How the U.S. Can Catch Up in the 5G Race

BRENT SKORUP FEBRUARY 26, 2019

In the race to 5G, the U.S. has stumbled at the start. But it still has time to catch and pass China, the current leader—if the right policies are put in place on both the local and federal levels.

The race can be defined in different ways, but here's how I see it: The finish line is a fully upgraded domestic network infrastructure that allows businesses and consumers across the country to take advantage of the new technology and gives the U.S. tech industry the foundation to design 5G applications and services for a global market.

The history of 4G in the U.S. shows that if you build the network, the apps and services will follow. Wireless carriers switched 4G on around 2010 and it quickly spawned U.S.-based social-media mobile-app empires, stimulated consumer demand for advanced smartphones and helped turn companies like Uber, Android and Airbnb into massive global successes.

With the next generation of wireless technology we can look forward to even more impressive breakthroughs, like warehouse-floor robots that self-organize shipments, remotely operated electric air taxis that carry passengers high above rush-hour traffic, or smart glasses that connect blind people with professional guides who use audio-video feeds to help wearers get around.

To get there first, the U.S. has a lot of work to do. A widely available, reliable 5G network will require hundreds of thousands of new transmitter sites, and on that score the U.S. trails badly. Deloitte researchers estimate that since 2015, China has built 10 times as many new cell sites in China as American carriers have in the U.S. If the U.S. continues to fall behind China in building a domestic infrastructure, U.S. companies will fall behind in developing the services and apps that go with those networks.

Catching up will require much more government collaboration with industry than 4G did. Many of the new transmitters will have to be attached to publicly owned streetlights and utility poles, which can only be done with local government permits. And wireless operators will require additional spectrum, which is allocated by the Federal Communications Commission.

A costly distraction

How did the U.S. fall so far behind? At a time when Asian and European regulators were laser-focused on positioning their domestic industries and government partners for 5G standards and deployment, complacency and parochial infighting made 5G leadership an afterthought in the U.S.

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By far the largest distraction was net neutrality, an academic networking issue with a negligible effect on consumers. Net neutrality remained obscure to the public until 2014, when a coalition of law academics, media activists and large and small Web companies persuaded President Obama to their side. Net neutrality then became a political issue, which poisoned the

normally chummy relationships between the FCC and the relevant congressional committees and turned telecom and tech companies against each other. The regulatory warfare has played out in seemingly endless agency proceedings, congressional hearings and court petitions.

This issue never consumed regulators and industry in Europe and Asia like it did in the U.S. In Europe, though, 5G ambitions have hit other roadblocks. Europe's 5G pilot programs are extensive and have government subsidies and support. However, Europe's fragmented wireless sector—there are more than 100 national cellular carriers in Europe, compared with four in the U.S. and three in China—and restrictive regulatory environment are handicaps.

Meanwhile, the Chinese government has prioritized 5G global leadership through central planning, subsidies, university training and the recruitment of tech talent. And China has quietly developed a truly advanced tech sector that is ready to build new apps and services for the 5G network, led by companies like Tencent, Baidu, JD.com and Alibaba.

A winning formula

The U.S. isn't starting from scratch, however. Indeed, in one important way it has a head start: The country is covered by the most extensive web of 4G networks in the world. Those networks can be upgraded to the world's most extensive 5G coverage if cities and counties can expedite the permits needed for network updates and resist charging excessive fees and lease terms for cells on public property.

Most important for 5G success, the U.S. has Silicon Valley, other tech outposts nationwide and lone-wolf inventors scattered throughout the country. This freewheeling, innovative tech culture and the rich venture-capital industry that nurtures it are a combination that is unique globally, despite other countries' attempts to imitate it. Chinese companies are leaders in 5G patents and standards proposals, but they will have a much harder task in matching the U.S. tech sector's ability to create popular mobile apps and services for a global market.

The FCC also will be crucial to winning the 5G race. The agency shelved net-neutrality regulations a year ago and has refocused its resources on supporting the development of 5G networks. It has reached out to local leaders to encourage them to support the building of 5G networks, and it has set new rules that limit the application fees and lease rates local governments can charge carriers for new cell sites, as well as the maximum amount of time localities can take to approve applications.

The agency can follow up with more-extensive education for city and state leaders about what 5G is and their role in its development. There's an appetite among state and local leaders for trusted, credible sources of information like the FCC on issues like what prices they should charge for pole rentals.

Congress can help, too. In the 1990s, Congress declared that restrictive fees and permits on installing satellite dishes on private property violated federal policy and were anticompetitive. Today, federal law should be clear that homeowners and business owners are generally free to install 5G antennas

on their property to improve coverage in their homes, businesses and neighborhoods.

Congress also should address the spectrum bottleneck that wireless carriers face. Federal agencies possess nearly half of the premium spectrum but have few incentives to release it for commercial operations. Congress should consider giving these agencies a larger cut of auction proceeds to encourage them to release underused spectrum.

American regulators, government and industry are playing catch-up on 5G. But with a combination of responsible use of public assets and light-touch regulation of 5G services, we can still win this race.

Mr. Skorup is a senior research fellow at the Mercatus Center at George Mason University and a member of the FCC's Broadband Deployment Advisory Committee. He can be reached at reports@wsj.com.