# Fast and furious? Connected cars, jamming, and the battle for spectrum

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Times are changing in the automotive industry, and changing fast. In this hoganlovells.com interview, Washington, D.C.-based Hogan Lovells partner Ari Fitzgerald talks about the challenges facing car manufacturers as they race to develop connected car technology while keeping one eye firmly on regulators.

## There are more than a billion cars in use around the world. Can they all be connected to telecommunications networks?

**Fitzgerald:** Well, I think that the capacity is there, and many of the world's largest mobile operators already have significant business units that are dedicated to the connected car. AT&T and Verizon here in the U.S., and Vodafone in Europe, are spending a lot of time and effort marketing their networks to auto companies and auto suppliers. Obviously there is some way to go before that becomes a reality though.

## Is there a significant business opportunity as well as an opportunity to create safer and more efficient transport systems?

**Fitzgerald:** Yes, but perhaps right now the business opportunities are more speculative. In the U.S., most mobile operators are used to getting about US$45 a month in revenue from each smartphone. It may be possible to generate that sort of revenue from automobile-embedded radio devices, but that will depend a lot on how attractive and desirable the content and applications delivered solely over the vehicle-embedded devices are.

Remember, passengers and drivers will have their smartphones with them so there will be tension and competition between automakers and mobile telecom providers who may already provide some of these connected services, such as mapping and entertainment applications.

Other network operators that emerge may be particularly attuned to the needs of the auto manufacturers. In the U.S. for example there are a number of potential new market entrants that are targeting the Internet of Things (IoT), which includes vehicles. We may see parties develop their own telecom networks. I would love to see the automakers get together and create their own telecom network, but I doubt that will happen. So there is a lot of potential out there, but right now most of it is just that, potential.

## Wireless devices depend on bandwidth — spectrum — so do we have enough to handle all of this new connectivity?

**Fitzgerald:** There is enough, but for some automobile-based safety applications, lives will depend on its use, requiring that it be well managed and well regulated. Most of the spectrum that will be used for non-safety commercial services is already licensed to the traditional mobile network operators. Auto companies do, in some instances, have access to special purpose spectrum, which supports very specific applications like vehicle-to-vehicle (V2V) and vehicle-to-transport infrastructure communications.

This spectrum was set aside in the U.S., Europe, and some parts of Asia for vehicle communications, but it is in a spectrum band that is immediately adjacent to a very popular Wi-Fi band, and there is a disagreement over whether or not this band should be shared. If sharing does occur, it raises questions regarding the reliability of these communications. So we have a battle going on, and we will have to see how that pans out.

## Where is this battle taking place? At the Federal Communications Commission (FCC) presumably?

**Fitzgerald:** In the U.S., the battle is largely being fought at the FCC, the communications regulator. The Department of Transportation (DOT) is also heavily involved, and within that, the National Highway Traffic Safety Administration (NHTSA), the road safety agency within the department. The Obama administration proposed that the DOT mandate V2V communications, but the Trump administration has not indicated where it stands. Multiple agencies are engaging on this issue, and ultimately the White House will have to play a role in the final result.

## Is this same story playing out in other jurisdictions? In the EU for example?

**Fitzgerald:** Spectrum is very important to the auto industry, and decisions are made at various levels. There is an organization called the International Telecommunication Union (ITU), which is a United Nations agency that basically sets the rules of the road for spectrum globally. It's no accident that all TV broadcasts over the same frequency all over the world, and the same applies to mobile communications.

That spectrum harmony promotes economies of scale and makes equipment manufacturing cheaper. In 2015 the ITU set aside a large amount of spectrum, five gigahertz, for vehicular radar operations. One of the reasons so much was set aside was to promote autonomous driving. It will be used for short-range high-resolution radar, so automakers can install sensors to facilitate a 360-degree view around the vehicle, enabling the efficient identification of objects in its surroundings.

This dedicated amount of spectrum is one of many foundations needed to support automated and autonomous driving. Most regulators around the world were excited to facilitate that decision, which is a major step forward.

## Wireless-based systems are inherently vulnerable to frequency jamming and other such attacks. Is the industry addressing these issues?

**Fitzgerald:** Jamming is against the law in most countries, so there is a degree of protection. It obviously happens, and because it does happen, the auto industry needs to work closely with auto suppliers and mobile operators to safeguard against jamming.

Automotive Original Equipment Manufacturers (OEMs) need to assume that someone will try to jam their communication, and so they need to impose obligations on third parties like mobile network operators and equipment suppliers to ensure that all necessary precautions are taken. It is a reality though, and enforcement will have to step up to fight it. There needs to be strong enforcement at both the legal and industry level.

## What role does the regulator have on radar use in vehicles?

**Fitzgerald:** As I said before, a lot of spectrum will be used for automotive radar. When new products are developed, they have to be certified by the telecom regulator. If an automotive manufacturer is going to install new radar equipment, it needs to be sure that its supplier has secured all of the required regulatory clearances. Auto manufacturers sometimes forget that they are ultimately responsible for what is installed in their vehicles. That applies any time you install any new product that uses radio frequency to operate.

**About Ari Fitzgerald**

Ari Fitzgerald provides strategic, legal, and policy advice on a wide range of communications and spectrum policy issues to some of the world's largest and most dynamic communications network operators and equipment manufacturers, as well as a diverse assortment of industry trade associations and investors. He especially enjoys helping automobile manufacturers and other technology companies bring new and innovative communications-related products and services to market.

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