3 Sharing, Electrification and Automation REVOLUTIONS

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Governance: Who's in Charge Here?

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In November 2016, the Institute of Transportation Studies at the University of California, Davis (ITS-Davis) convened leading academic, government, private industry, and public interest stakeholders to explore science-based policies that could steer the three transportation revolutions- shared mobility, electrification, and autonomous vehicles, toward the public interest.

This policy brief reflects the opinions of the authors and not UC Davis. This brief is one in a series that presents a range of policy concepts, recommendations and research needs discussed at the Three Revolutions Conference.

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Summary

The potential synergies of shared mobility, fleet electrification, and fleet automation may be hindered by inefficient government structures, which often result in sub-optimal regulatory schemes. We focus here not on the regulations put forward by government agencies, but rather the statutory mandates and structures of government agencies, asking if they are up to the task of advancing these three revolutions toward the public good.

Introduction

Myriad government agencies play some regulatory and policy making role in the broad space the three revolutions will impact. The identity of the regulating body often has an influence on the rules that are implemented and the outcome of the regulation. To illustrate the types of issues we think may hinder the revolutions, we focus here on the following three topics: transit agencies; for-hire vehicle services; and autonomous vehicles.

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Findings

Transit agencies with broader geographic and multimodal perspectives may be better positioned to respond to the three revolutions.

Three of the largest transit agencies in California operate in large counties, have holistic missions, and are governed by an appointed board.[1] Consider Los Angeles Metro, whose mission is to provide "... for the continuous improvement of an efficient and effective transportation system." Metro runs trains and buses, serves as the county's congestion management agency, and pursues pedestrian and cyclist infrastructure and initiatives. Metro is governed by a 13-member board comprised of county supervisors, the mayor of Los Angeles, three Los Angeles mayoral appointees, city council members (not from Los Angeles), and a non-voting state appointee.

Contrast Los Angeles Metro to the Bay Area Rapid Transit (BART) District. BART is a special district made up of Alameda, Contra Costa, and San Francisco counties and operates a rapid rail system in the San Francisco Bay Area. BART is governed by a directly elected, nine-member board. BART's mission is to "provide safe, reliable, clean, quality transit service for riders."[2]

Of these two agencies, Los Angeles Metro seems far more likely to leverage the opportunities new mobility services provide by, for example, working with member cities to thoughtfully allocate roadway space for transit, shared ride providers, bicyclists, etc., and shifting resources between buses, rail service, and shared ride services to efficiently move people around. Los Angeles Metro is governed by elected officials with a broad view of Los Angeles County's transportation problems. In contrast, BART provides rail service and may have difficulty implementing non-rail solutions. In a future of automated vehicles, transportation infrastructure may evolve to a point that encourages some investments in heavy rail service (e.g., below grade, through dense urban areas) and discourages others (e.g., freeway-median-running service); BART's governing structure and limited mission may inhibit its adaptation.

For-hire vehicle services need regulatory environments equipped to reflect new needs and local concerns.

The emergence of Uber, Lyft and other ride-sourcing companies poses a challenge to local and state regulators. For the time being, so-called transportation network companies (TNCs) are regulated in California by the California Public Utilities Commission (CPUC). Even though CPUC took on the burden of regulating this industry, it does not consider itself to be an ideal regulator and the state is considering shifting regulation elsewhere.[3]

Further, a taxi company in San Francisco has claimed that state regulation of TNCs and local regulation of taxis violates the U.S. Constitution's principle of equal protection (i.e., the 14th Amendment).[4] Introduced in June 2016, California AB 650 proposed a transfer of regulatory jurisdiction of the taxi industry from cities and counties to the CPUC.[5] Governor Brown vetoed the bill in September, suggesting there is not enough evidence to justify such a change. [6]

These issues are not unique to California or to the United States.

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1 Los Angeles Metro, San Francisco Municipal Transportation Agency, and the Santa Clara Valley Transportation Authority.

