



New mobility maps out a 21st-century course for transport infrastructure development

Five actions can help players across the private and public sectors move toward new mobility. Collaboration is key.



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Mobility as we know it is in transition. Just as the invention of the internal combustion engine (ICE) led to widespread production and use of the automobile throughout the 20th century, today, emerging and new technologies are paving the way for a dynamic era as new mobility becomes the bedrock of future transport systems.

Throughout the world, the bundle of transport and technology changes known as new mobility will transform and improve the ways we move about, live, and interact with each other. New mobility will also open doors to address an array of critical 21st-century issues, including the need to reduce urban congestion and greenhouse gas emissions. As environmental, economic, and social sustainability concerns refocus metropolitan planning and design efforts, new mobility will inform and shape a well-considered approach to infrastructure development.

In land transport specifically, technological change is already at work in live operations, pilots, and trials. Four elements—automation, connectivity, electrification, and shared use—form the core of new mobility. Business models will continue to influence and bring together developments across these main areas, generating benefits for both the private and public sectors. Five specific actions—mapping your organization’s “now” against the elements of new mobility, understanding your organization’s appetite for change, collaborating consciously, adapting what your organization already has, and finding your springboard for action—make an effective starting point.

Core elements of new mobility

Each new mobility element has a distinct and essential role in producing the greatest long-term benefits for people, places, and communities.

Automation and connectivity will together transform future network efficiency, safety, and access to mobility. Where applied, these elements will allow the creation of data-led, multimodal transport systems. Governments around the world

are developing regulatory frameworks that set the conditions for automated vehicle testing and deployment. For example, Dubai is focused on creating an integrated system of people, vehicles, and physical and digital infrastructure, with the goal of making 25 percent of all trips in the city smart and driverless by 2030.¹ The City of San Diego is upgrading streetlights to create a connected digital network that can optimize parking and traffic, improve public safety, and track air quality. The City plans to implement 3,200 smart sensors, which will be the world’s largest city-based deployment of an Internet of Things platform.² San Diego is also developing a smart-city dashboard to manage parking and curbside use, and to see real-time usage throughout the day.

The immediate benefits of electrification are well-recognized across government, in the private sector, and by consumers. Reduced costs for users and healthier air quality due to lower local emissions will be major advantages. Electric vehicles (EVs) also offer the potential for higher reliability relative to ICE models. A global movement toward zero-emission transportation solutions, in great part driven by battery-electric propulsion, indicates worldwide progress and potential. California is leading the way in the United States, calling for transit to be zero emission by 2040 and for a ban on registration of new ICE vehicles starting in 2040 through its Innovative Clean Transit Rule and the Clean Cars Act. France and the United Kingdom have an official target of no new ICE vehicles sold after 2040. Norway plans to sell only EVs by 2025. At least 16 countries have taken action to phase out ICE vehicles and increase the number of EVs.³

Finally, shared use of motor vehicles holds transformational power in terms of future place-making across our cities, towns, and rural centers. Ridesharing can discourage car ownership, resulting in far fewer vehicles driven and parked. But a substantial move away from private vehicle ownership will depend on the availability of a high-quality, flexible, and affordable mobility service

that works better than today's car ownership and lease models.

And increasing EV adoption across ridesharing fleets deepens new mobility's impact. For example, MOIA, a subsidiary of the Volkswagen Group, recently launched the operation of 100 EVs in Hamburg as part of the company's ridesharing service, with the aim of the shared-mobility fleet growing to cover the entire city in the near future.⁴ New residential communities that support a car-free lifestyle are also becoming a reality; the Parkmerced development in San Francisco provides users with transportation credits in exchange for car-free living.⁵

Business models and revenue generation will bring about the transition from today's mix of pilots and trials to proven and established new mobility options for the long run. One example: mobility as a service (MaaS) is offered with subscription-based mobility packages on the Whim application in Antwerp, Belgium; Birmingham, England; and Helsinki, Finland.

Five steps toward new mobility

Initiating or continuing a new mobility effort requires a clear vision and an understanding of the possibilities in evolving new mobility landscapes. These five steps can help direct and guide your organization's plan of action.

1. Map your organization's "now" against the elements of new mobility

Some organizations may initially have an interest in only one or two of the four elements of new mobility—particularly those advancements that bring a specific technological solution to market. In the automotive industry, for example, some firms are focused on connectivity and electrification, while others, such as Volkswagen with MOIA, are extending their new mobility brand through shared use. Planning and transport authorities are more likely to favor a balanced approach across all four new mobility areas, with an eye on wider social benefits.

