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Connected and Automated Vehicle Policy Development for California

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UNIVERSITY
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Topic

Connected and automated vehicles (CAV) have the potential to confer large benefits to California in economic development (job creation) and in improving the operation of its road transportation network. CAV systems are likely to become one of the most important application domains for modern information technology, employing large numbers of highly skilled people in research, development and implementation wherever the companies that are developing these systems find the local environment most hospitable. The CAV systems are expected to produce significant improvements in roadway capacity, traffic flow smoothness, driving comfort and convenience, energy efficiency, pollution reduction and traffic safety.

Realizing those benefits will require a serious investment of attention and resources by the State, because these technologies need nurturing to facilitate their deployment. The required actions include a mixture of investments in developing the needed knowledge base and in establishing an appropriate policy framework.

Research Findings

Specific investments or activities needed for CAV development that the State should facilitate include:

- Encouraging the development of large-scale vehicle test facilities needed by local CAV system developers
- Actively supporting real-world on-road automated driving tests
- Adopting early implementation of CAV technologies for public transit, and freight applications, which are likely to be early adopters of high-level automation.
- Encouraging new business models for CAV deployment based on innovative public-private relationships to bridge the vehicle-infrastructure coordination and investment gaps.
- Funding careful and comprehensive assessments of the benefits and costs of CAV implementations in multiple diverse locations around the State to provide proper support for decisions about investing public resources in the supporting infrastructure.
- Investing in the public infrastructure elements needed to support the most beneficial uses of the CAV technologies, including both electronic and physical infrastructure modifications.
- Assessing the long-term societal implications of CAVs and their potential to replace some types of vehicles and trips.
- Conducting outreach activities to local and regional government agencies to inform them of CAVs' opportunities and challenges and enable them to make well informed decisions.

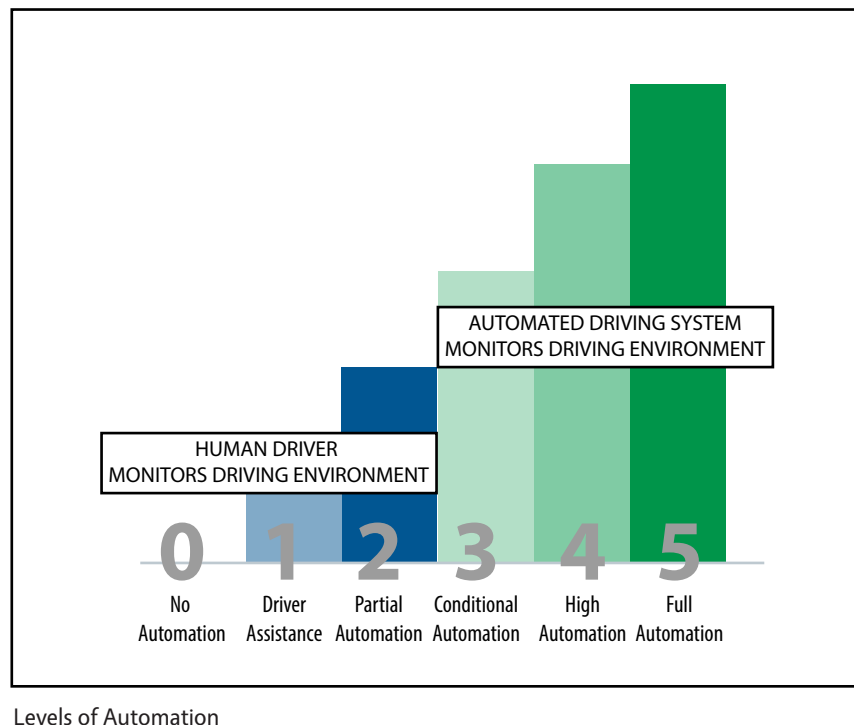
KEY TAKEAWAYS

- Connected and automated vehicle (CAV) systems represent the next generation of surface transportation innovations, enabling vehicles and roadways to operate as a well-integrated system
- California's historical leadership role in this domain is in jeopardy as other states adopt more proactive stances
- Carefully-targeted studies are needed to identify the key points of leverage for strategic investments by public agencies
- Strategic investments in cooperative infrastructure can significantly accelerate CAV deployments and the associated transportation system improvements.

Research Findings (continued)

California also needs to establish an appropriate regulatory framework for the safe and economically viable deployment of CAV systems. This framework should:

- Provide the right balance between encouraging technological innovation and protecting public safety, based on current DMV work.
- Determine the level of safety that should be required of CAV systems and how and by whom that safety level should be certified.
- Identify changes to motor vehicle insurance regulations that will be needed to provide appropriate incentives to consumers to adopt safety-enhancing CAV technologies.
- Identify which aspects of motor vehicle codes need to be re-studied to account for changes in driver roles at the higher levels of automation.



Conclusion and Recommendations

- Assign a high-priority to investments in connected and automated vehicle knowledge development and outreach.
- Compete proactively for federal resources available for CAV development and model deployment.
- Prepare California's roadway infrastructure to cooperate with connected vehicle capabilities.

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