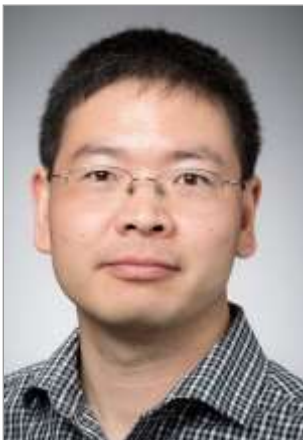


Natural Resources

Ride sharing with autonomous vehicles: Reshaping North America | Brian Baetz and Zhen Gao

By **Brian Baetz and Zhen Gao**

Brian Baetz



Zhen Gao

(September 2, 2022, 9:32 AM EDT) -- As the 1950s rolled out, North America became obsessed with the private automobile. Garages and driveways defined the suburban landscape, congested arterial roads and highways spawned traffic reports on local news, and parking lots surrounding workplaces and shopping centres became part of our collective experience.

For sure, many urbanites walk, cycle or take transit to get to work or around town, but they are in the severe minority. Cars have been king, and recent advances in hybrid and electric vehicles have only served to reduce the carbon footprint of this transport modality, doing very little to change their fundamental and far-reaching impact on our communities.

Over the last five years, the development of autonomous vehicles or self-driving cars, has come upon us quickly in our rear-view mirrors. Tesla and the Big Three automakers have been racing to make great strides in advancing this technology, but privately owned autonomous vehicles will also have very little broad societal impact, beyond allowing a quick cat nap or some newspaper reading on your way to and from work.

The real magic from autonomous vehicles will come with their adoption by on-demand ride-sharing systems (Uber, Lyft as examples). With your smart device, you will be able to easily order a car to come pick you up from home, work, or shopping. Just like calling a cab or Uber at present, but a subscription to the autonomous ride-sharing service will allow your vehicle to roll up without a driver and offer you mobility at a much lower fare. You could be the sole occupant, but sharing the vehicle with others will lower the fare costs even more. We envision fleets of these self-driving cars roaming our urban and suburban street networks, offering efficient transport to all ride-sharing subscribers. So cost-efficient, so readily available, that many individuals will ultimately give up their private automobiles (cynics may wish to consider how many people have given up their land lines, a previously unassailable component of modern life).

The impacts of this transition are many and interconnected. As baby boomers age, the dreaded loss of driving mobility will become a non-issue with widespread and affordable point-to-point transportation. Teenagers under the driving age, and folks who cannot afford a car, will be able to access a low cost ride when they need one. By eliminating human errors, pedestrian and cyclist safety will increase, according to autonomous vehicle incident statistics. Once people shed their cars, no more worries about scheduling oil changes or snow tires, and a tremendous amount of after-tax resources could be freed up for more enjoyable pursuits than watching your car napping in your driveway or your workplace parking space. In fact, this is where the greatest impact of autonomous ride-sharing services will be felt. On a micro-level, your individual driveway will now be liberated for solar panels, urban food production, a tree nursery for you and your neighbours or perhaps a tiny home for your kid who has migrated back home after completing university.

On a more macro-level, the parking lots for workplaces and shopping centres will in essence be

downsized to drop-off and pickup zones, and the areas freed up can be gainfully used for other more attractive and needed uses than asphalt for sleeping cars waiting for their masters to return. Street parking turf wars and the need for unaesthetic and unsafe vertical parking structures or expensive and unsafe underground parking infrastructure will be substantially reduced. All of these local and regional benefits will be attainable because the autonomous vehicle technology will allow cab-like service without the need to compensate a driver. The sharing of the vehicle fleets across a wide pool of subscribers will translate to a drastic reduction in the number of vehicles plying our streets. This will map out to a large benefit to the environment in terms of significantly less materials extracted for our vehicle fleets, and tremendous greenhouse gas benefits as the ride-sharing fleets will be predominantly electric vehicles.

Having autonomous ride-sharing systems in our communities is not constrained by technology, but by government policy. At the heart of the policy debate is the issue of liability, if and when a problem occurs.

Currently, if a problem arises, drivers and insurance companies are responsible for compensation. For an autonomous ride-sharing system, the software companies and vehicle manufacturers and insurance companies would be on the hook for accident compensation. We contend that autonomous vehicle system adoption will lead to a sizable increase in vehicle user, pedestrian and cyclist safety so overall compensation numbers will be substantially reduced.

This is a call-out to the legal profession — please help solve the related policy logjam and catalyze the great reshaping of North America! Your teenage kids and elderly parents and your friends and neighbours of all ages and circumstances will thank you for giving them affordable mobility and greater discretionary spending, all while taking a big load off of Mother Nature.

Dr. Brian Baetz is a professor emeritus in the Department of Civil Engineering at McMaster University, and is the director of McMaster's W Booth School of Engineering Practice and Technology. Dr. Zhen Gao is the acting associate director, graduate programs in McMaster's W Booth School of Engineering Practice and Technology, and also is the program lead for its Masters in Engineering Systems and Technology Program.

The opinions expressed are those of the author(s) and do not necessarily reflect the views of the author's firm, its clients, The Lawyer's Daily, LexisNexis Canada, or any of its or their respective affiliates. This article is for general information purposes and is not intended to be and should not be taken as legal advice.

Interested in writing for us? To learn more about how you can add your voice to The Lawyer's Daily, contact Analysis Editor Peter Carter at peter.carter@lexisnexis.ca or call 647-776-6740.