Advancing Community Connectivity

Policy Strategies for Closing the Digital Divide

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Community networks, local Internet service providers (ISPs), and other small-scale connectivity solutions can help bring affordable, quality Internet to every individual and household. These types of local initiatives, built with local knowledge, can address gaps where traditional models don't reach.

But the digital divide persists because of market and policy failures. Closing it for good means creating a regulatory environment that has room for all kinds of connectivity. An Internet for all requires diverse approaches and models that can meet diverse needs—and it's possible.

These tips, resources, and examples can help you start considering which policies matter for your country or your community, get inspired by success stories, or rule out approaches that won't work. So you can take steps toward a policy landscape that sets local Internet champions up for success.

Three Main Dimensions for Policy Improvement

Financing

Community-centered connectivity needs to be financially sustainable—it can't be a charity project. Find guidance below on how to improve access to Universal Service Funds and other types of financing.

Licensing

In some areas, it's difficult for anyone who isn't a large provider to get a license to operate. Below you can learn some ways you can lower obstacles for smaller players who want to get a license.

Spectrum Allocation

There's often unused or underused spectrum that can be freed up to allow for more diverse players. Find out below how policy changes can help Internet providers share spectrum more effectively and connect more people.

Financing: Sustainable Pathways to Affordable Access

Explore funding strategies for community networks and local ISPs. Learn how to navigate financial sustainability, regulatory inclusion, and innovative financing beyond Universal Service and Access Funds.

To get started, networks need money for administrative, regulatory, and equipment costs. Then, to continue operating, they need money to maintain and upgrade systems, and to serve customers, including collecting payments. They need to be financially sustainable, even if they don't plan to turn a profit. It's important to shape a regulatory environment that explicitly includes them, rather than replicating the conditions that enabled the market failures in the first place. But there are a range of opportunities for addressing these different financing challenges, well beyond Universal Service and Access Funds.

Keeping the Network On for the Long Haul

Whether it's a community network, municipal network, or a small ISP, a community-led project needs a plan to bring in revenue, even if it's entirely volunteer-run and doesn't seek a profit. They'll need to maintain and upgrade equipment. They'll need customer support, billing, and payment systems in place, as well as web services like email and management tools. Some networks use an entrepreneurial franchise model, take in investment, or even use something like an Internet café, where users only pay for food, drink, and other services such as printing.

Improving the policy landscape for small businesses, including offering business training for community-led networks, can help these important initiatives succeed over the long term.

Works Best When: A successful approach is one that recognizes that communities often have solutions of their own, that are unique to them. Don't be afraid to build on what's already working.

Obstacles Can Arise if: There's often a lot of volunteer energy around the start of a project. Ensure that early spirit doesn't turn to resentment if some people end up doing a lot of work when they'd prefer to be paid.

Read More:

- B4RN, a cooperative using government vouchers in the UK
- South Africa's Zenzeleni uses a cooperative structure to grow (PDF, page 116)

Lowering Financial Barriers to Entry

Financing mechanisms for local connectivity will vary between countries, often even between regions or local areas. Opportunities to improve access range from standard business financing and credit union loans, to more telecommunications-specific updates, such as simplified licensing or streamlined reporting for administrative and grant processes. It can also involve voucher schemes, fee exemptions for importing equipment, quality-assured technical help for feasibility studies, and installation grants. Larger grants can also work, delivered in tranches that are released based on milestones.

But there's no one-size-fits-all solution. The key is to recognize all the assets, even unconventional ones, that a community already has, and start there.

Works Best When: A community-led project will always be more successful when it's led by and for the people who know the needs and capacity of the people and area.

Obstacles Can Arise if: Even though startup costs can involve donations and grants, and a community network might not charge end users for access, this needs to be set up with financial sustainability in mind.

Universal Service and Access Funds

Most countries have a fund that comes from a percentage of profits earned by large telecommunications incumbents. This can be used to fund universal access to the Internet, but access to the money to do that can be difficult. It often ends up unused, or it's dedicated to a different, non-Internet purpose.

