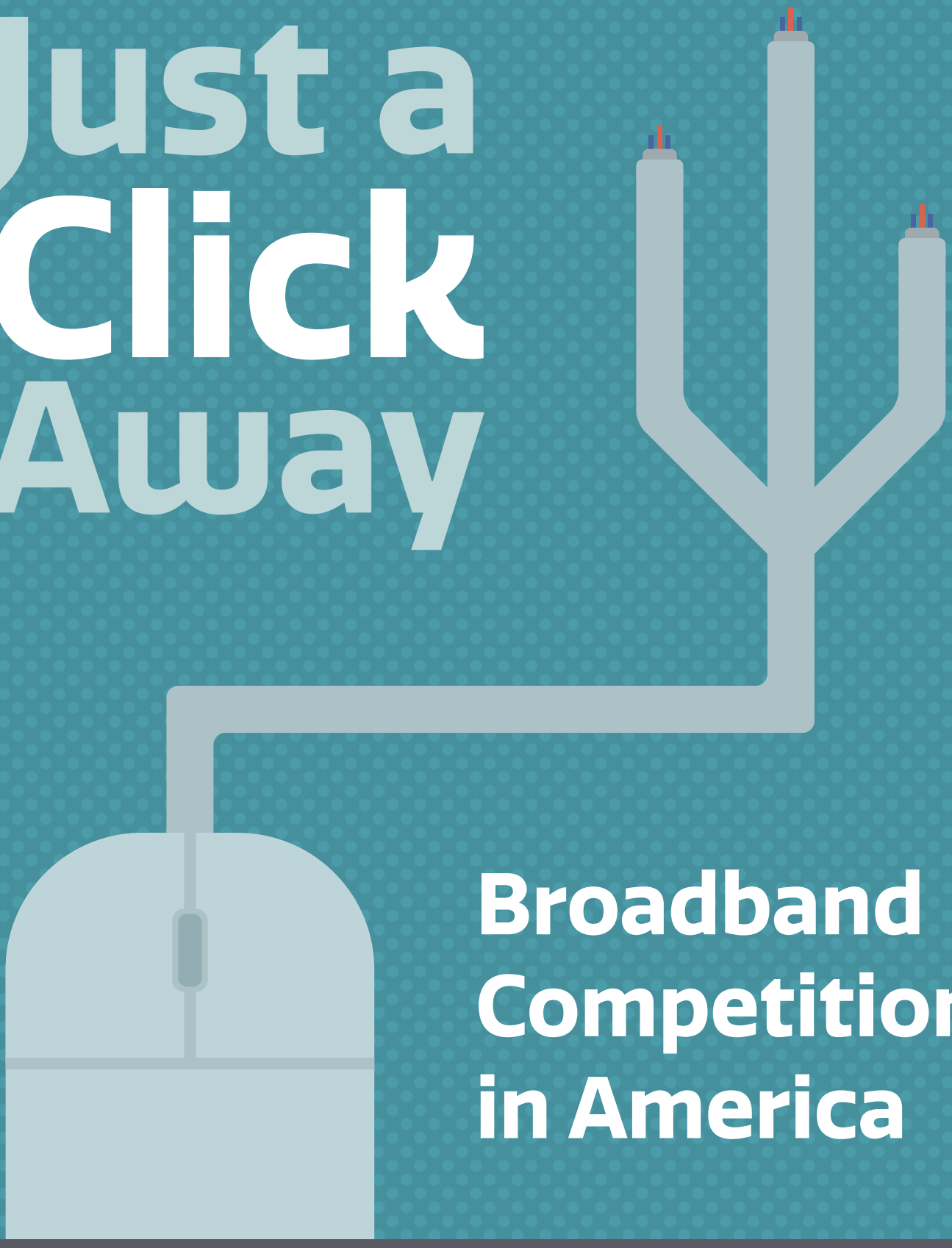
Just a Click Away



Broadband Competition in America

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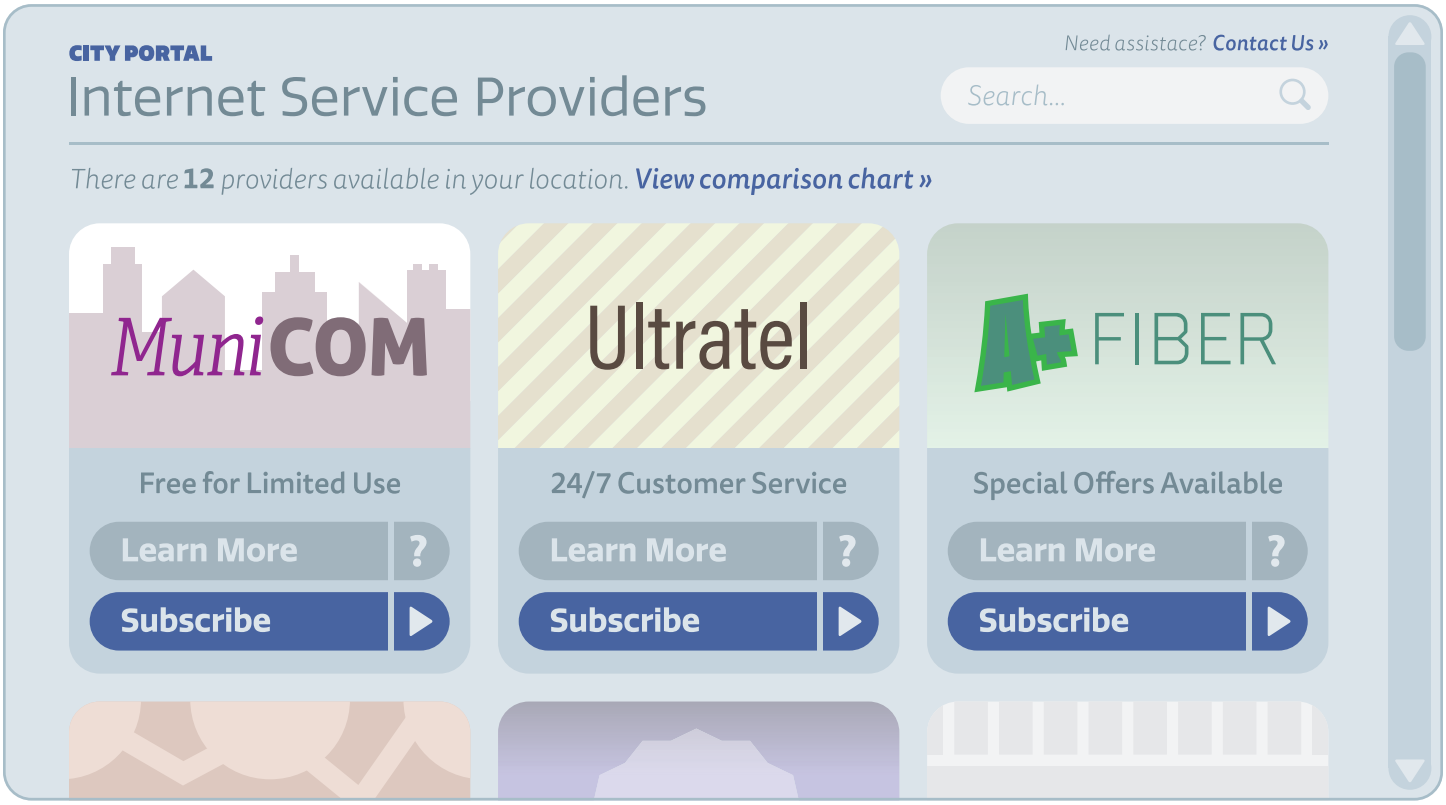
Summary

IMAGINE IF YOU HAD A CHOICE of a dozen Internet service providers (ISPs), all competing to provide next-generation fiber broadband at affordable rates. Imagine if these ISPs cared about customer service and the communities they serve. Then imagine if you could switch between these providers in a matter of seconds with only a few online clicks.



This is the unrealized potential of the open access wholesale fiber model, whose benefits have been documented for years—yet routinely disregarded by U.S. telecom policymakers in favor of consolidation, powerful gatekeepers, and limited competition.

Despite spearheading the creation of the modern online innovation economy, United States Internet access has spent decades mired in mediocrity. Limited competitors, regulatory capture, and regional monopolization have worked in concert to keep service availability spotty, prices high, and speeds consistently lower than many developed nations.

Federal U.S. telecom policy has not only failed to accurately counter the problems created by consolidation and unchecked monopolization, but policymakers have failed at rudimentary fundamentals, best showcased by a longstanding inability to accurately measure the width and breadth of affordable U.S. broadband connectivity gaps.

In direct response to federal policy and market failure, U.S. towns, cities and states have taken matters into their own hands. Across the country, local leaders are not only inventing new broadband mapping methodologies, they're developing innovative new business models with a focus on delivering affordable, "future proof" fiber to long-neglected communities.

This paper examines a generation-long failure to adequately support the deployment of affordable fiber networks, and re-imagines a policy future in which evidence and community welfare plays a leading role in policy determinations. Of particular focus is the wholesale fiber open access model, its long-proven potential, and the repeated and self-destructive efforts to marginalize the concept in U.S. telecom policy making.

The greatest innovation in U.S. telecom is being forged not in telecom board rooms, but block by block by frustrated community members. At the heart of these efforts lies a grassroots bipartisan coalition of motivated advocates, building neighborhood-based innovation laboratories aimed at disrupting the competitive U.S. telecom logjam a generation in the making.

These solutions not only drive broader and better nationwide broadband deployment, but provide a more democratic public choice in what access itself looks like. This paper presents a path forward, one that could enable more competition, rather than consolidation; more user empowerment, rather than leaving it to the whims of a few corporate giants; and more innovation, rather than allowing long dominant players to rest on their laurels.

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1. Introduction: America's Broadband Availability & Competition Problems

SOMEWHERE BETWEEN 14.5 MILLION[1] AND 42 MILLION[2] AMERICANS lack access to broadband. 83 million more Americans live under a monopoly.[3] Tens of millions more U.S residents live under a duopoly, and a large segment of the U.S. population can't afford the broadband options currently available due to a lack of meaningful competition.[4]

These statistics are all considered to be likely under-estimates by experts in the field given the Federal Communications Commission's (FCC) long history of inaccurate broadband mapping[5] and dated definitions of what constitutes "broadband" service.[6]

U.S. telecom monopolization and dysfunction is a problem decades in the making. This paper will document U.S. policy-maker inability to craft meaningful policies to encourage competition, or even accurately measure the scope of the problem. It will also explore how these same policymakers have routinely ignored popular, local, creative alternatives to this broken status quo.

For decades, the U.S. Federal Communications Commission (FCC) based all telecom policy on self-reported data[7] provided to the agency by regional broadband providers themselves. For just as long, government and third-party watchdogs noted the agency did a poor job tracking the accuracy of this data, particularly in rural regions, low-income urban areas, and tribal lands.[8]

Compounding the problem, the FCC long declared an entire census block "served" with broadband if a regional ISP claimed that just one home in that census block could theoretically receive service.[9] As a result, entire census blocks—sometimes including dozens or hundreds of homes—were falsely declared as already having broadband despite remaining unserved.

Incorrect assumptions about broadband availability have created a flawed and overly-optimistic baseline from which all other U.S. government policies flow. The end result is policies that cannot address sector issues not only because they aren't being identified, but also because they aren't being accurately represented in the broader policy discourse.

1 *FCC Annual Broadband Report Shows Digital Divide Is Rapidly Closing*, Jan. 19, 2021 — www.fcc.gov/document/fcc-annual-broadband-report-shows-digital-divide-rapidly-closing

2 *BroadbandNow Estimates Availability for all 50 States*, May 5, 2021 — broadbandnow.com/research/fcc-broadband-overreporting-by-state

3 *Report: Most Americans Have No Real Choice in Internet Providers*, Aug. 12, 2020 — ilsr.org/report-most-americans-have-no-real-choice-in-internet-providers/

4 *The Cost of Connectivity 2020*, Jul. 15, 2020 — newamerica.org/oti/reports/cost-connectivity-2020/

5 *How Bad Maps Are Ruining American Broadband*, Sep. 24, 2018 — theverge.com/2018/9/24/17882842/us-internet-broadband-map-isp-fcc-wireless-competition

6 *FCC Should Analyze Small Business Speed Needs*, Jul. 8, 2021 — gao.gov/products/gao-21-494

7 *Fixed Broadband Deployment Data from FCC Form 477*, Dec. 31, 2020 — fcc.gov/general/broadband-deployment-data-fcc-form-477

8 *FCC's Data Overstate Access on Tribal Lands*, Sep. 2018 — gao.gov/assets/gao-18-630.pdf

9 *FCC is Taking Steps to Accurately Map Locations That Lack Access*, Sep. 28, 2021 — gao.gov/products/gao-21-104447

Prompted by Congress with the passage of the Broadband Data Act[10], the FCC has only just begun to identify and correct flaws in basic broadband mapping methodology, but the solutions will arrive at the tail end of a new broadband funding wave made possible by the Covid-related American Rescue Plan Act (ARP) and Infrastructure Investment and Jobs Act (IIJA).

