

**STUDYING FAST-MOVING VEHICLE & MOBILITY ECOSYSTEMS**  
**Professional Development Workshop (PDW) - Academy of Management 2018**  
**Saturday, August 11, 2018 – Swissôtel Chicago, Zurich A, 4.15-7.25pm**

Academic Speakers

**Carliss Y. Baldwin**, *Harvard Business School*

**Susan Helper**, *Case Western Reserve U*

**Michael G. Jacobides**, *London Business School (co-organizer)*

**David Keith**, *MIT Sloan School*

**Jan Lepoutre**, *ESSEC Business School*

**John Paul MacDuffie** *Wharton School, U. Pennsylvania (co-organizer)*

Industry Speakers

**Brian Collie**, *head of N. America Automotive Practice, Boston Consulting Group*

**Hamid Akbari**, *CEO of Velocia, founder of ride-hailing companies in Latin America*

**Richard Bishop**, *former US Dept. of Transportation, headed National Automated Highway System Consortium, Team Leader in 2007 DARPA Urban Challenge*

Abstract

The transformation of the mobility sector -- encompassing the automotive sector and new entrants from the technology sector but also the providers of mobility services – has captured the attention of established incumbents, aspiring entrepreneurs, analysts/consultants, policy makers and activists. Mobility of individuals and goods underpins a key part of global GDP; provides livelihoods and boosts convenience and quality of life; generates externalities (e.g. congestion; greenhouse gas emissions; energy dependence; injuries/deaths); and affects us all daily. We focus on the disruptive aspects captured by industry acronym CASE, i.e., vehicles that are Connected, Autonomous, Shared, Electric. These illustrate “evergreen” themes that the members of the STR division know well, e.g., industry transformation, changing competitive context, alliance and repositioning but also highlight emerging research topics such as industry architecture, ecosystem evolution, and shifts in organizational structure and design. This PDW proposal brings together respected strategy scholars, researchers with extensive experience studying the automotive and mobility sectors, and industry executives and analysts. It is designed to generate dialogue that can help shape future research on ecosystems, the evolution/transformation of mobility, and how to navigate a time of disruptive technological change.

## **STUDYING FAST-MOVING VEHICLE & MOBILITY ECOSYSTEMS**

After a long period of stability, the automotive sector, and, perhaps more important, the broader ecosystem where this sector is embedded, is going through a period of rapid and drastic change. The confluence of new technologies (autonomous driving, electric cars, connectivity within and across vehicles and with the cloud), new business models (usage-based “mobility-as-a-service” as opposed to leasing and full ownership), and the evolution of societal needs has caused considerable ferment and excitement for mobility “ecosystems”. Yet this unusual era of ferment has, so far, provided with more excitement (and, at times, hype) than understanding. The intent of this PDW is to capitalize on these changes, and bring together a group of senior scholars, with a good grasp of the sector, some key practitioners, but also open up the debate to include emerging scholars interested in working on this sector.

We will start with a set of stage-setting comments, which will provide the conceptual framework to help situate the current changes of the mobility sector in their context. Carliss Baldwin will consider the automotive sector from the broader perspective of forces driving industry evolution from integrative to modular product and organizational architecture, in order to evaluate the potentially disruptive technical and business model changes underway, drawing on her recent research on how sectors, technologies and organizations transform. Next, Michael G Jacobides will provide an overview of the industry architecture (IA) dynamics in general, and of ecosystems more particularly, looking at how the changes over the last few years could be reshaping the landscape of mobility (and not just the automotive sector). He will outline the key theoretical issues and considerations, and review the developments which lend themselves to promising further study.

The middle two sessions follow in a long tradition of AoM PDWs, from 2011-16, organized by the International Motor Vehicle Program (IMVP) at MIT and its successor, the Program on Vehicle and Mobility Innovation (PVMI) at Wharton.

These PDWs included executives, managers, and engineers from the auto industry and were structured to facilitate interaction with academics studying the sector.

