

Economic Impacts of Connected and Automated Vehicles in Delaware

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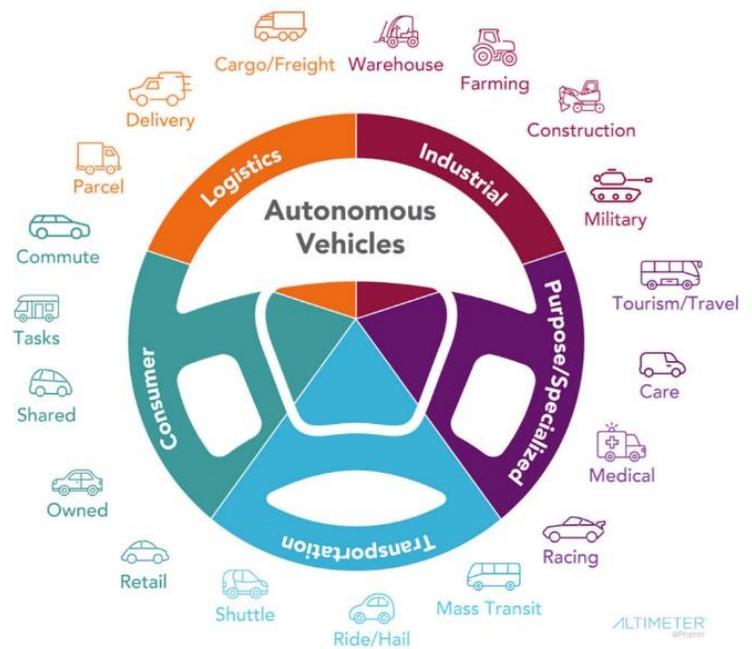
Connected and automated vehicles (CAVs) will generate significant economic impacts for Delaware. Uncertainty over the development and governance of the technology makes it difficult to accurately predict economic outcomes, but general trends are anticipated.

Mobility and Transit Services

Ridesharing companies Uber and Lyft, which concentrate operations in Northern Delaware and the beaches, are expected to utilize an automated fleet to reduce driver costs. Job losses may be limited for transit drivers because personnel will still be needed for onboard services like boarding passengers with mobility challenges, providing information, and ensuring fare payment.¹

Freight Movement

Platooning, where human-driven freight vehicles lead convoys of multiple automated ones, can increase productivity and operational efficiency.² At the same time, utilization of automated freight can lead to job losses for drivers. There were approximately 4,100 heavy and tractor-trailer truck drivers and 2,300 light truck or delivery drivers in Delaware in 2017.³ However, employment in other occupations connected to the freight industry—warehouse workers, mechanics, vehicle inspectors, rail workers, and dock workers—can be positively impacted due to increased freight utilization and demand for transported goods.⁴



Autonomous Driving Applications

Traffic Congestion

By 2020, it is projected that congestion in the United States will result in 8.3 billion hours of delayed travel, 3.8 billion gallons of wasted fuel, and cost nearly \$200 billion to the American economy.⁵ CAVs can smooth traffic merging and decrease accidents, which could alleviate congestion between 15% to 60%. A 15% congestion reduction would result in national cost savings of \$30 billion.⁶ Delaware Routes 1, 9, 13, and 113, as well as the arterials and highways in New Castle County, should benefit from more efficient traffic flow.

Tourism

Approximately 9 million tourists visited Delaware in 2016, with 97% of tourists using a car to travel to their destination. Visitors to Sussex County's beaches often raise concerns about parking availability, congestion, and lack of public transportation.⁷ Connected and automated vehicles can improve the tourist experience by providing transportation services that alleviate these inconveniences. The tourist industry employed over 40,000 people in 2016, and CAVs may increase ridesharing and commuting opportunities, making it easier for these employees to live in communities adjacent to the beaches where they work.⁸

Insurance Industry

Transformation of the auto insurance industry will occur over the long term with one study estimating that the industry could shrink by as much as 60% by 2040 due to fewer accidents and reduced premiums.⁹ Major questions regarding accident liability will likely be answered through judicial decisions—will vehicle owners or vehicle manufacturers be held liable when automated systems control the vehicle's functioning? Regardless, innovation must occur in the auto insurance industry to develop policies for both owners and manufacturers. Smaller auto insurance companies may focus on personal policies for non-driving issues such as theft and flooding, with larger insurers offering policies to cover automated systems created by automakers, software, and technology companies.¹⁰

Marketing and Advertising

Vehicle occupants will no longer pay attention to the road and will be free to perform other tasks, such as using their phones or in-vehicle displays to browse online and use digital media platforms. This is expected to generate large volumes of personal and consumer data, provide greater exposure for digital content, and give marketers more opportunities to generate revenue through curated and targeted advertising.¹¹

Economic Opportunity

Automated vehicles will expand job growth in a number of key industries. Electrical engineers, computer scientists, and software developers will develop vehicle control systems and the telecommunication networks required for CAV functionality. Transportation planners, civil engineers, and construction companies will conceptualize, design, and build a new physical infrastructure. Digital content development, marketing, and advertising can also expect to see job growth. Public and private stakeholders in Delaware should consider policy options to attract and retain businesses in these growth areas.

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End Notes

¹ Dennis et. al., 2017

² Clements & Kockelman, 2017

³ Bureau of Labor Statistics, 2017

⁴ Algernon et. al., 2017

⁵ Schrank et. al., 2015

⁶ Fagnant & Kockelman, 2015

⁷ Southern Delaware Tourism, 2017

⁸ Delaware Tourism Office, 2016

⁹ Albright et. al., 2015

¹⁰ Albright et. al., 2015

¹¹ Morgan Stanley, 2013

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For the full work cited visit: www.sppa.udel.edu/ipa/serving-delaware/transportation/cav