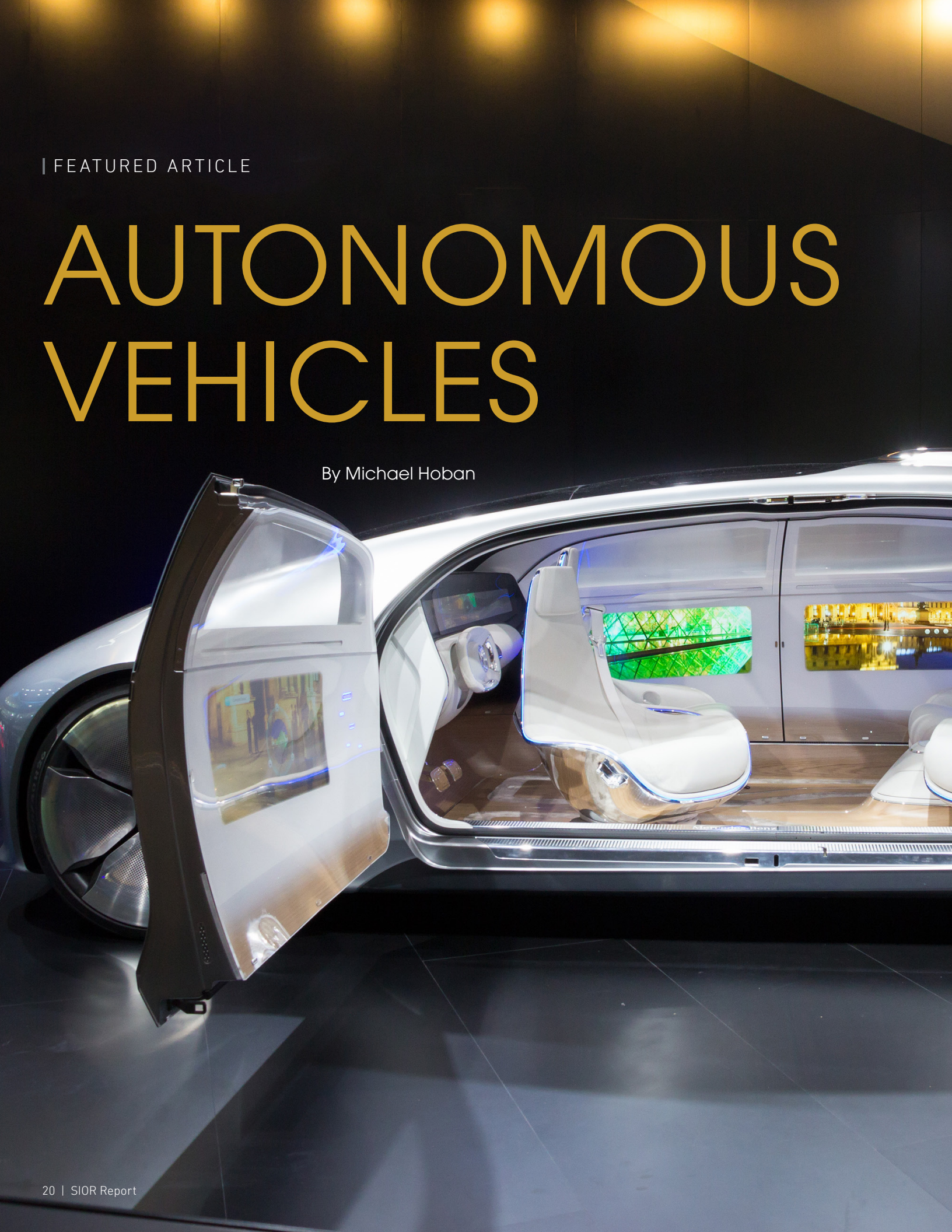
FEATURED ARTICLE

AUTONOMOUS VEHICLES

By Michael Hoban



Technology and the ways that it impacts commercial real estate was a prominent theme at the 2016 SIOR Fall Conference, with a number of sessions dedicated to topics such as social media, internet connectivity, and autonomous vehicles (i.e. driverless cars), which was the topic of two separate sessions. While the viability of the technology is still met with skepticism by the general public, one thing was clear from the presentations – autonomous vehicles will soon be a reality, and will not only transform all facets of the real estate industry, but will significantly shape society as a whole.