Other issues complicate meaningful measurements, further lowering acceptable standards and metrics. The FCC's base definition of what constitutes broadband—currently twenty-five megabits per second (Mbps) downstream, three megabits per second upstream—is considered antiquated and not reflective of modern consumer and business needs, according to the General Accounting Office (GAO)[11], policy experts, and consumer advocates.

Efforts to broadly redefine broadband as a more modern symmetrical 50 or 100 Mbps have struggled to gain traction.[12] But even the FCC's existing data—which again overstates both availability and speed—indicates there is little meaningful competition at broadband speeds of 100 Mbps or beyond in the majority of U.S neighborhoods.[13]

Third-party studies have found that an estimated 83 million Americans currently live under a broadband monopoly[14] with just one choice of broadband provider, usually a national cable company. In many neighborhoods, competition involves a duopoly of a national cable company and regional phone giant.

Third-party studies have found that an estimated ***83 million Americans*** *currently live under a broadband monopoly,* ***with just one choice of broadband provider,*** *usually a national cable company.*

Historically, Wall Street investors have incentivized the industry to exploit these uncompetitive markets rather than meaningfully invest in the slower ROI of network expansion.

As a result, phone companies nationwide have been consistently criticized for refusing to upgrade older DSL networks to fiber[15], refusing to repair existing DSL and phone networks[16], or skipping over marginalized and disadvantaged neighborhoods during upgrades in a practice dubbed redlining.[17]

At the same time, broadband providers like AT&T and Verizon have chosen to heavily invest billions in riskier, higher growth media and online advertising acquisitions

10 *S.1822 - Broadband DATA Act*, 2019-2020 — congress.gov/bill/116th-congress/senate-bill/1822

11 *FCC Should Analyze Small Business Speed Needs*, Jul. 8, 2021 — gao.gov/products/gao-21-494

12 *Fourteenth Broadband Deployment Report*, Jan. 19, 2021 — fcc.gov/reports-research/reports/broadband-progress-reports/fourteenth-broadband-deployment-report

13 *Senators call on FCC to quadruple base high-speed internet speeds*, Mar. 4, 2021 — theverge.com/2021/3/4/22312065/fcc-highspeed-broadband-service-ajit-pai-bennet-angus-king-rob-portman

14 *Report: Most Americans Have No Real Choice in Internet Providers*, Aug. 12, 2020 — ilsr.org/report-most-americans-have-no-real-choice-in-internet-providers/

15 *AT&T kills DSL, leaves tens of millions of homes without fiber Internet*, Oct. 5, 2020 — arstechnica.com/tech-policy/2020/10/life-in-atts-slow-lane-millions-left-without-fiber-as-company-kills-dsl/

16 *Verizon accused of refusing to fix broken landline phone service*, Mar. 23, 2014 — arstechnica.com/information-technology/2014/03/verizon-accused-of-refusing-to-fix-broken-landline-phone-service/

17 *AT&T's Digital Redlining Of Cleveland*, Mar. 10, 2017 — https://www.digitalinclusion.org/blog/2017/03/10/atts-digital-redlining-of-cleveland/

that routinely fail, resulting in acquired assets being sold for a fraction of their purchase price.[18]

Monopolization and under-investment doesn't just result in high prices; such a model has repeatedly left consumers with inadequate service and unreasonable repair delays in the wake of natural disasters.[19] Several phone companies known for an underinvestment in fiber have also fallen into bankruptcy,[20] leaving consumers with even fewer competitive options.

U.S. duopoly competition is generally lopsided and ill-defined by the nation's top regulatory agencies. Many U.S. phone companies cannot offer service that meets the FCC standard definition of broadband across broad swaths of their network footprint, despite decades of significant state and federal taxpayer subsidization.

Such systemic dysfunction has been a boon to U.S. cable giants (most notably Charter Communications and Comcast) who now enjoy a 70 percent and growing U.S. market share for fixed line broadband. In large part because cable upgrades to current-generation speeds cost significantly less than upgrading DSL to fiber.

In short, if a U.S. consumer wants next-generation speeds, often their only option is their local cable company. Of the 2,950,000 net broadband Internet subscribers added in 2021, 95 percent[21] percent flocked to regional cable companies—again usually Comcast or Charter.

Additional competitive logjams often manifest on a block by block basis in the form of exclusive arrangements between dominant broadband providers and multi-dwelling unit (MDU) or multi-tenant environment (MTE) landlords.[22]

Even after the FCC imposed rules in 2008 banning landlords from striking exclusive partnerships with ISPs, regional broadband monopolies concocted elaborate workarounds to dodge the restrictions and restrict competition, ranging from deals that banned competitors from advertising in building, to convoluted deals deeding in-building network ownership to landlords so they can skirt the rules.

Relentless consolidation and limited competition have also consistently resulted in U.S. telecom giants having some of the worst customer satisfaction ratings across all U.S. industries. Telecom and cable satisfaction rankings routinely fall below the banking, healthcare, insurance, and airline sectors, and even government agencies like the IRS.[23]

Despite consistent profits, numerous telecom providers have similarly imposed widespread layoffs, reducing quality customer support even further. Verizon and AT&T are estimated to have laid off 95,000 workers in a five year span[24] despite notable subsidies, tax relief, and repeated regulatory favors (including the elimination of net neutrality and broadband privacy rules).

The combination of limited competition, inconsistent regulatory oversight, and unforgiving geography has left the United States well behind many countries in terms of overall deployment of faster, more reliable fiber last mile networks according to OECD Data.[25]

In countries such as The Netherlands, Sweden, France

18 *Culture Clash and the Failure of the AT&T/Time Warner Merger*, 2021 — rbr.business.rutgers.edu/sites/default/files/documents/rbr-060309.pdf

19 *Verizon accused of refusing to fix broken landline phone service*, Mar. 23, 2014 — arstechnica.com/information-technology/2014/03/verizon-accused-of-refusing-to-fix-broken-landline-phone-service/

20 *Frontier prepares for bankruptcy, regrets failure to install enough fiber*, Apr. 1, 2020 — arstechnica.com/information-technology/2020/04/frontier-prepares-for-bankruptcy-regrets-failure-to-install-enough-fiber/

21 *About 2,950,000 Added Broadband From Top Providers in 2021*, Mar. 7, 2022 — leichtmanresearch.com/about-2950000-added-broadband-from-top-providers-in-2021/

22 *The New Payola: Deals Landlords Cut with Internet Providers*, Jun. 27, 2016 — wired.com/2016/06/the-new-payola-deals-landlords-cut-with-internet-providers/

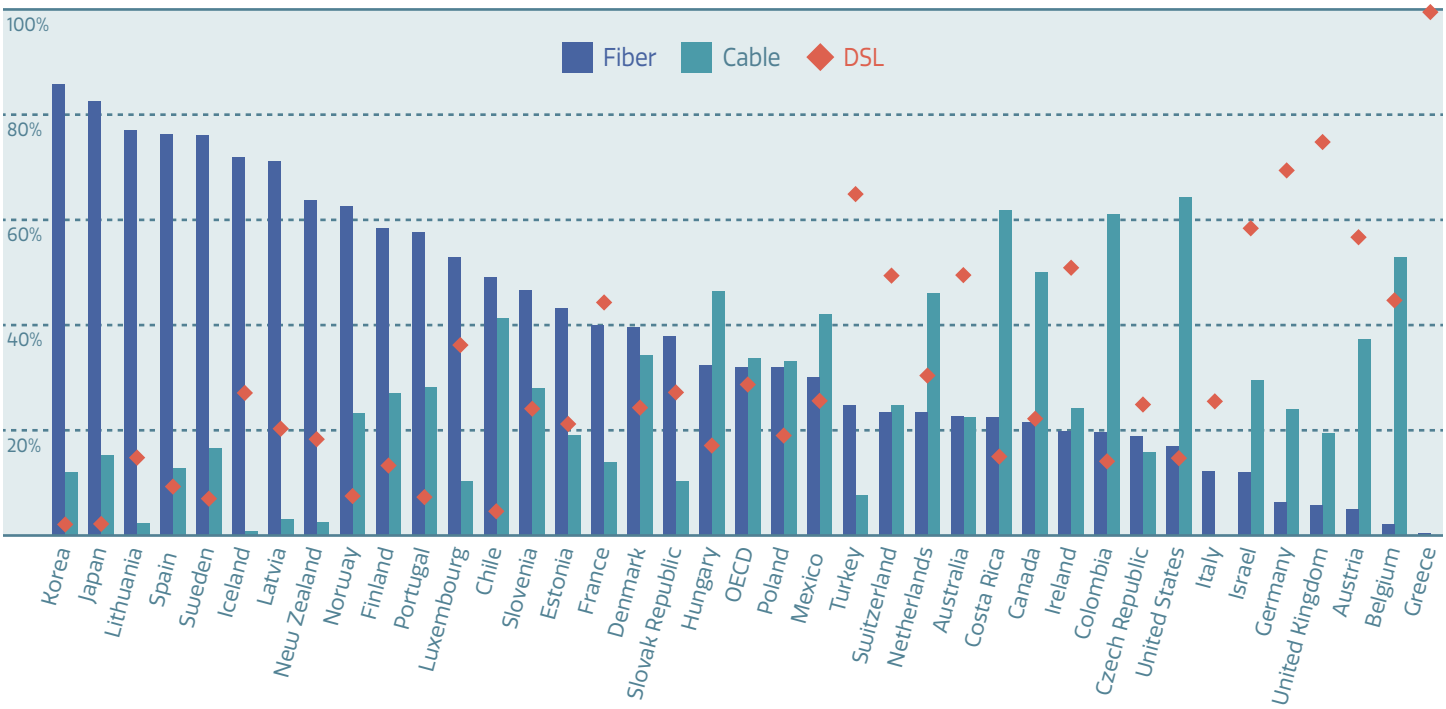
23 *American Customer Satisfaction Index* — theacsi.org

24 *AT&T and Verizon have cut 95K jobs in five years*, Jan. 28, 2021 — lightreading.com/aiautomation/atandt-and-verizon-have-cut-95k-jobs-in-five-years/d/d-id/766984

25 *OECD broadband statistics update*, Feb. 10, 2022 — oecd.org/sti/broadband/broadband-statistics-update.htm

Fiber, DSL & cable subscriptions as per cent of total fixed broadband

» In June 2021. Source: *OECD broadband statistics*



or New Zealand, fiber has long become the dominant transmission medium—in part because fiber is generally more "future proof" in the face of bandwidth demands and the development of new, innovative services.

Unlike cable and wireless, fiber requires fewer major generational revisions to ensure significant bandwidth capacity delivery. And despite a higher CAPEX impact initially, fiber provides significantly lower overall OPEX due to being more reliable and less expensive to maintain than competing copper and coaxial-based technologies.[26]

In contrast, United States fiber adoption still lags well beyond technologies like cable broadband, which despite promised full duplex improvements[27] remains notably constrained on the upstream side of bandwidth delivery—limitations that cable providers often work to obscure in both policy conversations and consumer-facing retail material.[28]

According to OECD data from June of 2021, the United States also lags globally, positioned well behind countries like Mexico, Australia, Canada, and Japan in terms of fiber broadband adoption and availability.

Analysis of existing U.S. fiber penetration, which again may be overestimated due to faulty FCC data, suggest that roughly 44 percent of Americans[29] have access to fiber optic broadband service from their local ISP. And while geography is often blamed for the poor U.S. showing, countries like Russia and China easily top the U.S. in terms of fiber availability and adoption.

