

The Future of Mobility—Electric, Autonomous, and Shared Vehicles

—PAUL R. DONNELLAN

Partner, Clareo,
Chicago, IL 60606, USA

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IN September 2018, over 30 participants gathered at the Chicago Connectory to discuss the mobility revolution as part of The World Innovation Network (TWIN) Global, an annual gathering of innovation and growth leaders from across sectors and geographies. Participants included visionaries from inside and outside the transportation and energy sectors, with representatives from industry leaders such as the Ford Motor Company, Bosch, Exelon, and ConEdison, as well as other leading companies throughout multiple sectors, premier academic institutions, think tanks, incubators and investors all driving change in the mobility space.

Through a combination of keynote perspectives, panel discussions, and collaborative breakouts, the diverse group of participants discussed the future of mobility and implications for climate change, clean and livable cities, the traditional utility power grid, and the changing regulatory landscape.

The following is the first in a series of Technology Managers Notebook articles on insights and implications for managing technology and innovation in mobility that came from the session.

DIGITAL TOOLS TO UNLOCK THE FUTURE OF MOBILITY

As the concept of shared use and servitization accelerates, the industry must move from a business model focused on vehicles sold to one of passenger vehicle miles traveled. Vehicles must be designed around the human perspective, using data insights and robust research to dig deep into how people might actually use the

vehicle in an electric, autonomous and shared future. For example, imagine a mobility solution designed to help consumers during the day and also during off hours: how can the same vehicle you drive during the day deliver goods during the night?

This vehicle experience could increasingly be managed by digital tools. Vehicles will be connected to smart infrastructure, the Cloud and other users, and connectivity and digital access will be the tools vital to unlocking the future of transportation, cities, and new business models.

Mobility traditionally meant trying to go from point A to point B, with the vehicle as a means to do that. Now companies must rethink the whole mobility system, in a future where different modes of transportation are interconnected and mobility becomes more of a service model with many options for your transportation needs.

SETTING CLEAR BENCHMARKS FOR PROVIDERS

A future of autonomous vehicles with carbon neutral transportation on demand and zero fatalities is the dream, but getting there will be a long road. And there could be negative consequences with increased congestion and some communities left behind. There are concerns about regulations not keeping up with the pace of technology change, or the safety and ethics of autonomous vehicles.

A recent Rand Corporation study¹ concluded that more lives could be

¹<https://www.rand.org/blog/articles/2017/11/why-waiting-for-perfect-autonomous-vehicles-may-cost-lives.html>

saved with a faster introduction of autonomous vehicles than by delaying their introduction until they were “almost perfect.” Society needs policies with flexible and incremental standards, rather than inflexible or stifling conditions for innovation and collaboration. Leaders should advocate for clear benchmarks for mobility providers, rather than demanding certain technologies.

FUTURES AND CHALLENGES

Several themes and associated challenges for the future of mobility emerged from the session discussion. They range from reimagining how cities move people and goods, to building out new infrastructure and data sharing for mobility, to changing the bureaucratic working model for introducing new mobility technologies and services.

THEME: New Mobility Will Transform Cities Cities will be the testing ground for piloting autonomous, shared and electric services. Cities are the epicenters for growth in the developed and developing world, as younger generations seek employment opportunities, cultural immersion and social connections. New mobility must provide a seamless mass transit system for these expanding urban areas. This requires replacing dilapidated infrastructure with new smart infrastructure; engaging in organic and intuitive city planning to meet the population boom; and finally, balancing business growth with sustainable operations. For example, the city of Atlanta has challenged the industry to speak with ‘one voice’ for autonomous vehicle infrastructure needs, rather than having the city respond to each original equipment manufacturer’s (OEM) individual requests.

THEME: Electric Vehicles at the Tipping Point for Adoption Buoyed by longer-ranging electric vehicles, demand for

cleaner cities and a growing understanding about vehicle charging, more consumers are looking to purchase electric vehicles, especially in California. Key challenges still remain, notably around enhancing charging infrastructure, lowering cost, improvements in battery technology, and managing the grid. To increase adoption of electric vehicles the value proposition for customers must tie to customer needs and convenience. Utilities have a role to play in expanding charging infrastructure and an opportunity to influence social equity for carbon-free mobility. Pilot demonstration projects will be needed to gather better data for modeling infrastructure needs.

THEME: Regulation Needs to Keep Up with the Pace of Change The last decade has been marked by remarkable technology transformation and business model innovation in the mobility space, but governments and regulatory bodies are still living in a different era. To catch up, these key players must define federal safety standards for autonomous vehicles, redesign cities around electric charging stations, and reimagine transportation as a connected and shared system consisting of fleets, public transits, bikes, scooters, and even drones. Doing so requires fundamentally changing the bureaucratic working model, enabling more public-private partnerships (initiated by industry), fostering new funding models, and shifting to an open and more collaborative culture. Companies may need to form alliances for self-regulation to accelerate adoption in order to achieve these mobility goals.

THEME: Consumers Drive the Demand, But Also Demand Transparency, Safety and Information There has never been a wider range of transportation solutions available—from autonomous vehicles, to shared

transit and last mile services, but consumers aren’t satisfied by flashy headlines promising the latest and greatest. They demand realistic solutions with genuine value. The media is currently driving conversations around electric and autonomous vehicles and their implication for sustainability, safety, ethics, and accessibility, but consumers want to be a part of that conversation and help shape the solutions. The future of mobility is not just in the hands of startups, OEMs and utilities, but also in town halls, courts, and schools. Adoption isn’t just about creating the product and services, but also about education, reshaping norms, altering behavior, and ensuring trust among a robust and sustainable ecosystem of stakeholders.

THE WAY FORWARD

Be Bold—Work Quickly, Experiment, Learn and Act

As cities grow and urban areas become dynamic hubs of culture and employment for Millennials and Generation Z all across the world, the path forward requires incumbents and startups to work iteratively, test, pilot, and redesign solutions for constantly changing consumer needs. Cities throughout the world will have differing transportation needs, and industry success stories will be ones that learn how to cater to those specific needs.

Dialogue, Collaboration and Partnerships are Critical to Realizing the Future of Mobility

No one company or group can reach the future of mobility. A diverse coalition of passionate, empowered, and visionary leaders can achieve that future through collaboration. Revolutionizing mobility is not an easy ask—it requires rethinking some of our most basic and long-held assumptions about what cities look like, how humans live, work and travel, and what it means to

be responsible and compassionate members of our global society. Governments, OEMs, utilities, startups and constituents all feel an

urgency to create a better future, but dialogue, collaboration and partnerships are a necessary and critical starting point. At this vital

inflection point in our history, the opportunity has never been greater to reimagine and realize the future of mobility.

Paul R. Donnellan has more than 20 years of experience leading strategic growth initiatives in both industry and consulting roles. He advises companies on growth and innovation, helping businesses identify and pursue new growth opportunities ranging from emerging technologies to new business models. Prior to his position with Clareo, Mr. Donnellan led sales and marketing for Navistar's telematics service.