"Driverless cars will impact every aspect of our lives from the way that we choose locations for home and work through the way that we design our buildings and reposition them, to the way that we live our lives," asserts John Dohm, SIOR, CCIM, CFP, and partner at Infinity Commercial Real Estate in Miami, Fla. Dohm is a member of the Miami-Dade and Broward County's Municipal Planning Organization's Freight Transportation Advisory Committees, and is actively advising the Florida Department of Transportation (DOT), the Master Planning Committee of the Fort Lauderdale-Hollywood International Airport and other entities on how to develop parking, rights of way, and site plans that will anticipate the changes that the new technology will bring.

Dohm's sentiments were echoed by Columbia University roboticist and mechanical engineering professor Hod Lipson during his conference presentation on how artificial intelligence (AI) will affect the development and usage of office space. "It is such a tsunami in

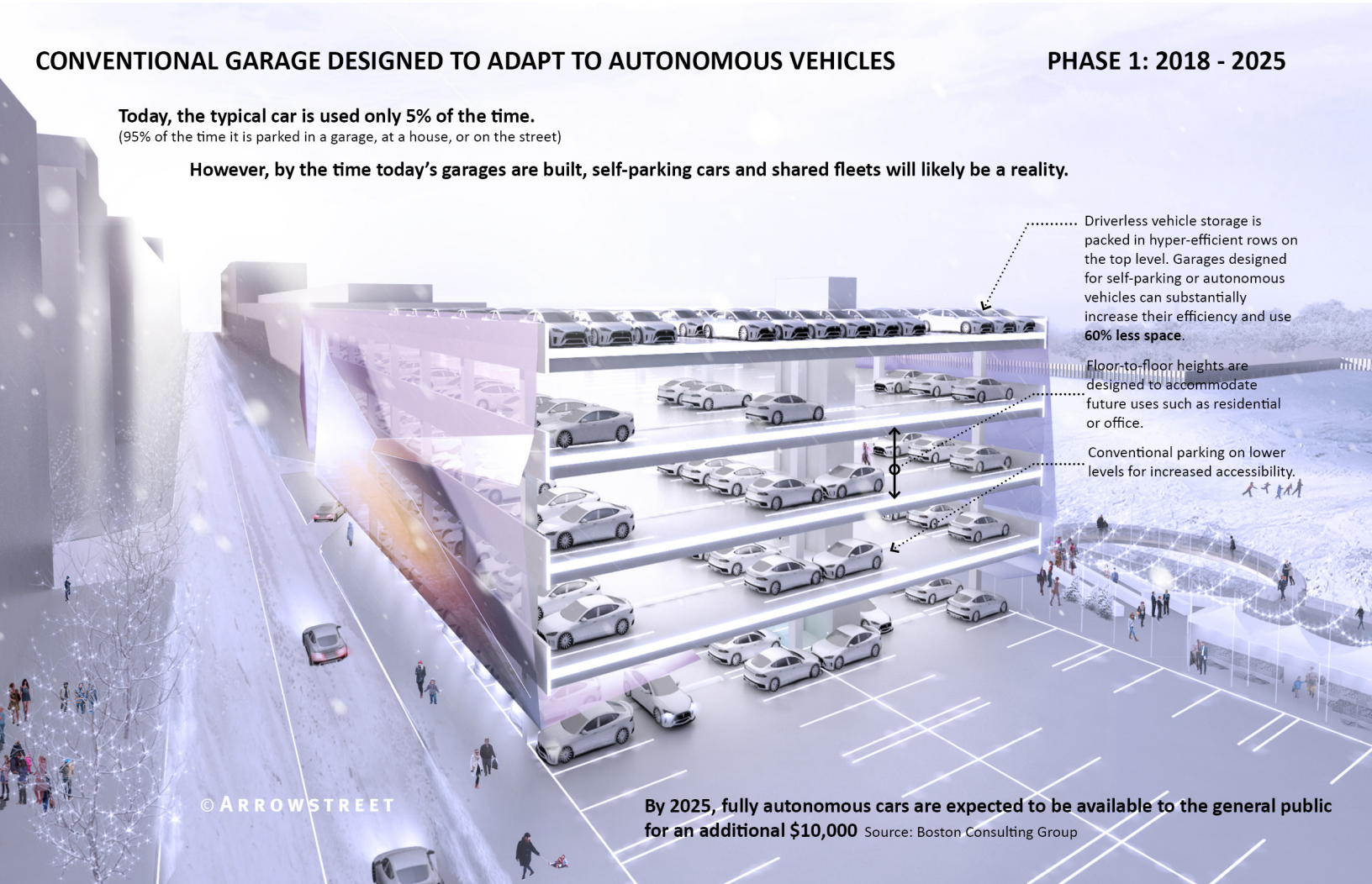
terms of how disruptive it is going to be to every aspect of our lives," says Lipson. "It's not just going to be putting taxi drivers out of work, it's really going to have a ripple effect on e-commerce, real estate, and all kinds of things."

