

## FACT SHEET

# FUTURE TECH MOBILITY STUDY

### WHAT IS THE GLOBAL EPICENTER OF MOBILITY (GEM)?

The **Global Epicenter of Mobility (GEM)**, a signature program of the **Detroit Regional Partnership (DRP)**, is designed to enable growth and development of the advanced mobility industry in the 11-county Detroit Region. GEM and its strategic partners — which include economic development agencies, educational institutions, government officials, policymakers,

and workforce development professionals — work together to create a smart, secure, sustainable, and inclusive advanced-mobility industry in Southeast Michigan. GEM's efforts were made possible by a four-year U.S. E.D.A. Build Back Better Regional Challenge grant award.

### WHAT IS THE FUTURE TECHNOLOGY MOBILITY STUDY?

The Future Mobility Technology Study is a comprehensive report that identifies the seven advanced mobility technologies with the strongest mid-term growth potential in the Detroit Region. The study assesses projected technology growth in key sectors through 2030, with a focus on how each sector

will impact the Detroit Region through the lens of job-creation and potential differentiated investment. In assessing the seven mobility technologies highlighted in the report, considerations included the ability to leverage current cluster capabilities across mobility sectors to accelerate opportunities for growth.

### WHAT ARE THE GOALS OF THE FUTURE TECHNOLOGY MOBILITY STUDY?

The study provides business leaders and mobility stakeholders in the Detroit Region with valuable insights to help shape near-term growth strategies and strong investment opportunities. This will help GEM and its partners build upon efforts to transform the Detroit Region into an equitable and inclusive advanced mobility industry cluster, elevate talent and current employers in the Detroit Region, and attract new mobility businesses from within and outside the U.S.

An additional goal is to diversify the trademark mobility capabilities of the Detroit Region beyond internal-combustion engine (ICE) vehicles, where the region has a strong legacy. These advanced mobility sectors include battery-powered electric vehicles (BEVs), medium and heavy commercial vehicles (MHCV), maritime, off-highway, aerospace, and emerging mobility technologies.

## WHAT WAS THE METHODOLOGY USED FOR THE FUTURE TECHNOLOGY MOBILITY STUDY?

Our methodology was guided by **S&P Global Mobility**, a trusted leader in industry intelligence for more than a century. The study involved a thorough process of analysis and stakeholder engagement and began with an initial identification of 10-12 key mobility technologies. This initial list of technologies was further refined through a series of convenings, seeking input from the six GEM projects, Detroit Region stakeholders, and industry representatives.

The process funneled critical system areas essential to the cluster, particularly within the global and regional ICE to BEV transition and advanced driver-assistance systems (ADAS) growth trajectories. Seven technologies were ultimately selected for an in-depth supply chain analysis by the S&P Global Mobility team, with findings disseminated to all participants and continued regional stakeholder engagement.

## WHAT ARE THE SEVEN ADVANCED MOBILITY TECHNOLOGIES IDENTIFIED IN THE STUDY?

1. **Battery Chemistry and Design:** High-capacity batteries power electric vehicles (EVs), enabling movement without the need for an external fuel source.
2. **Electric Motors (E-Motors):** E-motors convert electrical energy into mechanical motion, propelling EVs.
3. **Power Electronics:** Power electronics in EVs manage and control the flow of electrical energy between the battery and the motor. They include inverters, converters, chargers, controllers, power distribution units, and voltage regulation, which are essential for acceleration, charging, and vehicle performance.
4. **Propulsion Thermal Management Systems:** Propulsion thermal management systems are designed to keep EV components, such as the battery and motor, at safe operating temperatures. They help EVs run more efficiently, last longer, and perform better.
5. **Hydrogen Fuel-Cell Systems:** Hydrogen fuel-cell systems generate electricity by combining hydrogen with oxygen, producing water as the only byproduct. This powers an electric motor in hydrogen-fuel cell vehicles, offering a clean, efficient, and zero-emission alternative to traditional engines.
6. **Software (SDV, Cybersecurity, OTA):** Software-Defined Vehicles (SDV) rely on software for control and customization, and cybersecurity solutions protect each vehicle's software and data from threats. Over-the-Air (OTA) updates enable remote software upgrades, keeping vehicles current without the need for a dealership visit.
7. **Assembly Automation:** Assembly automation involves using machines and robotics to perform repetitive tasks in manufacturing, improving efficiency, precision, safety, and production speeds.

## WHAT ARE THE OVERARCHING THEMES REFLECTED IN THESE SEVEN MOBILITY TECHNOLOGIES?

Four of the seven technologies identified in the study involve electric-vehicle propulsion. They are also interconnected, creating stronger and more far-reaching opportunities when combined. While hydrogen fuel cells represent a longer-term priority, they are of high importance to the region, as the industry will continue to rely on multiple propulsion

systems for decades. Software and over-the-air (OTA) updates, with their higher market penetration rates, are here to stay, offering customization and automation. Meanwhile, automation assembly allows suppliers and manufacturers to enhance efficiency, leading to faster development and increased production capacity.

## WHAT ARE SOME KEY DATA POINTS THAT REVEAL GROWTH OPPORTUNITIES IN THE REGION?

- North American data indicates that adoption/penetration of selected technologies will increase significantly by 2030, representing an opportunity for investment and jobs. For example:
  - Battery chemistry and design technology currently sits at 8% market penetration, but it is expected to grow to 36% by 2030.
  - E-motor technology is expected to jump from around 20% to 70% market penetration in the same timeframe.
  - Medium and Heavy-Duty Vehicles present the most favorable opportunity for hydrogen fuel-cell technology, with market penetration growing from just over 0% to more than 2% by 2030.

## HOW WILL THIS STUDY HELP GEM AND ITS PARTNERS ACHIEVE STRATEGIC GROWTH IN THE REGION?

In the coming years, the active collaboration and support of key regional stakeholders—such as GEM partners, economic development agencies, educational institutions, government officials, policymakers, and workforce development professionals—will be

essential for ensuring the Detroit Region secures its fair share of the expanding mobility industry. By equipping these stakeholders with critical insights, we aim to strategically position the Detroit Region to capture a larger portion of the sector's growth.

## WILL GEM CONDUCT AND PUBLISH SIMILAR STUDIES IN THE FUTURE?

Yes. The Future Mobility Technology Sector study provides a launch point for future conversations and studies on policy recommendations, workforce needs, and supply chain analysis. Like the Future Mobility

Technology Study itself, these future initiatives will help shape our regional business attraction strategy and leverage technologies that align with the strengths of the Detroit Region.

**TO LEARN MORE, CONTACT THE DRP RESEARCH TEAM AT [RESEARCH@DETROITREGIONALPARTNERSHIP.COM](mailto:RESEARCH@DETROITREGIONALPARTNERSHIP.COM).**