26 *Why Slow Networks Really Cost More Than Fiber*, Jun. 4, 2020 — eff.org/deeplinks/2020/06/why-slow-networks-really-cost-more-fiber

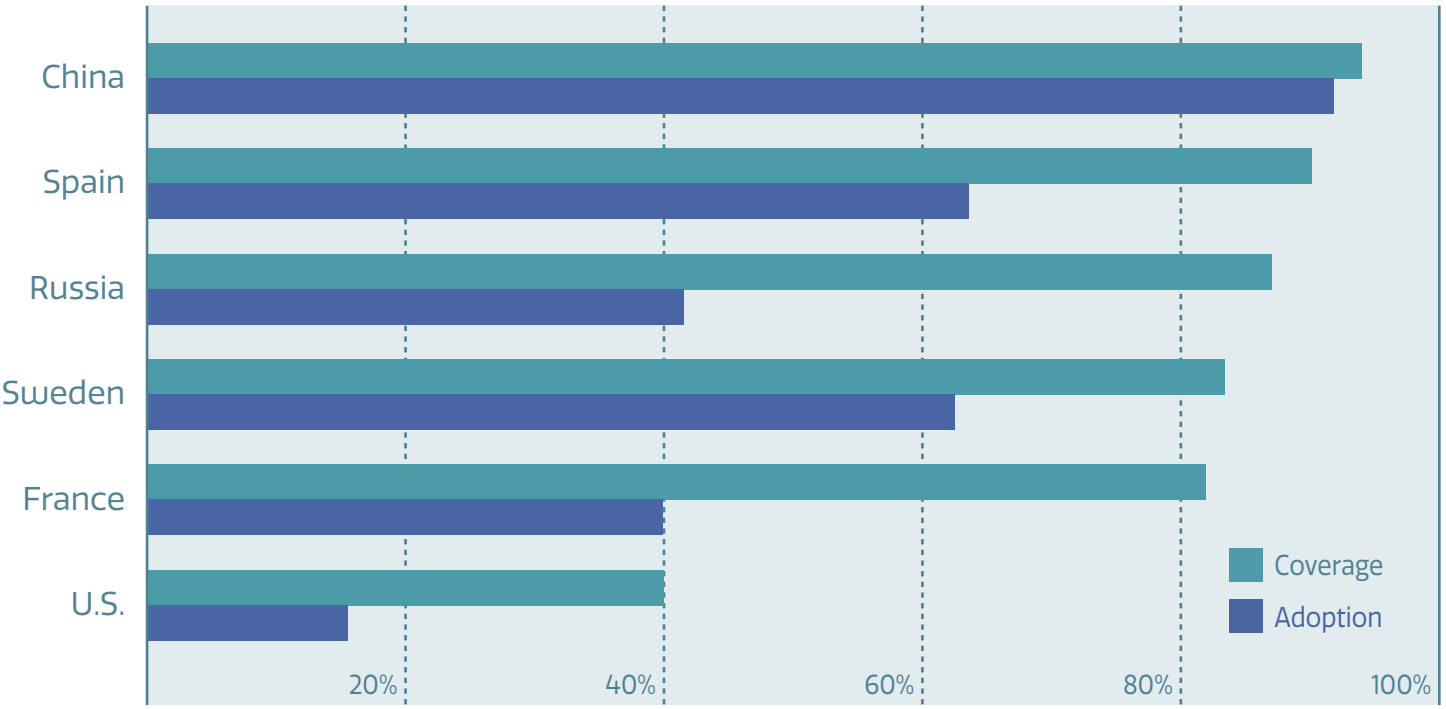
27 *Comcast claims first with end-to-end full duplex DOCSIS 4.0 link*, Oct. 14, 2021 — fiercetelecom.com/operators/comcast-claims-first-end-to-end-full-duplex-docsis-4-0-link

28 *Comcast hides upload speeds deep inside its infuriating ordering system*, Mar. 3, 2021 — arstechnica.com/tech-policy/2021/03/comcast-hides-upload-speeds-deep-inside-its-infuriating-ordering-system/

29 *Fiber Broadband Enters Largest Investment Cycle Ever*, Jan. 5, 2020 — fiberbroadband.org/blog/fiber-broadband-enters-largest-investment-cycle-ever

Fiber-to-the-home coverage & adoption as per cent of households

» In 2020. Source: *Diffraction Analysis, RVA, FBA, Idate*



While both fifth generation wireless (5G) and new low-orbit satellite broadband technologies may provide some alternative relief to underserved communities, they are far from universal fixes, and come with numerous constraints that make them an often inadequate, expensive, and less reliable[30] replacement for traditional fixed-line broadband.[31]

Due to inadequate middle-band spectrum, U.S. 5G speeds have lagged well behind most developed nations.[32] 5G wireless connections also come with limitations that don't exist on fiber networks, whether it's the throttling of HD and 4K video[33], or monthly usage restrictions that may incur additional usage surcharges for cost-conscious consumers.

Such restrictions have frequently been either poorly communicated to consumers, or in other instances actively misrepresented by mobile carriers, resulting in years of protracted litigation.[34] Crowdsourced studies have also found that such limitations result in U.S. video delivery quality notably worse than in many overseas nations.[35]

30 *Fixed wireless service quality lags wired broadband, says Evercore*, Feb. 15, 2022 — fiercewireless.com/wireless/fixed-wireless-service-quality-lags-wired-broadband-says-evercore

31 *The Case for Fiber to the Home, Today: Why Fiber is a Superior Medium for 21st Century Broadband*, Oct. 16, 2019 — eff.org/wp/case-fiber-home-today-why-fiber-superior-medium-21st-century-broadband

32 *Study Finds That US 5G Speeds Are Slower Than 14 Other Countries*, Oct. 30, 2020 — pcmag.com/news/study-finds-that-us-5g-speeds-are-slower-than-14-other-countries

33 *Verizon to start throttling all smartphone videos to 480p or 720p*, Aug. 22, 2017 — arstechnica.com/information-technology/2017/08/verizon-to-start-throttling-all-smartphone-videos-to-480p-or-720p/

34 *AT&T to Pay $60 Million to Resolve FTC Allegations It Misled Consumers with 'Unlimited Data' Promises*, Nov. 5, 2019 — ftc.gov/news-events/news/press-releases/2019/11/att-pay-60-million-resolve-ftc-allegations-it-misled-consumers-unlimited-data-promises

35 *The State of Mobile Video*, Sep. 2019 — opensignal.com/reports/2018/09/state-of-mobile-video

While low-orbit satellite broadband efforts like Space X's Starlink have also received ample press attention as a quick fix for U.S. broadband woes, analysis suggests initial overall capacity is initially limited to just 500,000 to 800,000 initial subscribers[36], at a price point that may not be affordable for many rural Americans.[37]

The introduction of additional competitors ranging from OneWeb to Amazon may broaden the impact greatly, but these low-orbit satellite technologies also cause profound harm to scientific research, something astronomers say cannot be fully mitigated.[38] Capacity constraints, as with wireless, may also result in network usage restrictions unseen on fixed-line networks.

In short, while wireless and satellite solutions can provide niche assistance to fill in U.S. availability gaps, they are not adequate replacements for traditional fiber-optics, and should not be treated equally in policy considerations.

While wireless and satellite solutions can provide niche assistance, ***they are not adequate replacements for traditional fiber-optics,*** *and should not be treated equally in policy considerations.*

Yet U.S. telecom history is rife with examples where entirely new technologies have been portrayed as near-miraculous innovative panaceas, often in an attempt to justify deregulatory policies that routinely fail to address or even acknowledge monopolization.

Former FCC Chairman Michael Powell once declared broadband over powerline (BPL) the "great broadband hope,"[39] using the technology as justification for sustained deregulation[40] of the U.S. telecom sector. In reality, BPL wound up being too interference prone[41] to be of practical use, and its long-heralded competitive benefits never materialized.

Similar hype[42] surrounded the introduction of Worldwide Interoperability for Microwave Access (WiMAX) technologies in the IEEE 802.16 family of wireless-networks standards. Here too, a technology that was supposed to all-but cure America's broadband competition problems wound up having minimal impact on the competitiveness of the sector.[43]

For decades, dominant U.S. telecom policy discourse has been based on unfulfilled promises, unreliable data and flawed assumptions. Deployment and competitive shortcomings were simply not accurately measured, allowing dominant incumbent providers to both downplay the scope of the problem, and

36 *Starlink's threat to wired broadband 'minimal' – analyst* , Apr. 5, 2021 — lightreading.com/satellite/starlinks-threat-to-wired-broadband-minimal---analyst-/d/d-id/768528

37 *Who is Starlink really for?* , Sep. 6, 2021 — technologyreview.com/2021/09/06/1034373/starlink-rural-fcc-satellite-internet/

38 *Satellite Constellations 1 Workshop Report* , Aug. 25, 2020 — aas.org/satellite-constellations-1-workshop-report

39 *Broadband over powerline last mile networks: more hype than hope,* Jan. 10, 2012 — fiercetelecom.com/telecom/broadband-over-powerline-last-mile-networks-more-hype-than-hope

40 *Powell to Step Down at F.C.C. After Pushing for Deregulation,* Jan. 22, 2005 — nytimes.com/2005/01/22/politics/powell-to-step-down-at-fcc-after-pushing-for-deregulation.html

41 *Interference From BPL Systems* — arrl.org/interference-from-bpl-systems

42 *WiMAX To Overcome Hype, Become A Success: Report,* Jun. 1, 2005 — informationweek.com/it-life/wimax-to-overcome-hype-become-a-success-report

43 *Australian Company Calls WiMax a Disaster,* Mar. 24, 2008 — wired.com/2008/03/australian-comp/

claim reform was not necessary in the face of looming innovation.

In instance after instance, the promise of innovation lured policymakers away from a fundamental reality: the United States had underinvested in both fiber and policies designed to spur competition—resulting in high prices, inconsistent deployment, and substandard service.

In many instances, U.S. policy conversations fixate exclusively on speeds, failing to mention broadband prices entirely.

The OTI's 2020 Cost of Connectivity Report[44] found that the average advertised monthly cost of internet in the U.S. was $68.38, per month, higher than the entirety of North America, Europe, and Asia. Other studies have suggested the United States has the ninth most expensive broadband in the world.[45]

Like U.S. broadband mapping, the problem is likely even worse than it appears. Most studies of U.S. broadband pricing don't include the various surcharges and fees affixed to user bills after subscription. Or bandwidth usage caps and overage penalties—arbitrary restrictions used to dramatically raise prices beyond advertised monthly rates.[46]

Despite pricing being a significant obstacle to consumer adoption and innovation, the FCC's fiber availability map[47], which cost U.S. taxpayers an estimated $350 million[48] to develop, not only dramatically overstates competitors and available speeds, it omits sharing pricing data at the behest of the telecom sector.

Users at locations with confirmed access to only one-fixed line provider, are routinely and falsely informed by the FCC's broadband mapping portal that their neighborhood is awash with twelve or more broadband competitors. These providers either don't exist at these locations[49], don't offer the actual speeds cited, or are counted redundantly.

Failure to identify the reality of telecom market failure means U.S. broadband policy cannot truly address the im-

Provider	Tech	Down (Mbps)	Up (Mbps)
Comcast Corporation	Cable	1000	35
Lumen Technologies, Inc.	Fiber	940	940
Lumen Technologies, Inc.	ADSL	100	10
ViaSat, Inc.	Satellite	35	3
Hughes Network Systems, LLC	Satellite	25	3
Lumen Technologies, Inc.	ADSL	3	0.5
VSAT Systems, LLC	Satellite	2	1.3

An example of the FCC's broadband map listing duplicative or nonexistent services to claim robust competition at an address with just one available ISP

» Source: *FCC Broadband Map*

44 *The Cost of Connectivity 2020: Data Caps Add Risk Of Overage Fees,* Jul. 15, 2020 — newamerica.org/oti/reports/cost-connectivity-2020/focus-on-the-fees/#data-caps-add-risk-of-overage-fees

45 *The Global Cost of Connectivity,* Jan. 2021 — comparethemarket.com/broadband/content/global-broadband-index/

46 *Broadband in the U.S.: Consumer Reports' New Survey Reveals Challenges for Consumers,* Aug. 3, 2021 — consumerreports.org/media-room/press-releases/2021/08/broadband-in-the-us-consumer-reports-new-survey-reveals-challenges-for-consumers/

47 *FCC Fixed Broadband Deployment Map* — broadbandmap.fcc.gov

48 *The National Broadband Map: a $350 million "boondoggle"?,* Jun. 3, 2011 — arstechnica.com/tech-policy/2011/06/national-broadband-map-a-350-million-boondoggle/

49 *The Cost of Connectivity in the Navajo Nation,* Oct. 12, 2020 — newamerica.org/oti/reports/cost-connectivity-navajo-nation/

pact of limited broadband competition across both the consumer and enterprise sectors.

This pronounced lack of meaningful competition has in turn been blamed for the steady rise of both consumer privacy[50] and net neutrality[51] violations, and predatory fees. With inconsistent regulatory oversight and little real competition, the U.S. telecom market sees few organic repercussions for aggressive monetization tactics by regional telecom monopolies.

The 2019 Broadband Data Act[52] required that the FCC finally address its mapping methodology problems, both by holding broadband providers more accountable for flawed data, and by integrating broader datasets that include crowdsourced end-user data. The National Telecommunications and Information Administration (NTIA) has also been expanding its map methodologies with a greater focus on affordability.[53]

While these improvements should help, most of them won't be available for years.[54]

As a result, the $65 billion in broadband grants and subsidies recently included in the IIJA, and the $7.1 billion in broadband funds set aside as part of the Coronavirus Response and Relief Supplemental Appropriations Act, will be aimed at a problem the U.S. government has yet to actually measure, utilizing a subsidy process that is routinely hijacked by incumbent telecom monopolies in exchange for networks that repeatedly fail to fully materialize.

