

## **A conversation with Bryant Walker Smith on April 11, 2014**

### **Participants**

- Bryant Walker Smith — Fellow, the Center for Automotive Research at Stanford (CARS); Fellow, the Center for Internet and Society at Stanford Law School; Lecturer, Stanford Law School.
- Alexander Berger — Senior Research Analyst, GiveWell

**Note:** These notes were compiled by GiveWell and give an overview of the major points made by Bryant Walker Smith.

### **Summary**

GiveWell spoke to Bryant Walker Smith to learn more about opportunities for philanthropy around autonomous vehicles. Conversation topics included prospects for deployment and regulation of autonomous vehicles, implications for urban planning, underfunded opportunities, and funding for research.

### **Prospects for deployment**

In the next year, Mercedes-Benz is planning to release a vehicle with limited self-driving capabilities, i.e. under optimal highway conditions only and with constant monitoring by a human driver. As automation becomes more sophisticated, there could potentially be models that do not require monitoring in certain environments.

In the medium term, there are a number of imminent technologies around autonomous transit systems, some of which could involve infrastructure components. For instance, there are opportunities for driverless transit systems, which could travel pre-fixed routes at slow speeds through, e.g., university campuses, retirement homes, downtowns, amusement parks, and neighborhoods. There are also opportunities in logistics and delivery, such as automated trucking platoons and small delivery robots.

The long-term vision for driverless cars (i.e. cars that are individually-owned and fully autonomous under all conditions) is probably many years away, in part because there are many technical challenges still to be overcome. This timeline is highly uncertain.

In the long term, autonomous vehicles are likely to radically change the transportation industry. People who work in transportation conceivably might organize against the roll-out of autonomous vehicles as they become more viable. In the near term, however, issues of safety, privacy, and liability are greater obstacles than organized opposition.

### **Prospects for regulation**

Powerful interests are already engaging in the regulatory space around autonomous

vehicles. For instance, Google successfully lobbied for laws in Nevada and California that expressly permit the operation/testing of autonomous vehicles, and automakers have also been active in shaping legislation and regulation in several states. Plaintiff attorneys, insurance companies, and consumer groups (particularly those with privacy interests) are also starting to engage in this space. Privacy concerns are frequently voiced in conversations about regulating vehicle automation and connectivity.

There is generally uncertainty about (1) how safe these systems must be and (2) how this level of safety can be demonstrated. Quickly deploying systems might save lives but could also lead to a backlash when a crash does occur.

### *Coordinating regulation*

Several states have adopted legislation on autonomous vehicles, and some of those states have moved on to developing regulation. There are differences between states' regulatory regimes, but so far none of them conflict in important ways. Auto manufacturers and Google are wary about a patchwork of regulatory regimes, and, for the same reason, automotive industry groups have been cautious and particular about the legislation they support. Many groups are working to develop unified regulatory proposals involving, for example, model legislation or coordination among state motor vehicle administrators.

The National Highway Traffic Safety Administration (NHTSA) is unlikely to develop regulations in the near term, though some states have expressed interest in federal guidance. In the longer term, NHTSA will play a leading role in defining performance standards.

Expert groups involved in developing industry standards for electronics and automotive applications could play a role in providing regulatory consistency. However, the rate at which these groups set new standards is likely to be outpaced by technological development.

### **Implications for urban planning**

Although they were slow in beginning to discuss the impacts that autonomous vehicles might have, in the last twelve to eighteen months, urban planners have become much more focused on the topic. Autonomous vehicles are expected to affect many aspects of urban planning, including city administration, highways, transit systems, zoning, and building design. Some people claim that autonomous vehicles will help reduce congestion and emissions, while others caution that they might induce more travel or cause other behavioral changes that would negate those benefits.

### *Mass transit*

Automation offers opportunities to re-imagine mass transit systems, which, in the U.S., tend to be expensive, inconvenient, and relatively fuel inefficient. For instance, driverless taxis could potentially become an affordable option for people of all income levels. Transit

agencies may not have sufficient funding or interest to pursue these projects, however. Automation could enhance, compete with, or detract from these conventional systems.

### *Near-term investments in physical infrastructure*

Mr. Smith is concerned that worthwhile infrastructure projects, such as a high-speed rail in California, could be blocked by premature arguments about autonomous vehicles. There is currently too much uncertainty about the effects of such technologies to argue against otherwise necessary physical infrastructure projects in the near term.

### **Underfunded opportunities**

The best opportunities for philanthropy in this space probably lie in areas where the large tech companies and auto manufacturers do not have incentives to act. These opportunities might include:

- **Advocating for regulation that allows smaller companies to compete.** The Nevada Department of Motor Vehicles (DMV) imposed barriers to entry that effectively limited the autonomous vehicle market to larger companies—the rationale being that larger companies would be more cautious because they had more at stake. This regulatory approach was appropriate given the level of uncertainty about the safety of these technologies, but it could shut out smaller innovators.
- **Showcasing autonomous transit system technologies.** Philanthropists or companies could build functioning demonstration projects, such as driverless shuttle systems in amusement parks or downtown areas, to demonstrate the viability of autonomous transit systems. Though the U.S. military is currently moving toward showcasing some technologies, localities are less likely to build demonstration projects on their own, due to a lack of funding and political will.
- **Developing regulation for alternative vehicle concepts.** Existing legislation is ill-equipped to deal with alternative vehicle concepts. For example, federal and state agencies have long struggled to define and regulate low-speed neighborhood vehicles such as golf carts in retirement communities. Nobody is advocating for changes to allow automation on this front.

### **Funding for research in this area**

Technical research in this space is generally well-funded by universities and corporations, and many institutions, ranging from the World Economic Forum to the Transportation Research Board, are discussing the barriers to and impacts of autonomous vehicles (with an emphasis on vehicles that resemble today's cars and trucks).

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