

## IEA Expert Workshop

# Automation, connectivity, electrification, and sharing (ACES): transforming road transport services

Wednesday, 13 June 2018

Centre de Conférence Ministériel (CCM)  
27 rue de la Convention, Paris 75015

The International Energy Agency (IEA) is undertaking a new project on the future of road transport and the implications of automation, connectivity, electrification, and sharing (ACES). The project will explore the potential trajectories, interactions, and impacts of these transformations, and provide policy insights to steer developments that advance energy, climate, air quality, and other socioeconomic objectives. The key output of the project will be a policy insights publication in early 2019, as well as enhancing the modelling capabilities of the [IEA Mobility Model](#).

The IEA is convening an expert workshop in June to solicit strategic and expert input to the upcoming analysis. Invited experts and decision makers from industry (automakers, service providers, tech, etc.), academia, government, and civil society will discuss and debate key questions around four themes:

1. **The future of highly automated vehicles:** recent trends and status of automated driving technologies; key technical, social, and regulatory barriers; plausible deployment pathways in passenger and freight applications.
2. **Implications of automation for sharing and electrification:** synergies between automation, sharing, and electrification; operational challenges in electrifying shared and/or autonomous vehicles.
3. **Impacts of ACES on modal choice and urban form:** impacts on public transit and active transport; longer-term implications for urban form.
4. **Policy priorities:** key near-term policies to steer developments in ACES that advance energy, climate, air quality, and other socioeconomic objectives.

To facilitate a candid and productive discussion, the workshop will be held under the [Chatham House Rule](#).

Attendance is by invitation only.

For more information, please visit the workshop webpage: <http://www.iea.org/workshops/>

## Workshop Agenda

8:30	Registration and coffee (please bring a government-issued photo ID)										
<b>9:00</b>	<b>Welcome and workshop objectives</b>										
	<table border="0"> <tr> <td><b>Laszlo Varro</b>, Chief Economist</td> <td><b>IEA</b></td> </tr> <tr> <td><b>Pierpaolo Cazzola</b>, Lead Transport Analyst</td> <td><b>IEA</b></td> </tr> </table>	<b>Laszlo Varro</b> , Chief Economist	<b>IEA</b>	<b>Pierpaolo Cazzola</b> , Lead Transport Analyst	<b>IEA</b>						
<b>Laszlo Varro</b> , Chief Economist	<b>IEA</b>										
<b>Pierpaolo Cazzola</b> , Lead Transport Analyst	<b>IEA</b>										
<b>9:15</b>	<b>Session 1: The future of autonomous vehicles</b>										
	<p>Real-world testing of vehicles with high levels of automation – “autonomous vehicles” (AVs) – is underway in cities around the world. Automakers and mobility service providers have announced plans to introduce highly automated vehicles and services as early as 2020, but there is still much debate around when and how they will be deployed and widely adopted. Challenges around technology and costs, regulation, liability, cybersecurity, and public acceptance of AVs remain. In this session, short presentations will set the scene for a discussion where participants will debate plausible futures for automated driving technologies.</p> <ul style="list-style-type: none"> <li>• What is the status of automated driving technologies? What are the key remaining technical challenges? What policy and regulatory barriers need to be overcome?</li> <li>• What use cases in passenger and freight will be early adopters of AVs? In which geographic regions will we see earlier (or later) adoption?</li> <li>• When and how quickly will AVs be widely deployed? What will the transition look like?</li> <li>• How will deployment and impacts differ across passenger services and freight; in urban, suburban, and rural regions; in different cultural contexts and global regions; over the medium and longer-term?</li> </ul> <table border="0"> <tr> <td><b>Moderator: Tom Vöge</b>, Policy Analyst</td> <td><b>International Transport Forum (ITF)</b></td> </tr> <tr> <td><b>Zhang Xu</b>, Director</td> <td><b>DiDi</b></td> </tr> <tr> <td><b>Bryant Walker Smith</b>, Assistant Professor – School of Law</td> <td><b>University of South Carolina</b></td> </tr> <tr> <td><b>Hervé Clauss</b>, Director of MAPS Global Sourcing</td> <td><b>TomTom</b></td> </tr> <tr> <td><b>François Guichard</b>, Focal Point for ITS and Automated Driving</td> <td><b>UNECE</b></td> </tr> </table>	<b>Moderator: Tom Vöge</b> , Policy Analyst	<b>International Transport Forum (ITF)</b>	<b>Zhang Xu</b> , Director	<b>DiDi</b>	<b>Bryant Walker Smith</b> , Assistant Professor – School of Law	<b>University of South Carolina</b>	<b>Hervé Clauss</b> , Director of MAPS Global Sourcing	<b>TomTom</b>	<b>François Guichard</b> , Focal Point for ITS and Automated Driving	<b>UNECE</b>
<b>Moderator: Tom Vöge</b> , Policy Analyst	<b>International Transport Forum (ITF)</b>										
<b>Zhang Xu</b> , Director	<b>DiDi</b>										
<b>Bryant Walker Smith</b> , Assistant Professor – School of Law	<b>University of South Carolina</b>										
<b>Hervé Clauss</b> , Director of MAPS Global Sourcing	<b>TomTom</b>										
<b>François Guichard</b> , Focal Point for ITS and Automated Driving	<b>UNECE</b>										
11:00	Coffee break										
<b>11:30</b>	<b>Session 2: Synergies between automation, sharing, and electrification</b>										
	<p>Vehicle automation could have major implications for vehicle/ride sharing and electrification. AVs could provide major cost cuts to hailed or pooled rides, while also making mobility services more attractive. Higher utilisation rates of shared and/or highly automated vehicles are likely to favour EVs for their lower fuel and maintenance costs. However, whether EVs will be better placed than conventional ICEs to fulfil all the operational and technical requirements of shared and/or autonomous vehicles is less certain. Following introductory presentations, participants will discuss how to accelerate the sharing and electrification of AVs.</p> <ul style="list-style-type: none"> <li>• What are the key challenges in encouraging the sharing of vehicles and rides? What can be learned from TNCs and pooled rides today? How might the economics of mobility services change with autonomous vehicles? What are the appropriate roles of companies vs. governments?</li> <li>• What are the key challenges in electrifying autonomous vehicles of the future? What lessons can be learned from early EV adopting consumers and fleets? What near-term EV-related policies and infrastructure decisions can help accelerate the electrification of AVs?</li> <li>• How could EV charging infrastructure be better planned and built to support the operational needs of shared vehicles today, as well as electric AVs of the future?</li> </ul> <table border="0"> <tr> <td><b>Moderator: Lew Fulton</b>, Director, STEPS, Institute of Transport Studies</td> <td><b>University of California, Davis</b></td> </tr> <tr> <td><b>Alan Clarke</b>, Public Policy</td> <td><b>Uber</b></td> </tr> <tr> <td><b>T. Donna Chen</b>, Assistant Professor, Civil &amp; Environmental Engineering</td> <td><b>University of Virginia</b></td> </tr> <tr> <td><b>Mathieu Bernasconi</b>, Business Development Manager</td> <td><b>car2go</b></td> </tr> </table>	<b>Moderator: Lew Fulton</b> , Director, STEPS, Institute of Transport Studies	<b>University of California, Davis</b>	<b>Alan Clarke</b> , Public Policy	<b>Uber</b>	<b>T. Donna Chen</b> , Assistant Professor, Civil & Environmental Engineering	<b>University of Virginia</b>	<b>Mathieu Bernasconi</b> , Business Development Manager	<b>car2go</b>		
<b>Moderator: Lew Fulton</b> , Director, STEPS, Institute of Transport Studies	<b>University of California, Davis</b>										
<b>Alan Clarke</b> , Public Policy	<b>Uber</b>										
<b>T. Donna Chen</b> , Assistant Professor, Civil & Environmental Engineering	<b>University of Virginia</b>										
<b>Mathieu Bernasconi</b> , Business Development Manager	<b>car2go</b>										
13:00	Lunch										