With inconsistent regulatory oversight and little real competition, *the U.S. telecom market sees few organic repercussions for aggressive monetization tactics by regional telecom monopolies.*

Frontier Communications, for example, used spurious surcharges to obtain $4.7 million in undeserved federal grant money it refused to refund the government.[55] Mississippi lawmakers say AT&T took $328 million for network deployments in the state that never materialized.[56] Verizon has similarly been accused in several states of receiving tax breaks, subsidies, and regulatory favors in exchange for network upgrades that were never fully completed.[57]

50 *A Look At What ISPs Know About You: Examining the Privacy Practices of Six Major Internet Service Providers*, Oct. 21, 2021 — ftc.gov/system/files/documents/reports/look-what-isps-know-about-you-examining-privacy-practices-six-major-internet-service-providers/p195402_isp_6b_staff_report.pdf

51 *Net neutrality isn't the only way to keep the internet fair. It's just the only way in America.*, Dec. 14, 2017 — vox.com/policy-and-politics/2017/12/14/16692318/net-neutrality-local-loop-broadband-internet-access

52 *S.1822 - Broadband DATA Act*, 2019-2020 — congress.gov/bill/116th-congress/senate-bill/1822

53 *NTIA Creates First Interactive Map to Help Public See the Digital Divide Across the Country* , Jun. 17, 2021 — ntia.doc.gov/press-release/2021/ntia-creates-first-interactive-map-help-public-see-digital-divide-across-country

54 *The FCC's broadband map won't be ready for a year*, Sep. 8, 2021 — cnet.com/home/internet/the-fccs-broadband-map-wont-be-ready-for-a-year-this-data-company-has-already-built-one/

55 *Frontier refuses to repay government $4.7M in grant money*, Oct. 12, 2017 — apnews.com/article/ca2ccda20606450db47925fd4a426241

56 *Presley: PSC Requests Federal Audit of AT&T's Internet Coverage Claims*, Sep. 29, 2020 — psc.ms.gov/sites/default/files/2020-09/PSC_Requests_Federal_Audit_of_ATT_Internet_Coverage_Claim_1.pdf

57 *Verizon led massive astroturf campaign to end NJ broadband obligation*, Apr. 16, 2014 — arstechnica.com/tech-policy/2014/04/verizon-led-massive-astroturf-campaign-to-end-nj-broadband-obligation/

For much of the last decade U.S. telecom policy has been mired in apathy toward the real-world impact of monopolization, limited competition, and the state and federal regulatory capture that historically protects it. Spurred by Covid, a renewed interest in antitrust reform, and a massive boost in federal funding, there's evidence that this dynamic is slowly, finally starting to change.

64 percent[58] of Americans support the break up of U.S. telecom monopolies, though breakups alone may not create competition, as the remnants of these giants would still enjoy significant lobbying influence and exclusive dominion over local telecom infrastructure.

Structural separation—which involves breaking up incumbent monopolies into both network and retail components—has seen some success in nations such as New Zealand.[59] But given the political dominance over Congress enjoyed by U.S. incumbents, such a path seems unlikely.

An alternative solution could easily involve customizable alternatives perfectly tailored to the needs of local communities, acting as a supplement of fully private networks. Accompanied by block by block innovation and a major reboot of dominant telecom policy paradigms, born of frustration cultivated over the better part of the last generation.

58 *The Need for a Pandemic Merger Moratorium*, Aug. 11, 2020 — theappeal.org/the-lab/report/the-need-for-a-pandemic-merger-moratorium/

59 *NZ's Telecom investigating structural separation*, May. 23, 2010 — reuters.com/article/telecomnz/update-1-nzs-telecom-investigating-structural-separation-idINSGE64M02R20100523

2. The Emergence of Creative, Local Solutions

DECADES OF MARKET AND REGULATORY FAILURE has taken its toll on the patience of U.S. communities, resulting in a new, bipartisan, highly-localized grassroots movement dedicated to finally expanding access to affordable broadband.

According to the Institute for Local Self Reliance, more than a thousand U.S. communities[1] have built some type of locally owned and operated broadband alternative. These networks run the gamut in terms of structure, ranging from extensions of local utilities, local cooperatives, government-run municipal broadband ventures, or public-private partnerships.

Such networks may embrace open access network policies, but very frequently they do not. Increasingly they're built on the back of existing municipal, utility, or cooperative networks deployed by those with a deep, generation-long understanding of the country's often-unforgiving rural geography.

As Covid telecommuting and home education needs highlighted the essential nature of affordable Internet access and the shortcomings of existing monopolized deployments, the number of communities exploring such alternatives ballooned.[2]

Photos of children in some of the wealthiest areas in the United States huddled outside fast food restaurants[3] to get online for class had an unprecedented impact on public awareness. Activists in states like California tell Copia that once-tepid turnout has dramatically ballooned, as frustrated community members seek greater input on local telecom and infrastructure policy.

83 municipal networks currently deliver publicly-owned fiber across 148 communities. 57 communities now operate their own cable broadband network, 600 networks are built on the back of local governments, and hundreds more are regional cooperatives.[1]

In several areas, such cooperatives have directly resulted in a significant uptick in fiber optic broadband deployments and a dramatic improvement in overall broadband affordability. Such as in North Dakota, where, frustrated by private sector apathy toward rural connectivity, a collection of 15 local phone companies and cooperatives acquired 68 US West (later renamed CenturyLink then Lumen) exchanges across the state.

Driven by the betterment of the state's rural communities, the larger cooperative spent much of the last two decades leveraging these acquisitions to drive fiber deployment across the state. As a result, as of 2021 more than three quarters of rural North Dakota residents have access to fiber broadband, compared to only twenty percent nationwide.[4]

1 *Community Network Map* — muninetworks.org/communitymap

2 *New Data Says More Communities Built Their Own Broadband Because of COVID,* Sep. 10, 2021 — vice.com/en/article/7kv3ge/new-data-says-more-communities-built-their-own-broadband-because-of-covid

3 *2 Calif. Students Get Internet Hotspot After Viral Tweet Showed Them Using Taco Bell's Free WiFi,* Sep. 3, 2020 — people.com/human-interest/calif-students-internet-hotspot-taco-bells-wifi/

4 *How Local Providers Built the Nation's Best Internet Access in Rural North Dakota,* May. 5, 2020 — muninetworks.org/reports/edit-report-how-local-providers-built-nations-best-internet-access-rural-north-dakota

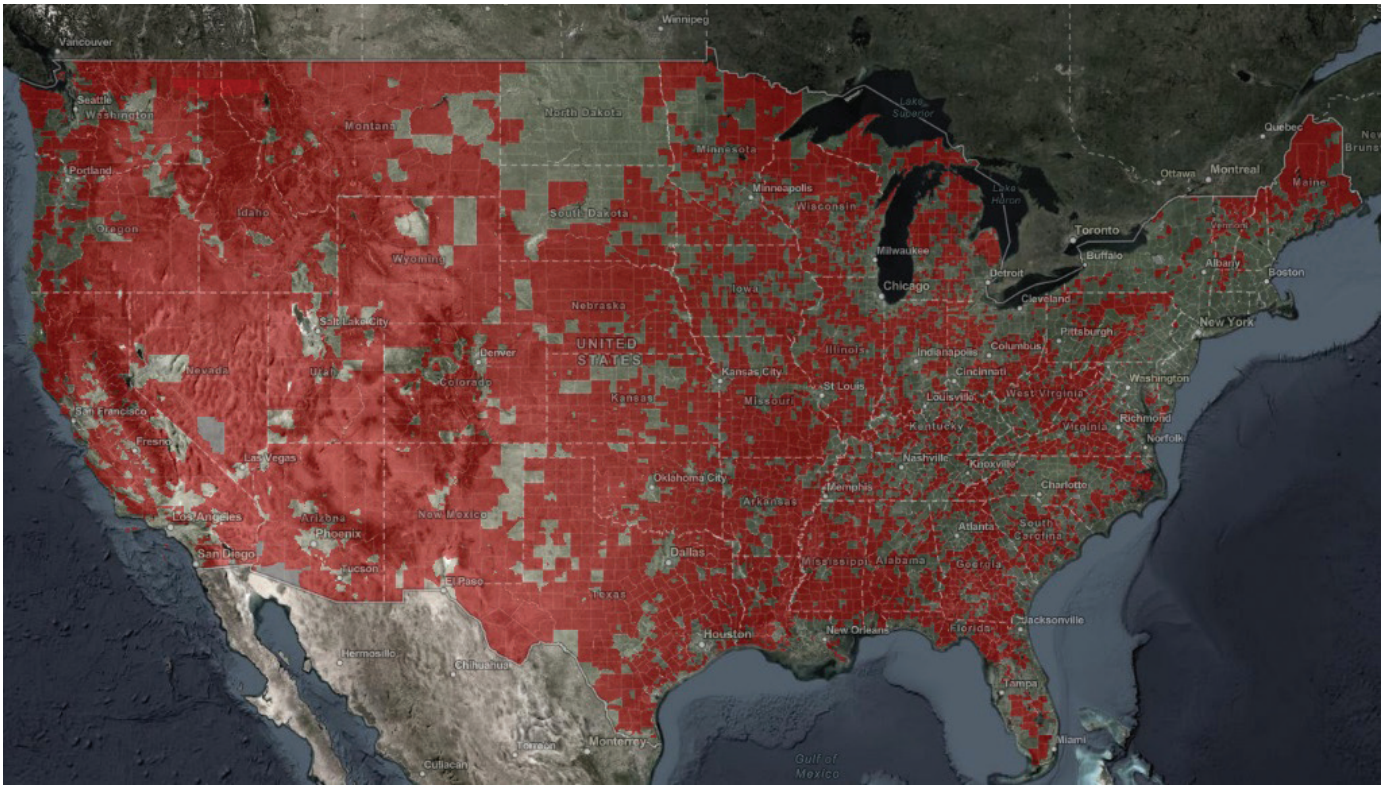
Fiber broadband is now available to over 80 percent of North Dakota. Even a cursory analysis of the NTIA map[5] of areas lacking access to the FCC's base definition of broadband (25 Mbps downstream, 3 Mbps upstream) quickly reveals the benefits such cooperatives have had on broadband availability and affordability in the state.

North Dakota's success has not gone unnoticed. Existing electrical cooperatives that have decided to expand into the broadband business are the fastest growing segment of broadband providers, thanks in part to the FCC's belated decision to let such organizations participate in existing grant and subsidy efforts like the Connect America Fund program.[6]

Locally-owned utility broadband solutions have seen similar success stories. Chattanooga Tennessee's decision to deliver affordable fiber-based broadband on the back of its local power utility (EPB) has been widely lauded as transformative for the area.

Map of census tracts where median internet speeds show fixed broadband below 25/3 Mbps

» In June 2021. Source: *NTIA Interactive Map, Ookla speed test data*



5 *NTIA Creates First Interactive Map to Help Public See the Digital Divide Across the Country*, Jun. 17, 2021 — ntia.doc.gov/press-release/2021/ntia-creates-first-interactive-map-help-public-see-digital-divide-across-country

6 *Rural electric co-ops are the fastest growing group of broadband providers*, Feb. 15, 2022 — fiercetelecom.com/broadband/rural-electric-co-ops-are-fastest-growing-group-broadband-providers

Chattanooga was rated the best work from home city in 2021[7], and the deployment of affordable gigabit broadband is estimated to have brought $2.69 billion in economic and social benefits to the region in its first decade of operation.[8] The utility-backed ISP itself is consistently rated one of the most popular broadband providers anywhere in the nation.[9]

Studies have indicated that community broadband networks provide both more affordable Internet access and transparent pricing.[10] Whereas monopolies in uncompetitive markets work to boost revenues through hidden and misleading surcharges, local community broadband efforts—often motivated by regional revitalization—often avoid such tactics.[11]

Research also suggests that as local businesses staffed by locals, home-grown local providers tend to be more directly accountable[12] to the communities they serve, whereas regional monopolies tend to be more extractive by nature. The focus for many regional monopolies tends to be on both consolidation and quarterly returns, with customer service often the first casualty.[13]

Hoping to slow the community broadband movement, regional monopolies have routinely sued municipalities to either derail such networks completely, or impose significant additional costs on network development.[14] ISP lobbyists also successfully convinced more than twenty states[15] to pass state laws either banning such community-based networks, or greatly restricting their financing or expansion opportunities.