2 Note that BART's mission statement is not highlighted on BART.gov, but is stated here: http://www.bart.gov/sites/default/files/docs/Adopted%20Strategic%20Plan%2020151022.pdf.

3 See, for example, http://www.bizjournals.com/sanfrancisco/blog/techflash/2016/06/lyft-uber-dmv-chp-cpuc.html.

4 See, for example, http://www.sfexaminer.com/flywheel-taxi-sues-state-says-cities-should-regulate-uber-lyft/.

5 AB 650 (Low) – California Global Warming Solutions Act of 2006: investor-owned utilities: school energy efficiency. As amended: June 6, 2012. Retrieved from http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M163/K105/163105803.PDF.

6 AB 650 Taxicab transportation services. Retrieved from https://leginfo.legislature.ca.gov/faces/billStatusClient.xhtml?-bill_id=201520160AB650.

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There's a clear need in the shared mobility space for a flexible and robust regulatory environment that can encourage innovation, allow for-hire vehicle services and mobility companies to operate efficiently (e.g., consistent regulation across city boundaries), and protect the public interest.

Autonomous vehicles raise a wide-reaching set of potential societal impacts and a robust regulatory response is needed.

Autonomous vehicles are anticipated to have profound impacts on personal mobility and freedom, transportation costs, economic growth, employment, safety, insurance, energy consumption, the environment, and others.[7]

To date, ten states plus the District of Columbia have enacted some form of autonomous vehicle legislation.[8] These early stage state actions tend to answer basic questions and considerations of autonomous vehicles, such as establishing definitions, requiring Departments of Motor Vehicles (DMVs) to adopt rules, determining the legality of the technology, addressing liability, and calling for further study and consideration of potential outcomes.

At the federal level, the National Highway Traffic Safety Administration (NHTSA) recently released an initial Federal Automated Vehicles (AVs) Policy, which outlines an approach to accelerate the transition to AVs.[9] Broadly speaking, the policy suggests the agency will primarily work with industry to ensure safety in the near term. The federal government has yet to actively engage with questions associated with other implications of AVs.

For example, NHTSA has identified environmental impacts of AVs as being a current gap in the regulation, and writes "gaps in current regulations should be identified and addressed by the States (with the assistance of NHTSA)."[10]

In contrast, the private sector has been taking action and is considering how new AV technologies can work in their favor. For example, the Alliance of Auto Manufacturers has testified to Congress, asking that fuel economy and greenhouse gas (GHG) emissions credits be provided for semi-autonomous crash avoidance technologies.[11] Because these technologies are already entering the fleet for market, safety, and convenience reasons, granting them GHG credits undermines the effectiveness of the emissions regulation by subtracting from efficiency technologies that would otherwise be deployed. As NHTSA's mission is to "Save lives, prevent injuries and reduce economic costs due to road traffic crashes, through education, research, safety standards and enforcement activity," the agency seems unlikely to address the broader market, social, and environmental impacts of AVs. [12]

There is clear need in the AV space for a robust regulatory structure that more comprehensively considers the implications of these vehicles and works to ensure their deployment is for the public good. Because of the wide-ranging impacts that AVs are anticipated to have on mobility and congestion, the economy, safety, employment, the environment, and others, it would be beneficial to bring other government stakeholders (e.g.,

7 e.g., see RAND Corporation., 2014; Fagnant and Kockelman, 2015; Center for Automotive Research, 2016 http://www.rand.org/pubs/research_reports/RR443-2.html http://www.sciencedirect.com/science/article/pii/S0965856415000804 http://www.cargroup.org/?module=Publications&event=View&pubID=138

8 Autonomous: Self-Driving Vehicles Legislation. Retrieved from http://www.ncsl.org/research/transportation/autonomous-vehicles-legislation.aspx#EnactedAutonomousVehicleLegislation.

