How Michigan Drives Mobility

Collaboration between its entrepreneurial ecosystem and automotive establishment positions Michigan as ready to manage the mobility disruption and create opportunity for emerging companies to grow.

The U.S. auto industry employs 1.7 million people, produces nearly 8 million spinoff jobs and contributes about 3.5 percent to the gross domestic product yearly. It's no wonder, then, the U.S. economy relies heavily on automakers and that economists consistently call for the development of new industries — just in case.

"For many years, we said we need to diversify away from the auto industry," said Glenn Stevens, executive director of MICHauto and vice president of Automotive and Mobility Initiatives at the Detroit Regional Chamber. "I would argue that the greatest platform for diversification is the auto industry."

Stevens is referring to the way Michigan's established and startup businesses are disrupting the world through development of advanced mobility solutions. For example:

Original equipment manufacturers (OEMs) such as Ford Motor Co. and General Motors Co. are working alongside startups, local and state governments, academia and even former competitors to increase driver, pedestrian, bicyclist and aerial safety; generate equity; grow talent and jobs; and build smart cities for what futurists predict will be a highly automated, resource-scare future.

"We're all collaborating," said Trevor Pawl, group vice president of PlanetM. A division of the Michigan Economic Development Corp., PlanetM connects resources and opportunities for its consortium of members in the Michigan mobility ecosystem. Made up of private industry, government and institutions of higher learning, participants in PlanetM share the common goal of leading the development of smart solutions that will change the way people and goods are transported across all modes of transportation.

Embracing Government Support

Leadership from state government has been fundamental to Michigan's ability to remain competitive as startups and so-called "big-tech" companies attempt to build cars they can pair with their technology. Michigan Gov. Rick Snyder meets monthly with mobility-based assets, associations and strategic partners, Pawl said. As a result, he added, "We all know each other's bottlenecks and opportunities and help each other all along the way."

And, while other states gather task forces, none have the capabilities and caliber of participants of the Council on Future Mobility, said Kirk Steudle, director of the Michigan Department of Transportation (MDOT). The 21-person Council, launched in 2016, counts representatives from the state, OEMs, tier 1 suppliers, insurance and even a disability advocate among its participants. "(The Council is) focusing on liability issues, insurance issues, cybersecurity issues, talent issues and then some pilot projects," said Steudle.

Cybersecurity startup Karamba Security came about to help minimize the effect of ransomware on the auto industry. With offices in Israel and Japan, Karamba was looking for a place to locate a U.S. office and chose Michigan, in part because of the accessibility of government leaders like U.S. Sen. Gary Peters, D-Mich., and Congresswoman Debbie Dingell, D-Mich.

"People expected me to go out to Silicon Valley or Portland or Seattle or Boston," said Ami Dotan, CEO and co-founder of Karamba. Dotan ultimately located his U.S. office in Bloomfield Hills, Mich. "I don't think there is one other place in the U.S. where (support) goes all the way from the governor and legislators down to the research companies, centers and testing grounds. I don't think if I were based in Silicon Valley that would happen."

Coordination and Collaboration

The lack of cohesiveness in other tech communities is evident, said Dotan. He said companies like Apple, Uber and Tesla all are doing their own thing,

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but Michigan companies succeed because of cooperation and support.

Cooperation drives a feeling of acceptance, attracts companies to Michigan and helps them grow, said Komal Doshi, director of Mobility Programs at Ann Arbor SPARK, a SmartZone-funded business incubator.

She said it's important to look at how public and private sectors, startups and OEMs are engaged to work as equal partners and create a kind of "living lab." "That opportunity is really rich here just because all the players are well-connected," Doshi added.

Last fall, PlanetM and the Detroit Regional Chamber established the PlanetM Landing Zone, a 65-desk co-working space in the heart of downtown Detroit for startups and larger companies to benefit from automated, shared and electronic vehicle business development and resources.

"PlanetM has created a home team that brings all of us together in such a unique way. We don't see that anywhere else across the country. No other state is as coordinated as we are. And that has been really beneficial," said Carrie Morton, deputy director of Mcity, a proving ground for testing connected and automated vehicles and technology on the campus of University of Michigan.

American Center for Mobility (ACM) is another cooperative resource. ACM, a product development site located on a 500-acre former World War II bomber plant, is one of 10 federally designated proving grounds for developing and testing autonomous vehicles. It has a 2.5-mile highway speed loop, a 700-foot curved tunnel, two double overpasses, intersections and roundabouts.

Making safety a priority

More people are recognizing the need for testing and validation sites such as Mcity and ACM after three recent, highly publicized autonomous vehicle crashes. A driver of an autonomous Tesla died last summer in Florida and another in March in California. Also in March, an autonomous Uber vehicle struck and killed a pedestrian in Arizona. All three drivers were using autopilot driver-assistance systems in Level 2 vehicles.

More than 37,000 people died in car crashes across the country last year; that's more than 100 people a day. Of those 100, about 15 a day were pedestrians.

Vehicle-to-infrastructure (V2I) can help eliminate or at least reduce those figures, Pawl said. "If there were more V2I at that intersection in Arizona, maybe some DRSC (dedicated short-range communications) technology could have prevented the crash."

Steudle agreed. He said MDOT announced in 2014 it would deploy technology in intersections along 125 miles of roadways. The state has 155 roadside units up in Southeast Michigan, Ann Arbor and Lansing. "By the end of this year, we will be at 350 miles," he said, adding, "by the end of next year, we'll have 550 miles."

Looking at Mobility as a Service

Experts say the mobility technology being developed and piloted should not just be about competition and getting from point A to point B, but it should bridge gaps in society and generate equity.

Mobility is about democratization, said Paul Fleck, CEO of Rochester Hills, Mich.-based Dataspeed Inc., a startup that builds autonomous test platforms and develops collaborative robots for plant use. It's about giving people choices they may not have had in the past and ways to attain mobility so they can be viable and add to their quality of life, he said.

Doshi said current technology is enabling the development of shuttles that

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can take optimized routes and pick up multiple people. "That's what Mobility as a Service (MAAS) is all about."

Mcity launched an autonomous shuttle research project at UM this spring that is studying how passengers react to the technology and track ridership and usage patterns to guide researchers on ways to create safer, more efficient vehicles. The pilot is similar to the autonomous shuttle pilot May Mobility is doing with real estate company Bedrock in downtown Detroit. France-headquartered NAVYA manufactured the two Level 4 Mcity shuttles.

Addressing the Talent Gap

In previous decades, the top positions to fill at an automaker or supplier were mechanical and electrical engineers. Today, companies need connected systems and software engineers, coders and application developers.

"That's why we're involved in immigration reform, bringing veterans back into the workforce and the retraining and reskilling of people," said Stevens.

This summer Ann Arbor SPARK plans to hold Tech Trek, where tech companies show off their latest innovations to high schoolers and undergrads.

In February, ACM held a career exploration day for veterans in the morning and students in the afternoon and they matched each prospective employee with one of 23 industry representatives, including the National Highway Traffic Safety Administration, said ACM Chief Innovation Officer Soraya Kim.

Yet, Kim said ACM doesn't want to wait for kids to reach college to begin recruiting. "The talent pipeline really starts to dwindle at junior high school," she said. By middle school, she said, kids begin to lose interest in science, technology, engineering and math.

"So, we are working with different organizations to try to offer maybe a day during the summer for STEM camps. We are also, as part of our academic consortium, exploring K-12 grant-funding opportunities, so we can have that continuous pipeline," she said.

Be part of the mobility ecosystem in Michigan. Learn more at PlanetM.com.