Mounting frustration at inadequate broadband infrastructure during the Covid era brought renewed attention to these restrictions, resulting in momentum to eliminate them in states like Arkansas, Washington[16], and portions of Colorado. In nearly every instance, these restrictions were written and passed by regional telecom giants with the assistance of model legislation crafted by telecom policy and lobbying organizations.[17]

Telecom industry incumbents also routinely push claims that community-based broadband networks are an inevitable taxpayer boondoggle, though independent analysis has shown those claims to be unsubstantiated.[18] Incumbent providers have also been caught using misleading push pollsters in a bid to scare voters away from approving such initiatives.[19]

Communities hoping to build their own broadband alternatives often find their communities inundated with

7 *The Best Work-From-Home Cities for 2021* , Feb. 9, 2021 — pcmag.com/news/the-best-work-from-home-cities-for-2021

8 *Ten Years of Fiber Optic and Smart Grid Infrastructure in Hamilton County, Tennessee*, Aug. 31, 2020 — assets.epb.com/media/Lobo%20-%20Ten%20Years%20of%20Fiber%20Infrastructure%20in%20Hamilton%20County%20TN_Published.pdf

9 *Are City-Owned Municipal Broadband Networks Better?*, Jun. 20, 2017 — consumerreports.org/municipal-broadband/are-city-owned-municipal-broadband-networks-better/

10 *Community-Owned Fiber Networks: Value Leaders in America*, Jan. 10, 2018 — cyber.harvard.edu/publications/2018/01/communityfiber

11 *Shopping for Broadband: Failed Federal Policy Creates Murky Marketplace*, Jan. 2022 — ilsr.org/wp-content/uploads/2021/11/report-broadband-network-transparency.pdf

12 *Failed Federal Policy Generates Customer Frustration in Broadband Marketplace*, Nov. 11, 2022 — ilsr.org/report-broadband-transparency-scorecard/

13 *Cable-TV and Internet subscribers remain unhappy customers, new Consumer Reports survey says*, May. 29, 2015 — consumerreports.org/cro/news/2015/05/cable-tv-customer-dissatisfaction/index.htm

14 *Comcast sued a city trying to build high-speed internet — then offered its own version*, May. 1, 2015 — theverge.com/2015/5/1/8530403/chattanooga-comcast-fcc-high-speed-internet-gigabit

15 *CLIC's Compilation of State Law Restrictions on Community Broadband*, Dec. 7, 2021 — localnetchoice.org/bill-tracker/

16 *Washington state governor expected to sign new bill ending prohibition on municipal broadband*, Apr. 17, 2021 — geekwire.com/2021/washington-state-governor-expected-sign-new-bill-ending-prohibition-municipal-broadband/

17 *Anti-municipal broadband group tries to silence a critic*, Apr. 15, 2015 — arstechnica.com/tech-policy/2015/04/anti-municipal-broadband-group-tries-to-silence-a-critic/

18 *Fact Checking the New Taxpayers Protection Alliance Report, "GON With the Wind"*, May 2020 — muninetworks.org/sites/www.muninetworks.org/files/fact-checking-tpa-gon-with-the-wind-2020-05.pdf

19 *Audio of Dirty Trick Push Poll in Lafayette from 2005*, Oct. 29, 2012 — muninetworks.org/content/audio-dirty-trick-push-poll-lafayette-2005

significant public relations pushes by telecom incumbents hoping to turn voters away from supporting regional infrastructure improvements.

Many such efforts frame community broadband networks as a partisan issue to sow dissent in the public sphere, despite analysis that indicates most municipal broadband networks have been built in Conservative cities[20], and a majority of the public not only approve of community broadband[21]—they support the elimination of state laws restricting their development.[22]

Analysis of direct market benefits indicate that highly-localized community broadband projects are an integral part of addressing the country's affordable broadband competition problem. Yet the concept is routinely an afterthought in U.S. government policy proposals.

Highly-localized community broadband projects are an integral part of addressing the affordable broadband competition problem.

Yet the concept is routinely an afterthought in policy proposals.

The Obama administration's 2010 National Broadband Plan (NBP)[23], proclaimed to be the definitive attempt to address the country's broadband shortcomings, barely mentioned community broadband. Despite an estimated $45 billion price tag[24] and backed by 36 public workshops, critics state the plan failed[25] to meet most of its own benchmarks.

When federal policymakers do mention community broadband, it's often to levy unwarranted and unsupportable criticism, such as when former FCC Commissioner Mike O'Rielly repeatedly proclaimed that community broadband networks posed a dire threat to free speech.[26]

As demonization or dismissal of the community broadband effort grew, the U.S. fiber shortcomings became increasingly pronounced.

A 2013 study found that China lagged the United States significantly when it comes to providing fiber to the home service. By 2019, a report by the Fiber Broadband Association[27] found that 70 percent of households in China now had fiber access, well ahead of the United States, which was estimated to have just 30 percent fiber coverage that same year.[28]

20 *Most Municipal Networks Built in Conservative Cities*, Jan. 20, 2015 — muninetworks.org/content/most-municipal-networks-built-conservative-cities

21 *Americans support letting cities build their own broadband networks, Pew finds*, Apr. 10, 2017 — theverge.com/2017/4/10/15245166/americans-want-municipal-broadband-pew-survey

22 *Broadband in the U.S.: Consumer Reports' New Survey Reveals Challenges for Consumers*, Aug. 3, 2021 — consumerreports.org/media-room/press-releases/2021/08/broadband-in-the-us-consumer-reports-new-survey-reveals-challenges-for-consumers/

23 *National Broadband Plan Executive Summary*, 2010 — transition.fcc.gov/national-broadband-plan/national-broadband-plan-executive-summary.pdf

24 *Sunk Costs: A Cautionary Tale*, Apr. 5, 2021 — conexon.us/conexon-blog/sunk-costs-a-cautionary-tale/

25 *3500 Days of The National Broadband Plan*, Oct. 15, 2019 — benton.org/blog/3500-days-national-broadband-plan

26 *Muni Broadband's Ominous Threat to the First Amendment*, Dec. 13, 2018 — fcc.gov/news-events/blog/2018/12/13/muni-broadbands-ominous-threat-first-amendment

27 *FTTH Study 2019 Summary Findings*, Jun. 4, 2019 — optics.fiberbroadband.org/Portals/0/Cartesian%202019%20FTTH%20Study%20Summary%20Findings%2020190604%20SENT.pdf

28 *50% of US homes still won't have fiber broadband by 2025, study says*, Sep. 18, 2019 — arstechnica.com/tech-policy/2019/09/50-of-us-homes-still-wont-have-fiber-broadband-by-2025-study-says/

The community broadband movement is an organic market response to market failure and the extractive power of unchecked monopolization. The efforts are also a direct response to the longstanding federal failure to recognize and mitigate the vast harms duopoly and monopoly domination have on broadband consumers and the broader online innovation economy.

Such models should not be interpreted as a panacea, given success is dictated by the quality of the business plan and the leaders implementing it. But there is overwhelming evidence that such efforts can not only shore up access to affordable fiber, but motivate regional monopolies to boost broadband availability and speed, lower prices, and improve customer service.

This organic, grassroots movement to counter market and policy failure have resulted in a flood of creative and innovative new business models dedicated to fixing a problem the federal U.S. government has consistently shown to be unwilling, or incapable of fully addressing over the better part of the last generation.

As a result, countless U.S. communities have become telecom laboratories where financial and technical innovation flourish, providing blueprints federal policy makers struggling to boost affordable broadband availability would be foolish to ignore.

3. Open Access: A Model That Encourages Competition

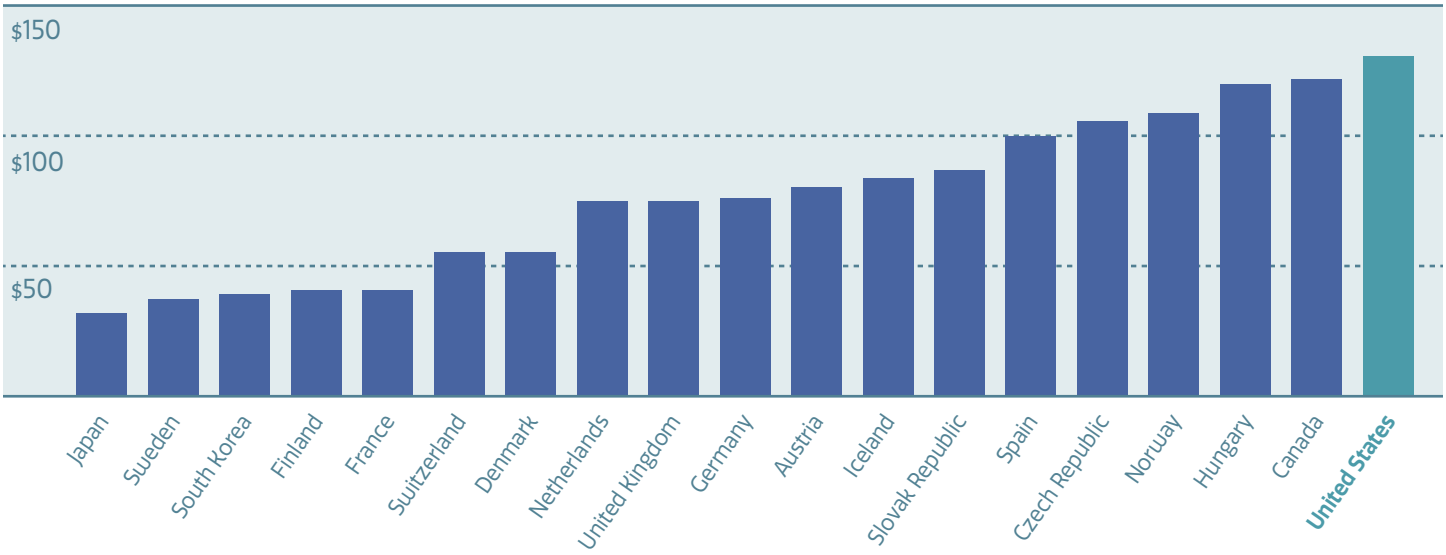
IN EARLY 2010, THE FCC RELEASED A STUDY in conjunction with the Berkman Center for Internet & Society at Harvard University.[1] The agency tasked researchers with studying global broadband affordability and access with an eye on informing the creation of the agency's National Broadband Plan—scheduled to be released later that same year.

The study found that the United States was a "middle-of-the-pack performer on most first generation broadband measures," and a "weak performer" when it came to modern and next-generation broadband speeds. Canada, which similarly adopted an "intermodal" model of competition between large, incumbent cable and phone companies, saw equally high prices.

The study unsurprisingly found that the countries with greater broadband competition saw lower prices, more uniform deployment, and faster broadband speeds. But Harvard professor Yochai Benkler also found something else: that many of the countries with robust competition had obtained such results courtesy of **widespread adoption of open access, wholesale fiber models** for broadband deployment.

Average cost of very-high-speed broadband by country

» In U.S. Dollars. Source: *Berkman Center for Internet & Society*



1 *Next Generation Connectivity*, Feb. 8, 2010 — https://cyber.harvard.edu/pubrelease/broadband/

Such models generally involve the creation of a centralized core fiber or wireless network run by a wholesale network operator that leases capacity at non-discriminatory conditions to retail Internet service providers. Those providers in turn market their broadband, voice, television, and other services directly to consumers.

The high CAPEX of building new fiber networks is a significant barrier for new entrants to the U.S. telecom market. Wholesale fiber open access models lower the cost of entry by allowing numerous new retail competitors to compete over the same physical wholesale network.

This lower-cost deployment of fiber in turn lowers operational costs (OPEX) of providers looking to migrate away from traditional DSL and cable technologies. Combined with the ascent of newer fiber deployment technologies like microtrenching, and the emergence of software-defined networking technologies, the savings can be significant.

"Contrary to perceptions in the United States, there is extensive evidence to support the position, adopted almost universally by other advanced economies, that open access policies, where undertaken with serious regulatory engagement, contributed to broadband penetration, capacity, and affordability in the first generation of broadband," the study found.[2]

In the US, "open access" remains inaccurately conflated with a late 90s bid to force reluctant incumbent telecom giants to share access to their copper-based telecom networks with competitors as part of the 1996 Telecom Act.

This effort, more formally known as line sharing or local loop unbundling—mandated that existing vertically integrated network operators (VIOs) share access to their existing last-mile copper-based infrastructure with competitors. The goal was to force competition upon the existing market and lower consumer prices.

But inconsistent enforcement, erratic implementation, and incumbent lobbying pressure quickly dismantled such requirements, resulting in the collapse of many smaller competitive local exchange carriers (CLECs) that had gained brief competitive inroads against incumbent local exchange carriers (ILECs) during the short-lived experiment.[3]

While scuttled in the United States, the concept of local loop bundling and line sharing were adopted and succeeded in cities like Paris, France, where next-generation broadband, phone, and cable service bundles are currently sold at a fraction of the cost[4] seen by American consumers for the same (or slower) service.

By 2010, the term "open access" in the U.S. and abroad had shifted more broadly to describe the creation of entirely new fiber-based networks by wholesale operators incentivized toward increased competition and the success of the project by leasing access under nondiscriminatory conditions.

A growing volume of these fiber to the premises (FTTP) wholesalers also emerged in Europe. Italy's largest FTTP provider, Openfiber, is a wholesale-only operation. British incumbent Openreach is also wholesale by design. And in New Zealand, an embrace of the open access wholesale fiber concept has consistently driven down broadband prices.[5]

Analysis indicates there are roughly 40 to 45 open access networks currently in the United States, with numerous cities, including Los Angeles, Detroit, and Baltimore currently in the development phase of additional projects.

