

# Why Broadband Should Be a Utility

Delivering great broadband to everyone in a community requires thinking about broadband in a new way. Some cities have already made that shift.

By Susan Crawford / *Harvard Law School*

**F**iber cities know the difference between publicly overseen networks, aimed at providing a utility service, and wholly private, “demand-driven” communications networks. There is no single meaning of the word utility, but the concept is familiar to many people. The basic idea is that a utility is a service that 1) relies on a physical network of some kind and 2) is a basic input into both domestic and economic life. A utility is not a luxury. Utility services can be sold by private or public entities, but they are always subject to public obligations to reach everyone at a reasonable price, with a service meeting public quality standards.

A utility-based approach would treat a last-mile fiber connection – likely provided on a wholesale basis – as essential physical infrastructure under a city’s legal control that is required to reach everyone. The logic is that if a city controls when, how and for whom the basic network is built, and at what cost that wholesale facility is made available to private competitors who want to directly serve customers, all premises in the city could have access to modern essential infrastructure at a reasonable cost. A demand-driven approach, by contrast, would allow a private operator to wire only those areas that made sense under its business model.

Services that start off as luxuries can become utilities as their centrality to life becomes clear – we’ve seen this with electricity, which was initially sold by private companies following a demand-driven model. Where investors saw the possibility of a stream of revenue that met their expectations, they would borrow or put up the initial money to wire businesses and homes with electricity. As a result, the electrification

of America followed a consistent pattern: municipal buildings and businesses first, wealthy urban dwellers next, then poorer urban dwellers and, last of all, rural homes and farms. This was the demand-driven model in action.

Now, after government intervention in the electricity marketplace and decades of treatment of electricity as a utility subject to public obligations, we take electricity for granted as a service that is available to every home and business at a reasonable cost. Most of the country follows the National Electrical Code, which requires every single-family dwelling to be connected to at least 100 amperes of electrical power from the local utility. This is a peak-load figure – the maximum current you can draw through your electrical system at one time – and it’s the typical standard for modern usage. Houses are built for a peak electricity use so that everybody can plug in their devices and appliances and function in the modern world.

## LESSONS FROM ASIA

Today, fiber optic internet access is available at a reasonable cost to 100 percent of residents in South Korea, Japan, Hong Kong and Singapore. China plans to have 100 million homes connected to fiber in short order. Sweden also has extraordinarily high fiber adoption rates. None of this happened by accident; none of these places used a demand-driven model. Cities in all of these places treat fiber access as a utility.

As a result, as Owen Narita, a mid-20s employee of a small Tokyo travel startup, told me, he never thinks about uploading large files (“It’s not a drama”), works easily from home, and if he ever wants to switch providers, he has

only to install a new Wi-Fi router in his home. Don Werve, an American computer programmer living in Tokyo, said the same thing: “The fiber here is amazing.” He has never thought about it: “It is fast enough to the point where the speed of my internet connection just simply does not matter. It never has living here. It has never been a concern.” He told me there’s fiber in Tokyo because “a large group of people who were in power sat down and said, ‘We know that we need connectivity. This is absolutely essential for us as the future of our country.’”

### MAKING THE SHIFT

For an example of the shift from demand-driven luxury to utility, consider Singapore in 2002–3. Although about 80 percent of Singaporeans had high-speed internet access at that point, it was expensive and provided primarily by two private companies: DSL from a telephone company and cable modem service from a cable company. Though the cable company (in each location, as in the United States, there was one primary cable operator) was selling relatively fast download services (about 100 Mbps, compared with the 10 Mbps being offered by the phone company), it was charging \$80 or \$90 a month, and its network’s upload capacity was sharply limited. The government of Singapore, having received complaints from both residents and businesses about this state of affairs, decided that its citizens needed inexpensive, two-way, virtually unlimited fiber capacity.

After visiting cities around the world to investigate their fiber plans, the government of Singapore decided to ensure that many retail fiber competitors served all of their residents and businesses. The way to do that, they determined, was to have a fiber line built that would solve the island’s “last-mile” fiber problem. Because that fiber connection to homes and businesses would be a natural monopoly – it wouldn’t make sense to have two of them – it would be made available at a reasonable wholesale cost to retail providers. Competition would come not from having many lines running into homes and businesses but from having at least one fiber line in

place that any retail player interested in providing services could use.

The government put out a request for bidders, offering about \$750 million in government support in exchange for a promise that the winning bidder would connect fiber to every home and business in Singapore. The winning bidder was not permitted to sell services directly to consumers and businesses, and the maximum price it could charge for wholesale fiber was set by the government.

Today, Singapore’s “last-mile” and “natural monopoly” problems have been decisively solved: Gigabit symmetrical fiber subscriptions cost about \$30–\$40 a month, there are many competitive providers selling services at different levels of capacity and cost and no one has been left behind. Singapore has stopped measuring residents’ capacity and subscription rates for cable or copper internet access: the numbers are no longer relevant.

This same model has been realized in Stockholm; there, as in Singapore, this approach has led to increased competition in the delivery of telecom services and has driven the adoption of high-speed internet access. A key common element of successful fiber cities and localities is the mental shift they have made. They no longer think of last-mile fiber as a luxury that should be provided only by private companies to those residents who can pay high rates. ❖

*Susan Crawford is a professor at Harvard Law School and a former science and technology adviser to President Barack Obama. This article is excerpted from “Fiber: The Coming Tech Revolution – and Why America Might Miss It,” by Susan Crawford. Copyright © 2018 by Susan Crawford. Excerpted by permission of Yale University Press. All rights reserved.*

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