Being eager to engage with new mobility does not mean that everything must be decided and mapped out right now. There will be many unknowns, and much change ahead, so the first step is to identify which decisions are needed immediately and which ones can wait. For example, retail landowners should start assessing the resilience of their shopping malls, both in terms of having transport facilities that can accommodate shared mobility and being able to engage with customers through new mobility business models. Doing so will enable commercial property owners to maximize the accessibility and revenue-generating potential of their assets.

2. Understand your organization's appetite for change

Appetites for new mobility and the power to accelerate or hold back change vary widely in both the public and private sectors at national and local levels, ranging from "we'll wait and see" to "we want to be at the forefront." Organizations with a longer-term adaptive plan—one that allows integration of new mobility options and aligns them with core strategy and operations—will be positioned to move ahead. Pilot programs—a manageable way to get your organization's feet wet—and conducting due diligence in local markets are key to test concept viability before widespread implementation. Large business parks and university campuses are trialing automated shuttles that move staff, students, and goods, testing the interactions and use cases in a relatively controlled, low-risk environment.

3. Collaborate consciously

Sustained results require multifaceted collaboration to maximize returns and accelerate change. Diverse professionals—technologists, funders, visionaries, and others—craft and shape the landscape, then reshape it as necessary. By putting a focus on the potential positive long-term outcomes—increased land value, cleaner air, more efficient networks, and safer roads—new mobility can draw together city and area leaders, transport

planners, urban designers, transport-network owners, and mobility and technology providers to engage in meaningful collaboration toward diverse community goals. Working together, public and private sector stakeholders can then understand how to approach their new mobility options and take practical, near-term steps toward actualizing transport systems underpinned by new mobility.

At hotspots where pilot testing can be scaled into commercially viable services, opportunity may exist to align interests. Say a lead partner, perhaps a local government, has set a vision for shared, electric, and automated mobility. Stakeholders across multiple areas—automotive, academia, utilities, local businesses, and existing operators—looking to make that vision a reality can engage by providing in-kind contributions such as sharing of data. This information can range from automotive technology timelines and infrastructure requirements to operators' passenger travel demand data to academic insight into what service model may work best.

4. Adapt what your organization already has

Ask whether some of what is already planned or available can be adapted to enable new mobility. Rethink and adapt existing investment plans to work with what you see on the horizon. Movement toward electric and autonomous vehicles, for example, will influence land use and have an impact on traditional parking requirements. Land and facilities currently used for parking can be freed up for recharging of new-mobility vehicles. Adding a couple of charging stations to an existing parking lot may be a good place to start now.

5. Find your springboard for action

Identify a specific focal point that can be delivered in the short term to make a statement about the tone, style, and speed of your organization's move toward new mobility. This choice may align with a prior involvement in existing pilots and trials or an area where your organization is already in a market leadership position; or it may be an area where your organization is trailing but where you can see

enormous short-run potential for visible change and benefit. Large sporting or cultural events often provide a platform for testing new initiatives with a receptive audience. At the Tokyo 2020 Olympics, plans call for automated and electric vehicles to help move athletes, officials, and media between venues and the city center.⁶



We are challenged to design and create new mobility futures that are equitable and sustainable to support the needs and wants of individual communities. While each element of new mobility will increasingly reshape our transport systems in the coming years, there is not one easily defined new mobility “bundle” that will work everywhere. As government regulators and private industry collaboratively prepare for the integration of new mobility, they will enable communities to deliver the many benefits of new mobility throughout the 21st century and well beyond. ■

¹ “Transforming Dubai to autonomous mode by 2030,” Dubai Future Foundation, Government of Dubai, accessed June 10, 2019, dubaifuture.gov.ae.

² “Smart City—San Diego,” Smart Cities Library, accessed June 12, 2019, smartcitieslibrary.com.

³ Isabella Burch and Jock Gilchrist, Survey of Global Activity to Phase Out Internal Combustion Engine Vehicles, Center for Climate Protection, September 2018, climateprotection.org.

⁴ “MOIA: The e-shuttle against the traffic gridlock,” Volkswagen, accessed June 12, 2019, volkswagenag.com.

⁵ “Car-free living,” Parkmerced, accessed June 12, 2019, parkmerced.com.

⁶ Steve McCaskill, “How autonomous and electric vehicles will keep the Tokyo 2020 Olympics moving,” *Forbes*, July 25, 2018, forbes.com.

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