Within the wholesale fiber open access model are numerous sub-genres, and ample debate over which specific

2 *Next Generation Connectivity: Competition And Access,* Feb. 8, 2010 — https://cyber.harvard.edu/sites/cyber.law.harvard.edu/files/Berkman_Center_Broadband_Final_Report-C4_15Feb2010.pdf

3 *The Telecoms Trade War: The United States, the European Union and the World Trade Organisation* — Lawrence Spiwak, Mark Naftel, Hart Publishing, 2001

4 *What France has taught me: Americans are suckers who have themselves to blame for crappy broadband,* Nov. 12, 2014 — venturebeat.com/2014/11/12/what-france-has-taught-me-americans-are-suckers-who-have-themselves-to-blame-for-crappy-broadband/

5 *New Zealand Broadband: Free TV's and Fridges - The Consumer Wins but is it Sustainable?,* Mar. 2018 — sparknz.co.nz/content/dam/SparkNZ/pdf-documents/misc/New%20Zealand%20Broadband%20Free%20TV's%20and%20Fridges.pdf

model should be optimized to maximize impact with an eye on affordability. Much of the experimentation of model variation has emerged courtesy of the surge of interest in community broadband alternatives, and specific local infrastructure challenges.

In a two-layer open access arrangement, a municipality or utility owns, operates, and maintains the core network, while a second organization provides retail services such as Internet access, television, or phone.

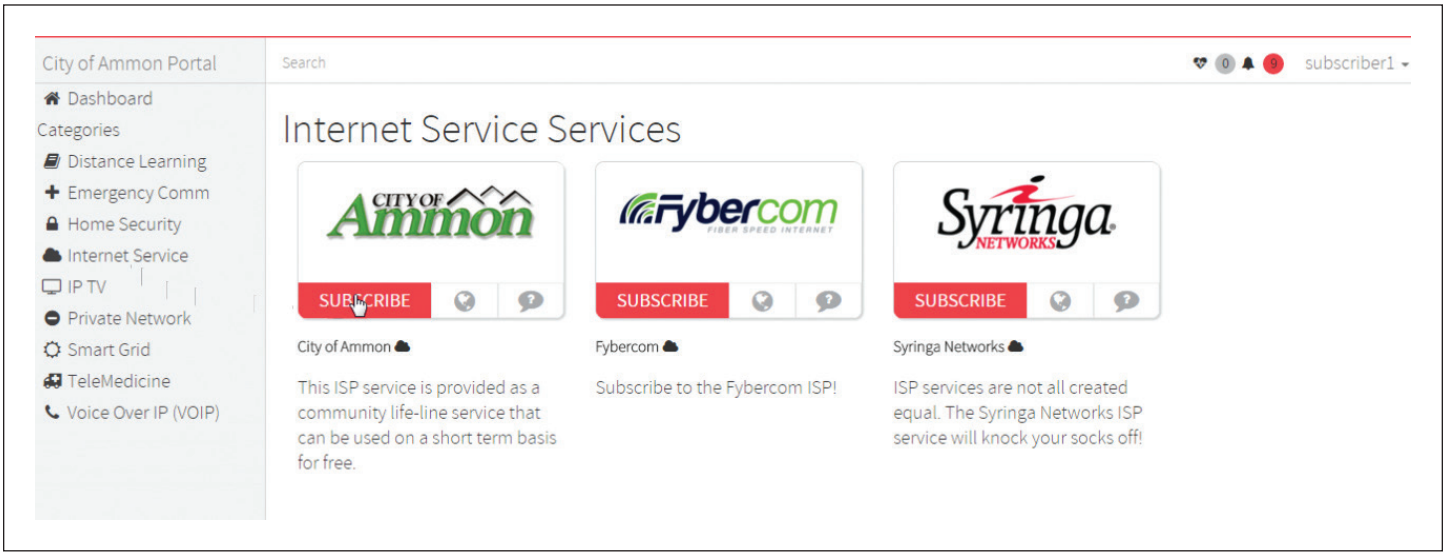
In three-layer open access arrangements, the municipality often builds and owns the network, but an independent third-party operates it. ISPs then work to bring Internet access and additional services to regional homes and businesses, competing not only on the variety, quality, and cost of services rendered, but the quality of customer service and support.

A full embrace of open access may be best exemplified by city deployments in locations like Ammon, Idaho, where numerous ISPs not only provide service over the city's fiber infrastructure, customers in the city are able to switch ISPs simply through a few clicks on the operation's web portal courtesy of software-defined technologies.[6]

A study by the Open Technology Institute[7] found that Ammon locals are now able to select broadband access across 18 different plans that all meet or exceed the FCC's base definition of broadband. This competition not only results in broadband prices significantly lower than the market average, but a transparency in pricing not seen in most U.S. markets.

"By cultivating a market with more affordable broadband options, this municipal network helps mitigate cost, one of the most commonly-cited barriers to broadband adoption," the study found. "Ammon's network provides value beyond monetary savings, in that broadband adoption is encouraged through easily-navigable and transparent processes."

Other municipalities, like the UTOPIA deployment in Utah, have embraced a similar model in a bid to deliver service from multiple, competing ISPs over a centralized core infrastructure. Like many community broadband



» **Ammon, Idaho**'s web portal provides easy access to ISPs using the city's fiber infrastructure

6 *Municipal fiber network will let customers switch ISPs in seconds*, Jun. 16, 2016 — arstechnica.com/information-technology/2016/06/what-if-switching-fiber-isps-was-as-easy-as-clicking-a-mouse/

7 *The Cost of Connectivity in Ammon, Idaho*, Jan. 22, 2020 — newamerica.org/oti/reports/cost-connectivity-ammon-idaho/

projects, UTOPIA was originally launched back in 2002 out of frustration with a lack of affordable, uniform broadband access.

Despite early lawsuits by regional phone monopoly Qwest (since renamed Centurylink and now Lumen after a series of mergers)[8] hoping to derail the effort, UTOPIA now provides fiber through sixteen competing ISPs[9] across eleven participating Utah cities, routinely at prices that are significantly lower than entrenched regional monopolies.

Such community broadband open access models in recent years have dramatically disrupted broadband pricing and speed tiers across the industry. Deployments in Utah and Idaho helped cement gigabit fiber pricing closer to the $70 per month mark, in turn forcing entrenched incumbent monopolies to quickly adopt similar pricing in more competitive markets.[10]

UTOPIA now provides fiber through sixteen competing ISPs across eleven participating Utah cities, routinely ***at prices that are significantly lower than entrenched regional monopolies.***

Open access policies can be applied both to the "last mile" segment of the network—the segment of the network from the ISP to the end user—or the "middle mile" segment of the network that connects regional ISPs to the backbone and core transit routes of the Internet.

In the hopes of lowering market entry costs and spurring competition, many states have also embraced open access policies across middle mile networks. Data suggests that monopolization of middle-mile routes can often result in prices that are six times higher overall.[11]

California state leaders recently unveiled a $6 billion plan to expand access to affordable broadband in the state.[12] $3.25 billion of the funds will be used to build and operate a middle-mile fiber network specifically designed to boost competition and reduce middle-mile access costs to lower overall pricing without the need for regulatory price controls.

Research commissioned by the Electronic Frontier Foundation has shown that the open access, wholesale fiber model can uniformly deliver fiber at lower overall cost than in the United States, where the dominant business model continues to be direct-to-consumer, vertically integrated operators who mandate exclusive control over network access.[13]

Comparing wholesale network operators (WNO) with vertically integrated network operators (VIO), the study found that the WNO model could reach 80 percent of US households with FTTP, whereas a VIO model could only reach 50 percent, profitably.

8 *Qwest is suing UTOPIA*, Jun. 2, 2005 — deseret.com/2005/6/2/19895521/qwest-is-suing-utopia

9 *UTOPIA Residential Pricing* — utopiafiber.com/residential-pricing/

10 *Comcast brings fiber to city that it sued 7 years ago to stop fiber rollout*, Apr. 30, 2015 — arstechnica.com/information-technology/2015/04/comcast-brings-fiber-to-city-that-it-sued-7-years-ago-to-stop-fiber-rollout/

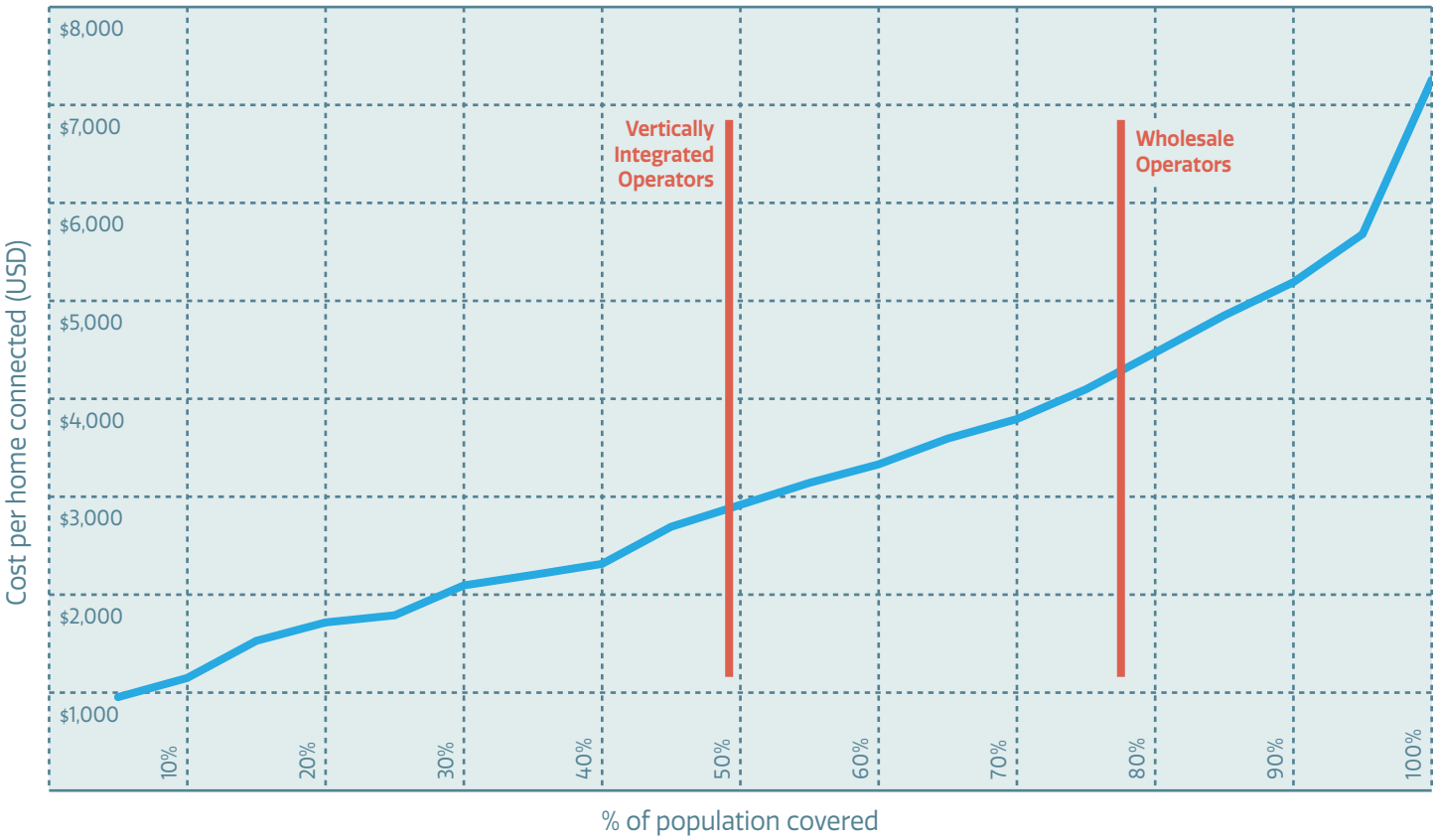
11 *Open-Access, Middle-Mile Networks: Deployment and Competition*, Dec. 1, 2020 — benton.org/blog/open-access-middle-mile-networks-deployment-and-competition

12 *Governor Newsom Signs Historic Broadband Legislation to Help Bridge Digital Divide*, Jul. 20, 2021 — gov.ca.gov/2021/07/20/governor-newsom-signs-historic-broadband-legislation-to-help-bridge-digital-divide/

13 *Wholesale Fiber is the Key to Broad US FTTP Coverage*, Oct. 27, 2021 — eff.org/document/wholesale-fiber-key-broad-us-fttp-coverage

Profitable fiber-to-the-premises coverage

» Based on wholesale v.s. vertically integrated models. Source: *Diffraction Analysis*



"Since wholesale fiber networks could cover a large part of the population and still be profitable, they seem like a better model for a necessary nation building exercise," the study found. "Their development has been hampered in the US by a lack of transparency in coverage and pricing. These and other policy initiatives could even the odds for these open initiatives, even in the absence of public funding."

Even when strict open access practices aren't adhered to, wholesale fiber model variations can provide significant value. For example, a local power utility may choose to evenly deploy "dark" fiber to all areas of a local community, then lease network access to a private sector provider, such as with Huntsville, Alabama's partnership with Google Fiber.[14]

Such a model is new enough that its technical name varies across organizations and communities, including "joint venture," "shared access," "qualified access," or even in some instances simply the "Huntsville model."