Policies need to be in place so that there are mechanisms to invest those funds in smaller players and initiatives. This can include administrative aspects, such as having a standard application process for funds, or adding requirements, such as an obligation to connect an unconnected area with the same quality of service as is being offered to a more profitable one.

Works Best When: These funds are available for all types of solutions that have recognition, and can include community-led solutions.

Obstacles Can Arise if: If only large-scale operators can access these funds, it can be more difficult for groups or communities who are looking to set up something like a small community network.

Read More:

- General guidance for modernizing a Universal Service Fund
- How countries in Latin America and the Caribbean make use of USFs

Licensing: Frameworks for the 21st Century and Beyond

Promote inclusive connectivity with licensing frameworks that support community networks and smaller ISPs. Discover how modernizing regulations can create a more competitive and accessible Internet for all.

Unless they've been specifically updated for the Internet era, most countries' regulatory frameworks are still based on the way things were when just a few telephone companies dominated the landscape. This means that, by default, they tend to favor top-down solutions, and limit who can have a license, sometimes with severe constraints. A licensing framework that considers bottom-up solutions, including licensing for community and smaller networks, can make room for a whole range of players, and this improves the market for everyone.

Licenses for Community-Led Solutions

In some countries, only large players can get a license, or there are only a limited number available. Updating policies to make licensing affordable and accessible can set the stage for community-led connectivity of all kinds.

In areas where there are a lot of illegal networks in operation, allowing them to become licensed makes the networks more sustainable, even just by preventing them from being shut down. It also helps regulators and providers see where and how infrastructure is being deployed—and shows where Internet "dead zones" actually have access, correcting the picture of who's really unconnected.

Working together with communities and incumbents can lead to a more diverse, competitive market, and a smaller digital divide.

Works Best When: Explicitly legislating for community-level licensing can be especially helpful in areas that may never be profitable for incumbents, or where there are a lot of illegal networks.

Obstacles Can Arise if: If communities don't know about policy changes, they might stay unconnected, or turn to illegal networks. Policy updates need to be communicated to the people who need connectivity the most.

Read More:

- A community licensing framework in Kenya
- Argentina's resolution updating its licensing framework to include community networks 4958/2018 (in Spanish)

Simplified Application Processes

Getting a license is a multi-step process. It can involve registering a new company, dealing with financing, and sourcing information that isn't readily available.

Making processes simpler and easier to understand can lower barriers—and easier applications are good for everyone. But applicants in underserved or unconnected areas might themselves be unconnected, so it can help to find strategies that don't rely on online forms and notification systems, where regular Internet access is a must.

A network of physical places that have application materials, or even schedule live, in-person application support makes the process more flexible, and more accessible to those who are trying to connect everyone, including themselves.

Works Best When: Offering physical locations can be especially useful in rural places where people might come to a population center fairly regularly, and can receive and act on information.

Obstacles Can Arise if: If offering a physical space, it needs to be the kind of place people feel safe. A marginalized population won't always feel comfortable in some municipal or government buildings.

Read More:

- The FCC enabled recognized tribes in the United States to access unused spectrum on tribal lands
- How community networks in Brazil have overcome bureaucratic hurdles

Designating License-Exempt Spectrum

To use licensed spectrum or set up an ISP, providers need to have a license, pay high fees and expensive equipment, which isn't always feasible. Designating more spectrum as "unlicensed" or "license-exempt," to be used by technologies such as Wi-Fi, removes the licensing requirement entirely for smaller community networks and other players, for whom a license and expensive equipment might never be a viable option.

To do this, it's often possible to free up parts of the spectrum that are no longer being used, like those for defunct military operations or outdated technologies. Where there's unused or underused spectrum, if it's not explicitly made license-exempt, that spectrum can end up being licensed back to large telecommunications providers, and it isn't available as a public benefit.

Works Best When: In countries with low Internet development, having license-exempt spectrum means unlocking opportunities for low-cost, reliable connectivity, which can eventually even grow the market for larger players.

Obstacles Can Arise if: Where large incumbents have paid high fees for exclusive licensing rights, it can be challenging for the regulator to open more spectrum as unlicensed.