First up is a session with practitioners who can address various perspectives on mobility ecosystems. Brian Collie, Managing Director and Partner of Boston Consulting Group who heads up BCG's North American work in the auto industry, will speak to the position of incumbent firms as waves of disruptive technologies and new business models arise; he will also describe a BCG-World Economic Forum project on mobility carried out in collaboration with the City of Boston. Hamid Akbari, the CEO of Blanc Labs (which included Uber challenger in Mexico City, Nekso) and driving force of Velocia, will speak to the perspective of tech startups that aim to disrupt established industry players, rules, and business models. The Velocia case-study will showcase system-wide efforts to redesign the entire mobility chain through token/blockchain-enabled ecosystems aimed at a decentralized mobility system that can stand its own against big rivals such as Uber. Richard Bishop will draw on his rich set of experiences as head of the National Automated Highway System Consortium of the US Department of Transportation, Chair of Automated and Connected Trucking Task Force of the American Trucking Association, and Team Leader in the 2007 DARPA Urban Challenge to speak to the position of regulators and standard-setting bodies. Michael G. Jacobides will facilitate discussion among our practitioner panelists, drawing out their views on what is really changing, what is staying the same, and what are the key challenges, with an eye to how research can help.

The next segment is a discussion of the state of the current thinking on big issues affecting the transition to new mobility ecosystems, featuring four members of the PVMI network of scholars. John Paul MacDuffie, director of PVMI at Wharton's Mack Institute, will provide opening remarks and will then moderate a dialogue among the four scholars, including: Susan Helper (Case Western), who served as the Chief Economist for the U.S. Department of Commerce from 2013-16 and who recently co-authored a report on the employment and skill impacts of autonomous vehicles (AV); Jan Lepoutre, the ESSEC (France) director of the Chaire Armand Peugeot on the Economy of Electromobility, who has studied the evolution and diffusion of electric vehicles (EV) in detail, and David Keith (MIT Sloan) who employs system dynamics models to consider the issues affecting consumer acceptance of EVs and the possible traffic congestion consequences of the diffusion of AVs. Each will provide their perspectives, drawing on their past engagement, published papers and, crucially, work-in-progress on the sector, on the dynamics of specific elements of mobility ecosystems. They will help us better understand the full gamut of vehicle changes that, per the industry analysts, form the CASE acronym- i.e., Connected, Autonomous, Shared, Electric, both the separate and combined impact on products, services, and business models. Each will also outline the key new issues that emerge, and the research opportunities as they see them.

Following these presentations from senior scholars, the final segment will feature emerging scholars (Ph.D. students and junior faculty) who will present "work-in-progress" research, with the benefit of commentary from the senior scholars acting as discussants. We will organize this session in a roundtable format, with one emerging scholar at each table presenting a "work in process" paper (i.e. a promising new paper that came to our attention while organizing this PDW) plus one senior faculty member

for facilitation and commentary. Our format combines small-group interaction at the breakout tables (so that each paper gets developmental feedback) with a report back to the full plenary in which the senior scholar gives a brief summary of the paper and the emerging scholar reports on what he/she gained from the table discussion. Our goal is to highlight a variety of different topics and methodologies of potential interest to participants as well as providing a developmental opportunity.

**Schedule – Saturday, August 11<sup>th</sup>, 4:15-7:25pm, Swissôtel Chicago, Zurich A**

**4:15-4:20: Introduction, aim and structure of the PDW (Michael G. Jacobides)**

**4:20-4:40: What we know & what we would want to know about the changing structure of sectors and the resulting ecosystems: From theory to context**

In this session, HBS's **Carliss Baldwin** and LBS's **Michael G. Jacobides** will provide the framing for the broader issues that we can address, and explore how research on this quickly shifting context can help illuminate our understanding of how the world works.