While not true open access, the Huntsville model may wind up costing a new entrant several hundred dollars per subscriber, as opposed to the $1,000 or upward per subscriber it would cost to deploy such a network entirely from scratch[15] in developed areas.

14 *Huntsville, Ala.'s Google Fiber Partnership Used in Congressional Panel to Push Next-Gen Internet Policies*, Mar. 13, 2017 — govtech.com/policy/huntsvilles-google-fiber-partnership-used-in-congressional-panel.html

15 *OK, Just What Does Open Access Mean Anymore?*, May. 25, 2016 — muninetworks.org/content/ok-just-what-does-open-access-mean-anymore

Variations of the concept, such as Springfield, Missouri's relationship with private ISP Lumen, can include terms that preclude additional competitors.[16] Elsewhere, as with Ting's relationship with Colorado Springs, Colorado[17], the anchor tenant is just the first of several ISPs who'll ultimately provide retail service to the local populace.

Some open access models shift more or less infrastructure ownership toward the end user. For example the "homes with tails" deployment model, outlined by Timothy Wu and Derek Slater in a study 14 years ago[18], involves a community building out physical fiber-optic infrastructure to each home, potentially after voters approve a bond financing construction over twenty-years at public entity low interest rates.

Carriers would then collocate the necessary hardware at a centralized local location, and consumers decide which retail ISP they want their "tail" plugged into. Under such a model ISPs pay nothing per household because each home technically owns their own segment of "last mile" fiber. Consumers in turn pay very little courtesy of low interest financing.

"There is no fundamental reason that last-mile broadband cannot be sold to customers," the authors argued in 2008. "There are many industries that have gone from service only industries to selling a product only, or a combined product and service. 'Homes with Tails' might seem strange now, but tomorrow may bring unforeseen changes."

As early as 2000 Cornell economist Alan McAdams highlighted the market and consumer advantages[19] of directly customer-owned, open access fiber networks. McAdams was particularly interested in the then fledgling efforts of Burlington, Vermont, one of the first cities in the nation to experiment with the municipal broadband model.

Ultimately Vermont's municipal operations would fall apart due to mismanagement, providing useful lessons for efforts that followed.[20] McAdams' vision of truly consumer-owned fiber networks never materialized. Burlington Telecom was ultimately sold to the private sector in 2014[21], though Vermont has seen significant success with the cooperative model.[22]

Open access can also be implemented on a building by building level. Nokia has advocated for using software-defined access network (SDAN) technologies to enable open access to in-building fiber, useful in aiding the FCC's ongoing quest to thwart monopolistic deals between landlord and ISPs that prohibit new competitors from servicing the building.[23]

Despite decades of analysis on the benefits of open access wholesale fiber model—including analysis specifically commissioned by the FCC itself one year earlier—the concept was not mentioned once in the FCC's 2010 National Broadband Plan—purportedly the definitive policy document that would come to define U.S. telecom policy for the better part of the next decade.

Instead, policymakers continued to embrace the concept of facilities-based competition, despite growing evidence of market failure, particularly in marginalized and historically neglected U.S. communities.[24] Instead, policy-

16 *Springfield, Missouri, and CenturyLink Expand Fiber Network*, Nov./Dec. 2019 — bbcmag.com/community-broadband/springfield-missouri-and-centurylink-expand-fiber-network

17 *Ting Internet taps Colorado utility's fiber network to enter largest market yet*, Jan. 7, 2022 — fiercetelecom.com/broadband/ting-internet-taps-colorado-utilitys-fiber-network-enter-largest-market-yet

18 *Homes with Tails*, Nov. 26, 2008 — papers.ssrn.com/sol3/papers.cfm?abstract_id=1306745

19 *Fiber to the People*, Dec. 1, 2003 — wired.com/2003/12/fiber-to-the-people/

20 *Learning From Burlington Telecom*, Aug. 2011 — muninetworks.org/sites/www.muninetworks.org/files/bt-lessons-learned.pdf

21 *Burlington Telecom's interim sale approved*, Nov. 10, 2014 — vtdigger.org/2014/11/10/burlington-telecoms-interim-sale-approved/

22 *Why are Vermont co-ops so successful?*, Jan. 20, 2022 — vermontpublic.org/podcast/brave-little-state/2022-01-20/why-are-vermont-co-ops-so-successful

23 *Nokia pitches open access fiber as a boon for MDU deployments*, Feb. 11, 2022 — fiercetelecom.com/broadband/nokia-boosts-broadband-availability-open-access-fiber

24 *America's Digital Divide*, Jul. 26, 2019 — pewtrusts.org/en/trust/archive/summer-2019/americas-digital-divide

makers routinely argued that emerging new technologies such as satellite and wireless would prove a counterweight to competitive shortcomings, making meaningful reform unnecessary.

As documented in chapter two, this long standing failure to craft policy based on objective data—or even acknowledge what the government's own research was showing—encouraged local communities to take the matter into their own hands.

In the city of Fort Pierce, Florida, the local city-owned utility has decided to use Covid relief and federal infrastructure funds to build its own local open access network. The goal: providing broadband service at a fraction of the cost of regional monopolies, while leveraging federal relief programs to prioritize the lower income areas of the city.[25]

Spurred by infrastructure and covid relief funding, larger municipalities are also exploring the option with a particular focus on finally bringing affordable access to neighborhoods deemed too unprofitable to service under the traditional vertically integrated network operator model.

Baltimore, a city in which 100,000 residents lack access to broadband, is exploring a city-wide open access fiber network thanks to $35 million in American Rescue Plan Act (ARPA) funding.[26] City leaders intend to begin treating broadband as an essential utility, with plans to bring service—and competition—to all underserved regions by 2030.

In Detroit, nearly a quarter of city residents lack access to affordable broadband, in part due to redlining by regional incumbent AT&T[27] and regional oligopoly. Also buoyed by federal grants, open access is a cornerstone of the plan to provide citywide access according to the city's digital access policy and strategic infrastructure plan.[28]

Soaring local frustration** with the tangible impact of monopolization and market failure has resulted in a **corresponding uptick in creativity and innovation.

Financing the deployment of future-proof fiber projects can prove to be a confusing maze—especially for municipalities with budgets strained to the breaking point. But here too soaring local frustration with the tangible impact of monopolization and market failure has resulted in a corresponding uptick in creativity and innovation.

Many cities that embrace the wholesale fiber model receive a cut of the income for each ISP that utilizes the network. Mount Vernon, Washington receives 15 percent[29] of the gross income of each ISP that utilizes the city's fiber network, which was launched in 1995 and connects anchor institutions and consumers alike. In other wholesale fiber arrangements, ISPs pay a one-time connectivity fee to ac-

25 *Fort Pierce, Florida Utility Aims To Deliver Affordable Fiber To All*, Jan. 5, 2022 — muninetworks.org/content/fort-pierce-florida-utility-aims-deliver-affordable-fiber-all

26 *Baltimore to build city-owned fibre network*, Dec. 6, 2021 — cities-today.com/baltimore-to-build-city-owned-fibre-network/

27 *More digital redlining? AT&T home broadband deployment and poverty in Detroit and Toledo*, Sep. 6, 2017 — digitalinclusion.org/blog/2017/09/06/more-digital-redlining-att-deployment-and-poverty-in-detroit-and-toledo/

28 *Digital Access Policy and Strategic Infrastructure Plan*, Mar. 2022 — detroitmi.gov/departments/department-innovation-and-technology/digital-inclusion-equity

29 *Mount Vernon's fiber-optic ring attracts businesses*, Nov. 4, 2013 — goskagit.com/news/business/mount-vernon-s-fiber-optic-ring-attracts-businesses/article_434a5996-33b9-5b93-b94d-b2bd04d00e73.html

cess the host network.

Many open access arrangements, such as in Ammon, Idaho, finance network operations utilizing a utility fee model imposed on subscribers or local residents, shifting construction and operational costs toward the actual users of the network; costs that scale downward as utilization and subscription totals increase.

Done correctly, demand can drive such projects to sustainability. Utah's open access Utopia network recouped a $2.5 million bond payment for one part of its regional fiber build within eight weeks[30] thanks to high subscriber demand.

Many community broadband deployments are deployed slowly over decades in phases to minimize overall costs. Palm Coast, Florida's Palm Coast FiberNET—which dramatically expanded local access to affordable fiber—utilizes a capital projects fund[31] to finance the $2.5 million project over five years in more digestible payments.

Cities like Bozeman, Montana have utilized Tax Increment Financing[32]—a technique where districts borrow funds for redevelopment to be paid back in future taxes—in a bid to revitalize the city and expand access to affordable fiber.

In many locations, such networks are built utilizing a combination of different models, including the leveraging of state grants, federal subsidies, private sector funding, and Covid relief funding. Many municipalities have already begun taking advantage of the billions in infrastructure funds being doled out by the NTIA and USDA, after both agencies' rules were broadened to include community broadband initiatives.

Again, none of these models are a panacea. Financial failures do occur; not as the telecom lobby suggests because the concept is inherently flawed—but because such projects are like any other business model: heavily dependent on the quality of the business proposal and local leadership and the level of opposition from regional monopolies defending the status quo.

Instead of allowing local voters to make these determinations for themselves, incumbent lobbying of state legislatures often results in this right being preempted by monopoly interests and the extractive interests of executives living half a world away.

While there are massive variations in the construction and funding models being explored to expand affordable access to fiber in the U.S., all share a common goal: placing the needs of local communities at the forefront of network operations.

30 *UTOPIA Fiber Announces Morgan City, Utah is Fully Built-Out*, Apr. 27, 2020 — utopiafiber.com/2020/04/27/utopia-fiber-announces-morgan-city-utah-is-fully-built-out/

31 *Lawmakers look to boost broadband in rural areas*, Jan. 25, 2022 — palmcoastobserver.com/article/lawmakers-look-to-boost-broadband-in-rural-areas

32 *Bozeman makes moves to increase internet access downtown*, Dec. 29, 2015 — nbcmontana.com/news/local/bozeman-makes-moves-to-increase-internet-access-downtown

4. Challenges & Obstacles

ADDRESSING A PROBLEM A GENERATION IN THE MAKING faces no shortage of challenges and obstacles in a nation of 333 million. Financing, geography, and the reform-resistant political power of entrenched monopolies can all easily derail the best of intentions.

Disruption of the U.S. broadband market is often simply too cost prohibitive for even wealthy new market entrants. Even Alphabet's Google Fiber (which originally promised to build an open access fiber network before backpedaling on such promises later) ultimately froze expansion[1] after executives grew weary of trying to disrupt a telecom industry increasingly viewed more as partner (Android) than rival.

By any measure, the $7.1 billion in broadband funding in the American Rescue Plan—and the $46 billion broadband investment in the IIJA—represent an historic, once-in-a-generation investment in American broadband.

Yet without accurate broadband maps, much of this funding could be misspent in a country with a history of poorly tracked and often wasteful subsidies.[2] Incumbent giants will likely continue to obtain funding they don't actually need, and companies that oppose competitive open access policies may derail funding for cooperative, utility, municipal, or public-private proposals that do.

The nation's most marginalized communities are also likely to find themselves well short of needed funding for affordable broadband expansion.

The NTIA is slated to spend $1 billion specifically on Tribal broadband access. Yet in the fourth quarter of 2021, 305 of the 574 Federally recognized Tribes applied for more than $5.2 billion dollars.[3] Tribal leaders tell Copia bringing affordable broadband to all tribal areas would likely cost somewhere between $8 and $10 billion dollars, well beyond what's being allocated.

The NTIA directs federal broadband funding to states, who in turn are tasked with determining broadband gaps and doling out grants. But many states lack the resources or infrastructure to measure community telecom needs and distribute funds. While some states have crafted their own alternative mapping solutions[4], many lower income states have not.

Two states, Mississippi and Rhode Island[5], currently lack any dedicated office or official specifically tasked with handling broadband issues. In many states, responsibilities to determine broadband coverage gaps, policies, and subsidy distribution

1 *Whatever happened to Google Fiber?*, Mar. 5, 2021 — cnet.com/home/internet/google-fiber-explained/

2 *Profiles of Monopoly: Big Cable & Telecom*, Jul. 31, 2018 — ilsr.org/monopoly-networks/

3 *Department of Commerce's NTIA Announces Nearly $1 Billion in Funding to Expand Broadband on Tribal Land* , Jun. 3, 2021 — ntia.doc.gov/press-release/2021/department-commerce-s-ntia-announces-nearly-1-billion-funding-expand-broadband

4 *States couldn't afford to wait for the FCC's broadband maps to improve. So they didn't*, Feb. 23, 2021 — cnet.com/home/internet/features/states-couldnt-afford-to-wait-for-the-fccs-broadband-maps-to-improve-so-they-didnt/

5 *Broadband in Rhode Island*, May 2021 — commons.clarku.edu/cgi/viewcontent.cgi?article=1067&context=sps_masters_papers

are simply outsourced to the most politically-expedient option: regional incumbent providers.