**14:00 Session 3: Implications for modal choice and urban form**

Early evidence from several U.S. cities suggests that app-based ride hailing services provided by transportation network companies (TNCs) may be displacing mobility that would otherwise have taken place on public transport. Automation could drastically cut the costs of these services, making “robotaxis” an attractive option for urban mobility. Short presentations will introduce key questions around how consumers might use AVs in the future, and what this could mean for public transit and urban form.

- How will consumers use AVs? Will consumers prefer to own and use their own private AVs, or will they increasingly shift towards shared services?
- How will the adoption of AVs impact travel activity, commute times, and congestion? Over the longer-term, what impacts will AVs have on property values in cities and suburbs?
- How will automation and sharing impact public transport services? How will these impacts differ between urban, suburban and rural areas? In different global regions?
- What are the implications of automation for urban planning, equity, safety, and liveability?

**Moderator: Zia Wadud**, Associate Professor

**University of Leeds**

**Mihai Chirca**, Expert Digitalisation and Autonomous Transport Systems

**International Association of Public Transport (UITP)**

**Clément Dupont-Roc**, Manager Corporate Planning

**Renault Group**

**Krista Huhtala-Jenks**, Ecosystem Manager

**MaaS Global**

**Emily C. Warren**, Senior Director of Policy and Public Affairs

**Lime**

**15:30 Keynote: Focusing on AV use in the status quo tax, regulatory, and ownership frameworks**

**Robin Chase**, Co-founder of Zipcar and Veniam

15:45 Coffee break

**16:15 Session 4: Policy priorities**

The impacts of ACES on future mobility patterns, energy use and emissions could be revolutionary. But they are also highly uncertain – in pace, direction, and magnitude. Government regulations and policy will play a critical role in i) facilitating the adoption and use of emerging technologies and business models, and ii) steering developments in technology and behaviour toward a more sustainable and equitable future. Case studies from Japan and Europe will lead to a moderated discussion around policy priorities.

- How can regulations enable trials and demonstrations in the near-term, while managing risks and public concerns? How might regulations need to evolve to manage the transition to broader adoption and widespread use of autonomous vehicles?
- What are the respective roles of government, industry, and other organisations (e.g. standard bodies) in managing risks and concerns around safety, liability, privacy, cybersecurity, and employment?
- How can governments help to promote interoperability and integration across different modes and mobility service providers? How can EV policies and infrastructure facilitate the acceleration of electrification? What policies could dampen growth in vkm by promoting sharing, intermodality, and MaaS?
- How can energy and transport models help inform policy and planning decisions?

**Moderator: Lucy Yu**, Director of Public Policy

**FiveAI**

**Naohisa Hashimoto**, Senior Researcher – Smart Mobility Research

**National Institute of Advanced Industrial Science and Technology (AIST), Japan**

**Zoi Sagia**, Policy Officer – Smart Mobility and Living, DG Connect

**European Commission**

**Suzanne Hoadley**, Senior Manager

**Polis Network**

**Robin Chase**, Co-founder of Zipcar and Veniam

**Shared Mobility Principles**

**17:45 Closing remarks**

**18:00 Reception** – Le Cepage, 25 rue de la Convention