an affirmative vision to work toward. This critical defensive work needs to be complemented with a wave of funding focused on experimentation around what might be possible with purpose-built social networks, specialized search engines, new technologies for revenue generation, and other digital public services. Philanthropic and government funders should focus on funding a range of experiments, accepting that some will fail, with the expectation that successes will spark interest in pushing the boundaries of what constitutes the digital public infrastructure.

To steer this proposed experimentation, we need a focused research agenda that challenges some of the “common knowledge” about the effects of digital media. If recommendation algorithms on platforms like YouTube are leading viewers toward radicalization, we need to prioritize experimentation in other ways to discover different videos⁷²; if radical-

ization stems from interactions in the video comments instead, we need experimentation in moderating conversations around videos. Rather than regulating platforms based on uncertain scientific conclusions, it would be wise for governments and philanthropies to fund rigorous research about the effects of social media on individual health and on our broader civic health and then foster direct experimentation and policy in ways that follow what scholars discover.

Finally, for the ideas outlined here to be relevant, there needs to be a proof of concept that revenues can be generated to support experimentation, research, and development of sound policy. One first step could be introducing legislation around taxation of surveillant advertising within EU countries, where sensitivities to privacy tend to be stronger than in the United States and where taxing U.S. companies may be more easily accomplished than in, say, California.

The ideas put forward in this essay, especially about taxation of surveillant advertising, may not be easy to realize, especially in the United States, where ongoing political crises make it difficult to accomplish complex policy changes. There are worthwhile arguments about whether the principles and projects I've suggested are the most pressing ones. I'm comfortable with any of those arguments. My point is not to solve the problem of public service digital media but to open a conversation about it.

At this moment in the evolution of the Web, we are comfortable having wide-ranging arguments about the shortcomings and failings of existing digital platforms. We are nowhere near as good at proposing and exploring alternatives, and this failure of imagination means that we are ceding the future of the internet to the companies that have already taken power.

Public service digital media offers us the opportunity to imagine what could be possible. What is the media environment we want?

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About the Author

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