Read More:

- Costa Rica allocated the full 6Ghz band for Wi-Fi (in Spanish)

Spectrum Allocation: There's Room for Everyone

Discover how smarter spectrum management can expand Internet access. Learn how policy changes can unlock unused spectrum, enabling both large and small networks to deliver quality connectivity to more communities.

There's a common misconception that spectrum is in short supply, but this isn't true. There's more than enough room for everyone to use it. But setting the conditions for affordable access means figuring out how to manage it effectively. It's possible to create frameworks that allow both large and small players to share spectrum, so that more communities have access to meaningful, quality connectivity. Here are some ways to use policy changes to unlock unused or underused spectrum, and unlock opportunities along with it.

Allocate Spectrum to Wi-Fi

Wi-Fi is usually the most affordable way to set up a small network, especially in an unconnected community. This part of the spectrum can be used to create a community mesh network based on standard home routers and repeaters, bringing low-cost, quality Internet to even remote areas.

Wi-Fi is a license-exempt use of spectrum, so when you allocate spectrum for it, you also ease some burden of licensing, which can otherwise be a huge barrier to success. And because of this license exemption, it can be shared by both community-led players, as well as the larger telecommunications companies.

Works Best When: This works best in a community where people are completely unconnected, especially if incumbent telecommunications companies don't see the area as a viable market opportunity.

Obstacles Can Arise if: Can be a challenge where larger telecommunications companies are already operating, but just not providing affordable access to all who need it.

Read More:

- Costa Rica allocated the full 6Ghz band for Wi-Fi (in Spanish)
- Global map showing where entire 6Ghz band is adopted or being considered for Wi-Fi

Dynamic Spectrum Management

This is one of the most challenging to achieve, but it's also the best way to make your spectrum ready to meet the connectivity and traffic demands of the future.

A great example is what's called citizen broadband radio spectrum, or CBRS, in the United States. It involves keeping a database of all the spectrum users in a geographical area, and using this to manage how they're using it, at a granular level. When one user isn't using spectrum, it's available for others to use, similar to a single turn-taking conversation—but for signals.

Managing spectrum in this way also allows end users to have seamless transitions when they're using connectivity, such as using a phone on home Wi-Fi, and then going outdoors and switching to a mobile network.

Works Best When: This is effective where you can identify all of the organizations and providers in a geographical area. It can be successfully utilized by indigenous communities in the United States, and has potential globally.

Obstacles Can Arise if: It's critical to avoid interference between different providers, so where it's not possible to identify all of them and create the database, this won't be achievable.

Read More:

- Successful implementation of Dynamic Spectrum Access using CBRS in the United States

Policies That Promote Sharing

Everyone benefits when policies are in place that promote sharing spectrum between players of all sizes. In many countries, the spectrum policies are still based on one or two large incumbent telecommunications companies, who might have nationwide allocation, even in areas that don't make financial sense for them to serve.

Today, there's so much potential for diversity in the market that this blanket can result in unconnected areas that actually have available spectrum, it's just not being used. Regulators can create policies that specify that providers need to use their allocated spectrum or yield it to a potential user who will put it to use.

Works Best When: This approach works well when incumbents are part of the conversation, and where there's plenty of time to work out new agreements.

Obstacles Can Arise if: In countries that rely heavily on large incumbent spectrum allocation fees, it can be more challenging to offer incentives to get them involved in improvements.

Read More:

- South Africa leads the way on spectrum sharing in Africa
- The UK continues to improve its shared access framework

What Else Can I Do?

Do a Policy SWOT

Use the Community-Centered Connectivity Policy SWOT (strengths, weaknesses, opportunities, and threats) exercise to identify priorities, spot potential issues, and understand opportunities for change. Download the worksheet or use the questions to support discussions

Use the Community Networks DIY Toolkit

If you already know a community network is the way forward, explore the do-it-yourself toolkit. You'll find guided steps through everything you need, including things like selecting equipment, organizational structures, and planning your setup.

If you need more guidance about policy updates or have questions about where to start, we're happy to help. Contact us by writing to peirano@isoc.org.