Fully autonomous vehicles (AVs) are still in the early development and testing stages, and completely driverless cars are not yet approved for road use anywhere in the world. Current pricing for a driverless car alone would be enough to make ownership unattainable for most households, but the rise of car sharing services such as Zipcar, Uber, and Lyft are paving the way for a fundamental shift in the way consumers think about car ownership. And while estimates vary widely as to when there will be a universal adoption of truly "driverless cars," many of the elements of AV automation are already in use.

The NHTSA (National Highway Traffic Safety Administration) defines four levels of vehicle automation: Level Zero (No-Automation); Level One (Function-specific automation), where there are specific control functions like pre-charged brakes; Level Two (Combined Function Automation), where at least two functions work in unison – such as adaptive cruise control in combination with lane centering; Level Three (Limited Self-Driving Automation), which enables the driver to cede full control of all safety-critical functions under certain traffic or environmental conditions, but is expected to be available for occasional control; and Level Four (Full Self-Driving Automation), where the vehicle is designed to perform all safety-critical driving functions and monitor roadway conditions for an entire trip, whether the vehicle is occupied or not.

"While each level has a place in the transitionary period we have recently entered, ultimately we will get to driverless on-demand mobility with lots of ridesharing," observes SIOR President Geoff Kasselman, SIOR, LEED AP, executive managing director at Newmark Grubb Knight Frank, in Chicago, Ill., who recently delivered the keynote presentation on the impact of AV technology on the real estate industry to the Transportation Research Board of the National Academy of Sciences at the TRB Partners in Research Symposium in Detroit. "Eventually, individual car ownership and the one-person, one-car dynamic will all but vanish."

The inevitability of what is to come is evidenced by the skyrocketing investment in AV and related technologies in recent years, both by car manufacturers and auto tech startups. According to recent reports by CB Insights, 33 corporations – including heavyweight auto manufacturers Audi, BMW, Ford, GM, Honda, Hyundai, Jaguar, Mercedes-Benz, Nissan, Toyota, Volkswagen, and



Tesla – as well as internet titans Apple, Google, and Microsoft – have made major commitments to autonomous development programs. In addition, auto tech startups working on self-driving technologies and automated driver assistance attracted $487 million in investments in 2015. That number is expected to nearly double in 2016, with $847 million projected by year's end.