**4:40-5:35 The practitioner perspective: What is really changing, what is staying the same, what are the key challenges, and how can research help?**

This session will help us get a synthetic perspective of the sector issues, seen from the perspective of three seasoned practitioners. **Brian Collie**, Managing Director & Lead Automotive Partner for North America of **BCG**, will present an overview of the challenges for the established players, and the way in which connections in the mobility ecosystem are changing as a result of the CASE world. He will also draw on the BCG work with the World Economic Forum and the city of Boston, among others, to showcase the challenges of putting together new partnership models, and will wrap up with an overview of the organizational and strategic challenges that existing (and new) actors face. **Hamid Akbari**, CEO of **Blanc Labs** and driving force behind **Velocia**, an ambitious new venture which aims to provide an innovative blockchain/token-based mobility chain, will explain how Velocia aims to create a decentralized transportation ecosystem that can compete with current incumbents. Finally, **Richard Bishop**, former head of the **National Automated Highway System Consortium**, will provide both the regulatory view, and consider what has led to impediments in terms of the growth dynamics of innovative AV (and EV) ecosystems, and look at the ways in which the sector may change. This discussion will conclude with discussion with the participants (both academic panellists and attendees), moderated by LBS's Michael G. Jacobides, leaving ample time for Q&A with audience.

**5:35-5:45 Quick break!**

**5.45-6.30: What we know, and what we would want to know, about the changing structure of the vehicle and mobility ecosystem: Tracking the Connected, Autonomous, Shared, Electric vehicle world**

In this panel, introduced and moderated by **Wharton's John Paul MacDuffie**, participating faculty will engage in short presentations on research in this sector. **CWR's Susan Helper** will consider the way the sector is changing as a result of AVs, and the impact that these may have on employment and skills, on the basis of a recently released report. **MIT's David Keith** will present system dynamics work analysing the diffusion of both AV and EV technologies, along with consequences for the mobility ecosystem overall. **ESSEC's Jan Lepoutre** will consider the changes in the EV space, focusing particularly on Europe and the interactions among a number of different actors as they seek to change the automotive sector. Participants will engage with the presenters to consider sector changes and, mostly how to study them in the spirit of helping foster new research.

**6:30-7:20 Doing research on the mobility ecosystem: Emerging scholar work**

This part of the PDW will be organized around four round-tables, each on one of the four papers from emerging scholars selected to be presented (see list of papers and discussants overleaf). The first 15 minutes, the scholars will present the papers; the next 5 minutes the discussants will provide comments; and the next 5 minutes, there will be open Q&A with the table. Then, papers will be presented back to the plenary, with the discussants presenting the papers, and the authors summarizing the comments received by the discussants and the participants of the PDW, so that all PDW participants will get a sense of emerging work by scholars who are in different stages of development, from the beginning of their career, to seasoned authors.

**7:20-7:25 Wrap up, sense-making, and looking ahead**

This will be the quick and final session, orchestrated by the PDW convenors, to look at common themes, new research directions and lessons learnt - with input from all participants.

**Post-PDW (7:30-8:30):** We hope to arrange for a networking opportunity, over drinks and snacks and near the PDW meeting room, to help continue and deepen the conversations. Details TBA.

**Papers to be presented in the Development Session of the PDW, and Discussants**

“How Focal Firms Manage Bottlenecks in Nascent Ecosystems: The Case of Electric Vehicle Ecosystems,” presented by Yurong Chen (Paris CentraleSupélec).

Discussant: Carliss Baldwin (HBS)

“Value Migration and Industry 4.0: Theory, Field Evidence, and Propositions,” presented by Robert Seamans (NYU)

Discussant: David Keith (MIT Sloan)

“Learning Races in Buyer-Supplier Relationships and its Effects on Tie Strength,” presented by Jose-Mauricio Geleilate (University of Massachusetts Lowell)

Discussant: Susan Helper (Case Western)

“Value Creation in an Emergent Mobility Ecosystem: Evidence on Organizational Structures’ Role,” presented by Giulia Marcocchia (Telecom ParisTech and Ecole Polytechnique)

Discussant: Jan Lepoutre (ESSEC)



## **Relevance of PDW to Main Sponsoring Division- *STR: Strategic Management***

The issues addressed in this symposium lie at the heart of the Strategic Management (STR) division. The transformation of the mobility sector -- encompassing not only the automotive sector (incumbent OEMs; Tesla) and new entrants from the technology sector, e.g. Google's Waymo but also the providers of mobility services, e.g. Uber, Lyft, Didi, Zipcar, car2go, blablacar – has captured the attention of established incumbents, aspiring entrepreneurs, analysts/consultants, policy makers and activists.

