MIT Industrial Liaison Program Faculty Knowledgebase Report

The Future of New Vehicle Sales in the Sharing Economy

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11:00am

Mobility-as-a-Service and the Future of New Vehicle Sales
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David R. Keith is Assistant Professor of System Dynamics at the MIT Sloan School of Management.

Drawing on his experience working in the automotive industry, David studies consumer behavior, firm strategy and the formation of markets for emerging automotive technologies. His research examines issues including spatial patterns of technology adoption, supply constraints in production, platform competition, and the impact of new technologies on energy consumption and the environment.

David has received several awards for his research, including a Fulbright scholarship, an Alcoa Foundation Fellowship from the American-Australian Association, and a Martin Family Sustainability Fellowship from the MIT Energy Initiative. David previously worked for Holden, the Australian subsidiary of General Motors, and URS Corporation, a global engineering and environmental consultancy.

David holds BEng (Hons.), BCom, and MEnv degrees from the University of Melbourne (Australia) and a PhD from the MIT Engineering Systems Division.

Mobility-as-a-Service (MaaS) is widely expected to play an important role in the future of mobility. Sharing vehicles (using services such as ride-hailing, peer-to-peer car-sharing, and autonomous taxis) will allow people to enjoy the benefits of automobile use without ownership, access various types of mobility services on-demand, and create value by increasing the utilization of these expensive and durable assets. Most analysts agree that widespread adoption of MaaS would cause the size of the on-road automobile fleet to shrink, potentially dramatically, because the same amount of personal mobility can be provided by fewer vehicles. There is less agreement, however, on the effect higher utilization will have on the rate of new vehicle sales: some believe that vehicle sales will fall similarly, while others believe there will be no change in sales, or even an increase in sales as fleets of shared vehicles turn over more frequently. In this paper, we seek to clarify the effect that emerging mobility technologies will have on the future rate of new vehicle sales in the United States, modeling how the sales rate varies with factors such as population growth, vehicle utilization, and vehicle durability. We show across a range of plausible scenarios that vehicle sales are likely to remain steady or increase in coming decades. However, the potential exists for a temporary surge and dip in sales as the composition of new vehicle sales transitions, requiring effective mental models if managers are to make efficient production and capacity planning decisions during this time.

12:00pm

Senseable mobility: turning vehicles into multi-sensing platform to better understand the city and driver's behavior
Fabio Duarte
Principal Research Scientist, Senseable City Lab

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Fábio Duarte is a lecturer in transportation in the Department of Urban Studies and Planning, and Principal Research Scientist at MIT Senseable City Lab, where he leads the Roboat project—a fleet of autonomous boats developed for the city of Amsterdam. Duarte is also a consultant with the World Bank, and his most recent book, "Urban Play: make-believe, technology, and space", has just been published by MIT Press

(Fabio Duarte video time stamps starts at 60.20)

Digital technologies are transforming urban mobility in multiple ways: from autonomous vehicles to shared mobility. At MIT Senseable City Lab we are also leveraging the potential of the thousands of sensors already embedded in vehicles to study driver's behavior and urban environment in novel ways. We are discovering driver's profiles based on data already produced by cars, monitoring infrastructures using car's IMU, and turning vehicles in multi-sensing platforms, that can add value to the future of mobility.