The federal government is also getting involved in a major way, as the Obama administration proposed nearly $4 billion in January "to accelerate the development and adoption of safe vehicle automation through real-world pilot projects," in a move widely praised by auto manufacturers. And in September, the U.S. Department of Transportation issued guidelines that include a 15-point safety assessment that essentially informs AV automakers what to expect from federal regulators in terms of vehicle safety before official rules are adopted.

Although user-operated autonomous cars are expected to come to market within the next five years, the transformation to a world of fully automated (driverless) vehicles could be 15-20 years away. So how do city planners and real estate developers devise land use strategies and building design that will allow them to best prepare for the future?

Ryan Chin, CEO and co-founder of Optimus Ride Inc., an MIT spinoff company that develops self-driving technologies, presented at the MIT/SIOR-partnered session on new industries, and offered this scenario: "Imagine a community or development that you're planning where you could eliminate 80 percent of the parking spaces because now you've got shared mobility," he asks. "It changes the way you do transit-oriented development because the land use can potentially increase your FAR, and you change the amount of density and devote that land to cafés and restaurants and green space that formerly was used for parking."

Six Things Brokers Should Know About Autonomous Vehicles

Geoffrey M. Kasselman, SIOR President, LEED AP, and executive managing director at Newmark Grubb Knight Frank, recently delivered the keynote presentation on the impact of autonomous vehicle technology on the real estate industry to the Transportation Research Board of the National Academy of Sciences at the TRB 'Partners in Research' Symposium in Detroit. The SIOR Report asked Kasselman what are the key points that SIORs should know about autonomous vehicle technology?

1. Driverless technology in the mainstream is coming – and it's coming much more quickly than most realize.

2 Rethink everything. Everything is being systematically reevaluated and reinvented in a new and improved digital model that eliminates market inefficiencies. For instance, 94 percent of cars on the road today are occupied by just one person. This is unsustainable and terribly inefficient.

3. Past results are no longer an effective predictor of future success.

4. No one is immune or exempt from these transformative changes – everyone must play in this game. No-one's sitting this one out.

5. Truck driver shortages will be short-lived and site selection dynamics will change dramatically as proximity to labor is deemphasized and autonomous trucks run 24/7.

6. Parking garages and large parking lots will eventually be viewed not as important amenities, but as unnecessary tax burdens.

In the City of Somerville, Mass., car manufacturer Audi and REIT Federal Realty Trust (FRT) are collaborating to plan for that future. FRT is the developer of Assembly Row, a transit-oriented, mixed-use development located seven minutes from Boston that is comprised of 2,100 residential units and master-planned for a half-million square feet of retail and 1.75 million square feet of office space. FRT will partner with Audi on their Urban Future Initiative, a pilot program that will locate a fleet of driverless, self-parking cars in a newly designed four-story parking facility that (once fully automated) could reduce the parking area of Assembly Row by up to 62 percent. FRT estimates it could save up to $100 million by converting that parking space to revenue generating uses.

Patrick McMahon, FRT's director of development, says that the design for the new garage will utilize speed ramps that allow for flat parking decks (rather than a conventionally sloped garage), and increase the floor to floor heights to allow for conversion to hotel, residential or office space. "So if the technology evolves – and it's nearly there – and human behavior evolves to the point where everybody is coming and going by autonomous vehicles, and therefore parking demand reduces significantly, we can explore converting a portion of that deck or all four decks to another use, where they ultimately can generate revenue," says McMahon. "We're very interested in the idea of automated vehicles, how you plan for them in terms of designing a building and designing parking structures, and what the technology may mean to attracting office tenants. The question is, 'How do you design it now so that space can be convertible'?"

Kasselman is one who believes that the impact of full adoption of AVs on the real estate industry will be profound. "Ultimately, the CRE industry can expect that site selection dynamics will change significantly, and drastic valuation swings will ensue for those properties that embrace change – as well as for those who fail to do so." ▽

CONTRIBUTING SIORS

John Dohm,
SIOR

Geoff Kasselman,
SIOR, LEED AP