Meanwhile, historic funding cannot obfuscate the reality that the United States has not accurately measured the problem it's attempting to fix. Substandard U.S. broadband maps not only harm policymakers' ability to measure the scope of market failure, it drives up costs for numerous regional projects looking to address market harm.

Many cities and states are not only left footing the bill for their own crowdsourced mapping efforts, communities applying for NTIA grants tell Copia they face additional arbitrary and additional challenges by regional incumbents, who'll cite inaccurate FCC Form 477 data as evidence that their proposed fiber improvements are unnecessary and duplicative.[6]

Municipalities, utilities, and cooperatives looking to embrace competitive open access wholesale models also inform Copia they routinely find grant opportunities derailed by private sector players professing to support open access in theory, but avoid it in practice. As a result, the same subsidies can often see decidedly varied competitive outcomes.

Municipalities, utilities, and cooperatives** looking to embrace open access wholesale models inform Copia they routinely find grant opportunities **derailed by private sector players.

All of these financial burdens place a focused, additional financial burden on lower-income and marginalized communities—already the most likely to have been left behind in network coverage and expansion.

For many regions, funding and building alternative, open access fiber networks is just the beginning. Driving interest in participation from retail ISPs can be equally daunting. Especially when it comes to regional monopolies, whose survival and revenue generation is largely dependent on muting the financial impact of expanded competitive options.

Regional monopolies often attempt to claim that the open access model results in a reduction in overall broadband investment, though a review of the available literature by the Berkman Center for Internet & Society has shown no evidence supporting that conclusion.[7] In fact, industry researchers indicate they're discouraged from even studying[8] the obvious benefits of the model.

Such opposition to the open access wholesale fiber model by entrenched monopolies can often prove counterintuitive. In part because the construction, funding, and development of open access fiber networks can benefit large ISPs in regions where high deployment costs and a slow return on investment have often made widespread fiber deployment cost prohibitive.

Communities that overcome the logistical and financial hurdles of mapping, grant applications, and network construction must also maintain the network's brand quality in the market—while navigating the ever-present threat of consistent telecom consolidation, which perpetually

6 *Monopoly Providers Mire NTIA Broadband Grant Process With Costly, Empty Challenges,* Jan. 3, 2022 — muninetworks.org/content/monopoly-providers-mire-ntia-broadband-grant-process-costly-empty-challenges

7 *Next Generation Connectivity: A review of broadband Internet transitions and policy from around the world,* Feb. 2010 — cyber.harvard.edu/sites/cyber.law.harvard.edu/files/Berkman_Center_Broadband_Final_Report_15Feb2010.pdf

8 *https://twitter.com/EFFFalcon/status/1508926186272931842*

works to erode overall competition, creating pressures to sell ongoing fiber expansion efforts to regional private sector giants whose interests, as noted throughout this report, are often inherently extractive and consolidative in nature.

Fixing this problem isn't easy, however well intentioned. Broadband deployment plans depend wholly on the aptitude of those constructing and implementing the plan, and such efforts can be easily derailed by the shifting winds of politics.

In 2009, the Australian government unveiled[9] their plan for a massive, nationwide open access fiber network that would bring affordable high-speed access to 93 percent of Australians—with the remainder connected via mobile and fixed wireless technologies.

Costs for the effort would balloon from the $29.5 billion originally estimated to more than $51 billion, while the network itself delivered slower speeds than promised (in part due to a shift away from pure fiber to the home) to fewer addresses than predicted.[10] Under-budget, overpriced, and mired in political infighting, the project never truly delivered its originally promised revolution.

Enter smaller, localized efforts—including local community broadband networks, cooperatives, utilities, and public/private partnerships—which can often implement progress piecemeal in more digestible, adaptable segments specifically tailored to local needs.

While there are ample cost and logistical obstacles in embracing the open access wholesale fiber model, analysis suggests the biggest obstacle to deployment of the model in the U.S. tends to be both rhetorical and political. Regional telecom monopolies looking to curtail competitive broadband alternatives are estimated to spend $320,000 every day[11] on lobbying alone.

While there are ample cost and logistical obstacles in embracing the open access wholesale fiber model, analysis suggests the ***biggest obstacle in the U.S. tends to be both rhetorical and political.***

This spending is routinely reflected in the discourse. Until recently, U.S. telecom policy consistently failed to consider fiber as essential infrastructure alongside bridges, roads, or airports. U.S. press coverage and political discourse also often fails to even acknowledge the perils of monopolization, and the 83 million U.S. broadband users living under monopoly.

As noted in chapter three, "open access" has become incorrectly and sometimes intentionally conflated with a late 90s attempt to force existing regional monopolies to open their existing networks to competitors. As a result, pro-competitive policies beneficial to the market and participants alike are falsely tarred with partisan terminologies (e.g. "socialism") that don't apply.

This conflation has, quite intentionally, relegated open access as a nonstarter in many U.S. telecom policy conversations.

9 *National Broadband Network*, 2009 — aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/BriefingBook45p/NBN

10 *NBN Co shows up to 238,000 premises unable to get 25Mbps speeds*, Dec. 23, 2020 — itnews.com.au/news/nbn-co-shows-up-to-238000-premises-unable-to-get-25mbps-speeds-559336

11 *Broadband Gatekeepers: How ISP Lobbying and Political Influence Shapes the Digital Divide*, Jul. 2021 — commoncause.org/wp-content/uploads/2021/07/CCBroadbandGatekeepers_WEB1.pdf

With a massive looming infusion of Covid and infrastructure funding, calls along the policy periphery once again urged federal lawmakers[12] to embrace community broadband and consider mandating open access conditions for all new government-funded fiber networks. Instead, many lawmakers have shoved these options even further out of reach.

In contrast, the House GOP in 2021 proposed a nationwide ban on community broadband networks[13], effectively derailing an entire innovative wing of broadband expansion. Such decisions routinely aren't made based on data or coherent policy, but in rote fealty to entrenched, dominant regional telecom monopolies.

Having failed to disqualify community broadband open access networks from funding opportunities during the creation of the IIJA, telecom lobbyists have again taken to lobbying states to block funding from reaching potential competitors.

Democratic leaders in Illinois have introduced a state bill that would bar community broadband initiatives, open access or not, from receiving NTIA broadband grants.[14] Similar legislation has been proposed by Republican lawmakers in Missouri[15] and Michigan[16], blocking cooperatives, municipalities, or utilities from obtaining federal funding in markets where inaccurate FCC data claims just one ISP already provides service of 100 Mbps.

Having failed to disqualify community broadband open access networks from funding opportunities during the creation of the IIJA, ***telecom lobbyists have again taken to lobbying states to block funds.***

Democratic and Republican New York lawmakers also recently inserted new restrictive language into the state budget[17] in a bid to limit community broadband network access to federal funding.

In nearly every instance, telecom lobbyists, often disproportionately represented on state advisory councils[18], have convinced state leaders to keep the funding focus exclusively on poorly-defined "unserved" markets, by claiming that driving additional competition into existing, heavily monopolized markets would be wasteful and "duplicative."[19]

Such restrictions again relay on an ill-defined definition of what qualifies as a "served market," minimize the problem of urban coverage gaps, and ignore data indicating

12 *Open Access Fiber to Improve U.S. Internet Connectivity*, May 2021 — cfr.org/report/open-access-fiber-improve-us-internet-connectivity

13 *House Republicans propose nationwide ban on municipal broadband networks*, Feb. 18, 2021 — arstechnica.com/tech-policy/2021/02/gop-plan-for-broadband-competition-would-ban-city-run-networks-across-us/

14 *How a State Can Blow a Once-in-a-Generation Investment to Close the Digital Divide*, Mar. 11, 2022 — benton.org/blog/how-state-can-blow-once-generation-investment-close-digital-divide

15 *Missouri Senate Bill 1074*, 2022 — legiscan.com/MO/text/SB1074/2022

16 *Michigan Moves to Limit Federal Funds for Municipal Broadband*, Apr. 6, 2022 — muninetworks.org/content/michigan-moves-limit-federal-funds-municipal-broadband

17 *Illinois (and Possibly New York) Poised to Fumble Federal Broadband Funds*, Mar. 24, 2022 — muninetworks.org/content/illinois-and-possibly-new-york-poised-fumble-federal-broadband-funds

18 *Gov. Pritzker Launches Connect Illinois, a $420 Million Statewide Broadband Expansion Under Rebuild Illinois*, Aug. 15, 2019 — www2.illinois.gov/dceo/Media/PressReleases/Pages/PR20190815.aspx

19 *Battle Emerges Over Future of Broadband in RI*, Mar. 18, 2022 — golocalprov.com/news/Battle-Emerges-Over-Future-of-Broadband-in-RI

the digital divide is bridged both by expanding access to unserved regions and by boosting competition, which in turn also lowers prices and improves broadband coverage, speeds, and service quality.

Such restrictions also conflict with Infrastructure bill language that specifically prohibits states from blocking funding from cooperatives, municipalities, or utilities, as well an IIJA requirement that all U.S. anchor institutions receive gigabit broadband, regardless of whether they operate in "unserved" rural or "served" urban markets.

Should states pursue such restrictions, they risk violating the federal infrastructure law and in turn forfeiting the entirety of any potential broadband funding.

Elsewhere, while there has been a renewed interest in antitrust reform, such policy conversations have fixated almost exclusively on "big tech," oddly ignoring the rampant consolidation in U.S. telecom, or the repeated, textbook examples of the many significant harms of unchecked natural monopolies.

As such the preeminent obstacle toward affordable fiber deployment in the United States isn't necessarily financing or even technological innovation, it's regulatory capture and a policy paradigm inextricably linked to the exclusive interests of dominant telecoms with immense political power–in part due to being tethered to the nation's intelligence gathering apparatus.

Changing the broader discourse requires untethering community broadband from misleading partisan tropes and longstanding corruption, while clearly demonstrating the benefits of such models in the everyday lives of a wide, bipartisan swath of American communities.

5. Conclusions & Thanks

BY ANY MEASURE, U.S. FEDERAL BROADBAND POLICY in the twenty-first century has been an abject failure. Even competently measuring the scope of the nation's coverage and affordability gaps— or candidly acknowledging the perils of monopolization—have proven daunting for policymakers politically and financially incentivized to downplay or defend market harms.

As the federal government stumbled, a myriad of creative alternatives with broad bipartisan support flooded the vacuum created, showcasing the ingenuity and innovation born out of local frustration with substandard and expensive broadband access.

As Covid and other modern crises continue to highlight the essential nature of affordable broadband, open access wholesale fiber networks, and the variety of experiential models being adopted in communities across the country, should be viewed less as an existential threat to the telecom sector, and more as an overdue, highly-customizable evolution.

Advocates of the open access model argue that federal policy makers should embrace a single nationwide digital infrastructure operating under universal service frameworks. But simply getting policymakers to acknowledge and measure the scope of the problem—and the important role community broadband is playing—has proven to be immeasurably difficult.

Fortunately, the discourse has shifted glacially during the Covid era. For example, the NTIA's Broadband Technology Opportunities Program (BTOP) recently demonstrated a clear preference for open access conditions on new builds receiving federal funds[1], a dramatic reversal from decades' past.

Data has repeatedly shown that these diverse, flexible wholesale fiber open access networks not only drive more affordable broadband access to neglected communities, they incentivize regional monopolies accustomed to little market or regulatory pressure to significantly improve stagnating market offerings and reduce prices.

Draconian, one-size fits all policies that prioritize the needs of entrenched, politically powerful monopolies can no longer be the norm. Poorly tracked subsidization of monopolized access has not delivered long promised innovation. Instead, innovation has emerged block by block in direct response to longstanding market and Congressional failure.

As U.S. federal and state governments utilize an historic investment in state and federal broadband funding, they can no longer blind themselves to the productive, proven benefits of local or regional wholesale fiber networks with open access requirements.

The emergence of said markets shouldn't be seen as innately harmful to existing private deployments or oligopolistic market leaders, as established players and new market entrants alike can compete on equal terms across wholesale fiber platforms.

1 *Broadband Technology Opportunities Program Nondiscrimination and Interconnection Obligations*, Nov. 10, 2010 — ntia.doc.gov/files/Interconnection_Nondiscrimination_11_10_10_FINAL.pdf

Beyond the practical and technical implications, surveys and studies routinely indicate that U.S. citizens are not only extremely aggravated at the monopolization of telecom, they support treating broadband more like a utility.[2] What this looks like in practice varies across a massive range of possibilities, and is no way a monolithic construct.

Whatever their scope, scale, funding model, or approach, such localized solutions can collectively form a more resilient backbone for U.S. infrastructure and environmental challenges of tomorrow, delivering American consumers and businesses alike a level of affordable access countries around the world have long ago been accustomed to.

Demonizing and undermining such efforts by actively ignoring decades of available data—is no longer something U.S. policymakers, their constituents, or online markets can afford.

2 *In Chicago, 90% of voters agreed the internet should be a public utility,* Nov. 4, 2010 — qz.com/1927596/90-percent-of-chicago-voters-say-the-internet-should-be-a-public-utility/

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