

# 5G Race Pits Ford, BMW Against GM, Toyota

Dispute over internet technology divides auto makers



Toyota Motor and General Motors back a Wi-Fi-based technology known as DSRC for vehicle connectivity, while Ford Motor and BMW support fast-tracking fifth-generation cellular broadband. PHOTO: WILLY KURNIAWAN/REUTERS

*By*

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Excitement around 5G is eclipsing the prospects for a competing technology that [General Motors](#) Co. and [Toyota Motor](#) Corp. are backing, potentially giving rivals a leg-up in the race to debut vehicles with state-of-the-art internet connectivity.

The U.S. government has invested hundreds of millions of dollars in Wi-Fi-based technology known as DSRC, or dedicated short-range communication, that allows cars to link to “smart” traffic lights designed to smooth congestion and provide warnings about accidents or poor weather conditions ahead.

GM and Toyota strongly support that technology. But [Ford Motor](#) Co. ,[BMW](#) AG and other auto makers are pressing the Trump administration to allow them to leapfrog that system by fast-tracking fifth-generation cellular broadband in automobiles. [Known as 5G](#), it transmits data at up to 10 times the speed of current broadband and improves reliability by potentially shrinking a self-driving car’s ability to stop to one inch, from one yard with today’s network.

The Future is Calling  
The number of connected cars is expected to surge over next five years.  
Global passenger cars shipped with factory-installed modems  
Source: Counterpoint Research  
Notes: 2018-2022 are forecasts.

.million  
2016’17’18’19’20’21’22  
05101520253035402020x25.6 million

The showdown between the Wi-Fi-based and cellular-based standards for connected cars echoes winner-take-all format wars in other industries, and is a sign of how software is emerging as a new battleground for auto makers. The stakes are high as U.S. [motor-vehicle deaths have risen](#) in recent years. Car makers say vehicle-to-vehicle communication will ease congestion and improve safety.

Speeding up adoption of new technology is a priority for an industry that has lagged behind mobile-phone makers when it comes to connecting devices to the internet. The global market for connected cars is forecast to grow nearly threefold by 2022 with more than 125 million new internet-connected cars shipped over that five-year period, according to Counterpoint Research.

Current broadband, known as 4G, has enabled Wi-Fi hot spots and streaming, allowing passengers to surf the internet or watch videos in cars. The next wave of cellular technology will usher in new entertainment and safety features, enabling cars to access cameras on other vehicles that could alert them to accidents, obstacles and driving conditions.

Ultimately, drivers might even be able to order a [Starbucks](#) drink from their dashboard or take a nap while artificial intelligence operates the vehicle. Companies

like BMW say faster data transmission through next-generation broadband is critical to accelerating this push.

“We are on a broader scale pushing the telecommunication companies to roll out 5G as quickly as they can,” said BMW management board member Peter Schwarzenbauer.

GM and Toyota, meanwhile, have models already equipped with DSRC, and are urging the Trump administration to support a 2016 proposal that would require auto makers to [start phasing it into new cars](#) as of 2021. The Transportation Department has yet to make a final ruling on that Obama-era proposal, even as auto makers are already well into the design phase of 2021 model year vehicles.

“Getting the rest of the industry to follow has been tough sledding,” said Steve Schwinke, director of GM’s advanced development and connected services.

One issue with the technology backed by GM and Toyota is cost. Telecom companies plan to pay for upgraded cell towers and roadside antennas for 5G to service their existing networks. To fully deploy DSRC, billions of dollars in government-funded infrastructure is required, according to a U.S. Transportation Department estimate.

That short-range technology also would add about \$300 to the price of a vehicle for dedicated equipment, the National Highway Traffic Safety Administration estimates. Most new vehicles come installed with cellular modems, so there would be little additional cost to drivers for 5G.

GM and Toyota alone account for about one-third of the new cars sold in the U.S., and roughly 20% of the vehicles sold world-wide. Toyota has delivered more than 100,000 cars equipped with DSRC in Japan and will offer it on most of its lineup in the U.S. by the mid-2020s in addition to cellular modems.

GM and Toyota see their Wi-Fi-based technology as a bridge to 5G, which has yet to be fully tested in vehicles and may take years to be fully deployed.

Critics say the government shouldn’t force car makers to use older Wi-Fi-based technology some say is out of sync with fast-evolving cellular broadband. Last

month, Audi and Ford demonstrated cellular-based safety technology called C-V2X in what they said was the world's first application of it using vehicles from different manufacturers.

"You will have, for the first time, cars speaking together and it's important for them to speak the same language," said Christoph Voigt, head of R&D connectivity for Audi. As chairman of 5GAA, a trade group supporting automotive 5G, Mr. Voigt petitioned federal regulators to avoid "directly or indirectly pick[ing] technology winners and losers" because he is confident 5G will become the de facto standard on its own merits.

Even as [Volkswagen](#) AG is aligning its premium Audi brand with 5G in the U.S. and China, it is hedging its bets by deploying a version of DSRC on VW branded vehicles in Europe starting next year. A representative for VW said the German auto maker currently has no plans to introduce that technology to its lineup in the U.S. market. The Trump administration, pointing to the expected proliferation of 5G, this year [blocked the takeover](#) of U.S. chip maker [Qualcomm](#) Inc. by Singapore-based [Broadcom](#) Ltd. on national-security grounds. Qualcomm is negotiating chip supply contracts with at least half a dozen auto makers for coming models. Industry experts say 5G smartphones will debut next year and the first cars with 5G modems will appear as soon as 2020. That is about twice as fast as the transition for current 4G technology, which was introduced for smartphones in 2011 but didn't show up in cars until GM integrated it into its latest version of OnStar remote communications in 2014.

"There is going to be 5G in every single next-generation car design," said Nakul Duggal, the head of Qualcomm's automotive business.

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