9 Federal Automated Vehicles Policy – September 2016. Retrieved from https://www.transportation.gov/AV/federal-automated-vehicles-policy-september-2016.

10 Ibid.

11 Alliance of Automobile Manufacturers, 2015. http://docs.house.gov/meetings/IF/IF17/20151021/104070/HHRG-114-IF17-Wstate-BainwolM-20151021.pdf

12 National Highway Traffic Safety Administration, 2016. http://www.nhtsa.gov/About-NHTSA/NHTSA's-Core-Values

Economic Development Administration, Department of Labor, Department of Energy, Environmental Protection Agency, others) into the conversation in the early stages.

Policy Recommendations

Broadly speaking, greater effort is needed to identify the appropriate regulatory body or governing structure when proposing policy action related to the three revolutions. Specifically, we recommend that all proposed policy actions consider a) how the public good/social utility outcomes likely change under the authority of alternative regulatory or implementing agencies, and b) recommend which, if any, is most appropriate.

Based on these guidelines, we provide specific recommendations for each of our three issue areas.

Reform and consolidation of transit agencies can better coordinate service with the impacts of the three revolutions.

State governments should discourage the creation of new districts that provide narrow transportation services and encourage existing districts to reform or consolidate. In both cases, existing regional government structures should be leveraged, and coordination among agencies and private service providers should be strongly encouraged. Such encouragement can be made via funding prioritization or funding eligibility.

Local and regional regulators are best suited to regulate for-hire vehicle services.

Most TNC activity occurs (and will continue to occur) in heavily populated urban areas, such as New York and San Francisco. As such, it's logical in large states such as California for the regulatory authority to reside with local jurisdictions. Further, the regulation of services that directly compete should not be carried out by different agencies — whether or not the taxi company claiming a 14th Amendment violation is successful in court or not, the claimant's point is well taken. Ensuring regional consistency is paramount. Some regulation might be appropriate at higher levels to allow cross-jurisdictional service. Therefore, we recommend a consideration of both local and regional regulation of TNCs and taxis to ensure public safety goals are met while facilitating regional operations. Where local regulation is implemented, consider use of state guidance to encourage coordination across jurisdictional boundaries.

A federal inter-agency focus is best suited for regulating autonomous vehicles.

A logical first step is for the federal government to consider and evaluate the mobility, economic, labor, environmental and other implications (both positive and negative) of AVs and identify their potential to lead to the public good. This consideration should allow for stakeholder engagement and public participation. It would also be beneficial to form cross-agency working groups to discuss the broader implications of these vehicles. For example, EPA regulates the GHG emissions of vehicles; it would be beneficial to bring EPA into the conversation in the early stages. In addition, pilot projects are needed to evaluate the real-world impacts of AVs on each of the factors discussed above.

Opportunities for Future Research

We present our research needs as questions that we believe the research community can help answer.

Transit Agencies

- Do best practices of transit agencies embracing new technology and discarding old technology successfully exist? If so, what role did governance play?
- What policy levers can help ensure new transportation options are integrated with existing public transportation services and provide equitable, accessible transportation choices to all?

Capturing the Climate Benefits of Autonomous Vehicles

For-hire Vehicle Services

- What lessons can we learn about the difficulty governments across the globe faced in regulating TNCs? How can we then use this information to more efficiently engage the next disruptive technologies?

- Do best practices exist of governance schemes that led to successful regulation of all for-hire services, including TNCs?

- Is there an opportunity for policy to lead to improved environmental performance of for-hire vehicle services?

Autonomous Vehicles

- Who are the necessary stakeholders to include in the conversation that will help guide autonomous vehicle deployment toward the greater public good?

- What are the net mobility, economic, employment, safety, energy, environmental, and other impacts of autonomous vehicles?

- Which groups are anticipated to be the winners and losers of autonomous vehicle deployment?

- Can the implementation of autonomous vehicle pilot projects assist in estimating potential impacts of broader deployment?