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5G Race Could Leave Personal Privacy in the Dust

New networks will collect more data on the physical world. Experts warn public policy hasn't caught up.

By Drew FitzGerald

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Wireless companies racing to build new 5G networks are expected to bring billions of cameras, sensors and other “smart” devices along for the ride, a trend that could spell trouble for personal privacy.

Telecom companies have spent the past year blanketing parts of China, South Korea and the U.S. with fifth-generation cellular service, a technology that supercharges downloads to smartphones, laptops and tablets. But engineers say 5G’s true potential comes from the ability to cheaply link thousands of smaller devices—like security cameras, traffic sensors and other surveillance gadgets—to a single cell tower at a time, up from a few hundred today.

At the same time, other new standards are making cellular devices cheaper, more plentiful and easier to maintain, allowing sensors to be put in places where previously it was too costly to do so. These machines also are getting better at sipping power so that a connected device can now spend years in the field without a battery replacement.

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“5G is going to allow sensors all over the place,” AT&T [T -0.03%](#) Chief Executive Randall Stephenson said at September event hosted by the Council on Foreign Relations in Washington, D.C. “4G networks in a square mile can connect thousands of devices. 5G, millions of devices.”

All of these devices will be harvesting reams of data from the world around them, executives such as Mr. Stephenson say. Already, cities around the globe have started to use sensors to collect data on traffic, pedestrians, garbage and buildings. These so-called “smart city” testbeds offer a window into just how much information cutting-edge wireless networks might be able to gather.

Police in China, for example, have piloted camera-equipped glasses that use 5G’s extremely quick response times to power facial-recognition software, allowing authorities to spot targets before they leave an area. Companies based in North America and Europe, meanwhile, are highlighting the opportunities 5G technology offers merchants and marketers, such as the ability to pinpoint how long a customer lingers in front of a certain store shelf or display.

Privacy rules

The flood of data that technology companies expect to collect underscores the need for federal

privacy legislation, AT&T's Mr. Stephenson says. Although lawmakers in Congress have proposed some federal privacy rules, they have failed to enact them, opening the way for state and local governments to fill the void.

AT&T has criticized this hodgepodge approach, arguing that companies need more predictable nationwide policies that aren't as strict as California's, which will enable consumers to prohibit the sale of their personal data and ban discounts and other special treatment for users who opt in to sharing their information.

Without a set of standard privacy rules in the U.S., Chinese companies rolling out 5G networks and services could gain an edge, he suggests.

“The



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Chinese are spending a lot of cycles and a lot of time permitting cell sites,” Mr. Stephenson said. “They’re not spending a lot of cycles and time on privacy policies.”

Of course, cameras and sensors predate the first 5G specifications. AT&T, Verizon Communications Inc. [VZ +0.00%](#) and T-Mobile USA Inc., [TMUS -1.60%](#) for example, use 4G signals to track truck fleets and rental cars.

Cellphone carriers and app makers already collect troves of information about their users, including detailed data on where they live, work and shop. Advertising exchanges make the universe of companies with access to personal location data even bigger.

New 5G networks, however, will be able to track smartphone users with more precision, pinpointing a device within centimeters rather than meters.

“People know that they’re being tracked online,” says Pankaj Srivastava, chief operating officer for FigLeaf App Inc., a software maker that offers tools to safeguard personal information. “People don’t realize that they can be in the same situation in the physical world.”

Fine line

Still, some telecom industry experts warn that aggressive privacy protections could undercut the economic benefits 5G technology promises. Tech companies counting on troves of data from devices like cameras and street sensors to train their software often attack Europe’s General Data Protection Regulation, a set of strict digital privacy rules that went into effect in 2018, for depriving them of raw data to analyze, a building block for more advanced artificial intelligence.

“Europeans shot themselves in the foot with the GDPR,” says John Strand, a Denmark-based telecom consultant. “Read literally, it prohibits AI and machine learning.”

At the same time, lax 5G oversight also could threaten security, says David Simpson, a Virginia Tech professor who previously ran the Federal Communications Commission’s public safety and homeland security bureau.

Mr. Simpson cited two examples that affect public safety. On one hand, cheaper smart sensors could collect real-time information about the structural integrity of buildings, roads and bridges, arming civil engineers with data to avoid accidents. If abused, similar sensors and

cameras could also gather location data from pedestrians passing through the area without their consent, either on purpose or incidentally.

“While I very much want to not have a crane tumble on my head, I also want to not have my movement throughout a city trackable by Big Brother,” Mr. Simpson says. “There are agreed-upon privacy norms that we should be pursuing. You shouldn’t collect more information on me than you need.”

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