This raises fascinating challenges for us as students of business and corporate strategy, trying to make sense of the changes in this sector. Mobility of individuals and goods underpins a key part of global GDP; provides many livelihoods as well as boosting both convenience and quality of life; generates externalities (e.g. congestion; greenhouse gas emissions; energy dependence; injuries and deaths); and affects us all daily, wherever we reside, as we organize and move through our lives.

The changes in this sector certainly illustrate “evergreen” themes that the members of the division know well - such as industry transformation, changing competitive context, alliance and repositioning -- but also highlight emerging research topics such as industry architecture, ecosystem evolution, shifts in organizational structure and design. The automotive sector has a long and distinguished history of motivating theory development. From the contested story of GM and Fisher Body to the understanding of new supplier management techniques and new HR models or Kaizen processes, the role of production system logics and complementarities, it has offered, and continues to offer, a number of canonical examples.

This PDW proposal brings together respected strategy scholars, researchers with extensive experience studying the automotive and mobility sectors who are tracking the most recent changes closely, and industry executives and analysts. We believe it is well-designed to generate dialogue that can help shape future research on ecosystems, the evolution/transformation of mobility, and how to navigate a time of disruptive technological change. Of particular note is its developmental nature, with the last hour designed around “work in progress” featuring new paper presentations by emerging scholars followed by constructive feedback from senior colleagues.

### ***TIM: Technology Innovation and Management***

This symposium is also relevant to the Technology Innovation and Management (TIM) division, and will be of particular interest to scholars interested in the competitive impact of the entry of new firms with new technologies into established markets, and also to those who want to understand what is new in relying upon the ecosystem as an analytical lens.

### ***OMT: Organization & Management Theory***

Organization and Management Theory (OMT) division members will also find the ecosystem lens intriguing as a different theoretical framing for understanding competitive dynamics typically approached through either transaction cost or relational theories (make vs. buy vs. ally) with particular attention in mergers, acquisitions, joint ventures, spinoffs, etc. Ecosystems are purported to be different in providing non-hierarchical coordination among complementors who may be simultaneously competing and cooperating. We'll be discussing which concepts best characterize current and future changes in the mobility space and automotive sector.

### ***ENT: Entrepreneurship***

Finally, Entrepreneurship (ENT) division members may be interested to consider what analytic leverage is providing by an ecosystem lens in a setting when a mix of *de novo* startups (e.g. Tesla, nuTonomy), acquired startups (e.g. Otto, Mobileye), drastic restructuring of existing component suppliers (e.g. Visteon), and internal innovation from established incumbents (e.g. GM, BMW, Nissan) is driving intense exploration (and investment) in a wide range of disruptive technologies. Dynamics of competition and cooperation but also the development of standards (e.g. V2V, V2I), regulatory requirements, and public acceptance of new vehicle features and mobility services will affect the fate of entrepreneurs at the convergence of technology and automotive sectors.

***Appendix: Past AoM PDWs organized by the International Motor Vehicle Program (IMVP) at MIT and its successor, the Program on Vehicle and Mobility Innovation (PVMI) at Wharton (2011-2016)***

AOM 2011 San Antonio, Davids & Goliaths in the Global Automotive Industry: Entrants from East, South & New Technologies

AOM 2012 Boston, Innovation and Strategy in the Global Automotive Industry

AOM 2013 Orlando, From (Auto)Mobile to Mobility: Technological Change and Innovation in the Global Vehicle Industry;

AOM 2014 Philadelphia, From (Auto)Mobile to Mobility: Technological Change and Innovation in the Global Vehicle Industry;

AOM 2015 Vancouver, Beyond the Automobile: Car Sharing, App-Based Transport Networks, Urban Mobility & Sustainability

AOM 2016 Anaheim (2 PDWs), Beyond The (Traditional) Automobile Part 1: Batteries and Fuel Cells (But No Drivers!); and Beyond The (Traditional) Automobile Part 2: New Capabilities and New Paradigm?