

Intelligent Industry. Powered by data

Driving Automation Systems Validation

Safe. Secure. Powered by data



DRIVING AUTOMATION SYSTEMS - DIGITAL V&V

End to End support on the advanced Driving Automation Systems Validation & Verification Journey

Fully autonomous driverless vehicles are the holy grail of the automotive industry. While there is still a long way to go, Capgemini's Driving Automation Systems Validation means we can help plot the road map for this journey with confidence, safety and trust.

For the majority of automotive original equipment manufacturers (OEMs) building this functionality into existing processes and products is a highly complex exercise, needing all the resources of Intelligent Industry. Capgemini has already done a lot of the background work, and can bring live proofs of concepts (POCs), and a constantly growing dataset, to OEMs to help them rapidly adopt the underlying architecture and technologies of autonomous driving.

Data-driven evolution

There are five levels of autonomous driving, with manual driving being zero and fully driverless vehicles at level five. Levels one to two include common features like lane departure warnings and adaptive braking – but the step from level two to three is a real leap. This is because even partially autonomous operation, with a driver required to make interventions, demands a massive amount of data, processing and testing.

A single vehicle can generate several hundreds of petabytes of data through driving. Even so, no vehicle can drive enough miles and generate enough data to anticipate how to behave in any scenario on a public road. It needs virtual modeling and constant learning. Capgemini can help you build and manage data sets for training the models and evolving a vehicle's algorithms based on a combination of simulation and real-world data.

DRIVING AUTOMATION SYSTEMS VALIDATION BENEFITS

- Orchestration of entire autonomous driving validation cycle
- Experience and scale to gather, store and analyse petabytes of data from road tests and simulated driving
- Datasets, proofs of concepts and use cases for training models and algorithms

The new law of the road

The rollout of autonomous driving depends not just on technology, but also compliance with governing standards: autonomous vehicles have to be proven to be safe. While there are possibly fewer risks in applications such as agriculture and shuttle services in enclosed areas, there are regulatory obstacles for autonomous driving on public roads.

Driving data has to be gathered, stored, annotated, visualized, analyzed and then made available to all the different stakeholders in the development lifecycle. And there are several safety regulatory standards coming, including ISO 26262, which require that manufacturers collect and store this data.

Capgemini can help companies manage all this data, in preparation for industry compliance standards. For many companies, the roadmap is to implement autonomous and safety functions in all their models. Capgemini can also manage the complete validation and verification of these features so OEMs can concentrate their R&D efforts in progressing to higher levels of autonomy.

Why Capgemini?

End-to-end capabilities: Capgemini can help build the data sets and architecture to make the journey to autonomy more straightforward. We also have hands-on experience in the combination of technology and engineering to bring ADAS to life.

Reference architecture: we are continuously developing on our experience in cloud infrastructure and data management in ADAS. We also have working prototypes to build on, and POCs to demonstrate how end-to-end tests will work.

Experience and scale: Capgemini is a well-known and trusted partner with many automotive OEMs, and we can scale the cloud networks that ADAS relies on, providing total security for the petabytes of data the networks handle.

Responsibility: we help OEMs work out the relevant responsibilities for the safety of any autonomous systems and technologies that we develop together.

ADVISE Defining driving automation systems, digital V&V process and infrastructure.

IMPLEMENT Deploying driving automation systems, digital V&V infrastructure.

OPERATE Operating driving automation systems digital V&V.



V&V AS A SERVICE



DATA PRODUCTION

Real-road vehicle data collection, and virtual data for test scenarios.



DATA MANAGEMENT

Entire augmented data process, using AI and analytics tools.



TEST STRATEGY & ORCHESTRATION

Including process design, test execution and reporting.



TOOLS INTEGRATION & DIGITAL CONTINUITY

Seamless connection all software tools, and implementation of proprietary validation process.



HYBRID CLOUD INFRASTRUCTURE

Strategy, design architecture and hybrid cloud solutions to quickly scale ADAS infrastructure.

CAPGEMINI – PIONEERING INTELLIGENT INDUSTRY

Capgemini is harnessing the power of data to help our clients foster innovation, make new and differentiated 'smart' products, improve supply chains, create new customer experiences, reduce costs and times to market, increase production efficiency, and develop new as-a-service business models.

Thanks in part to our complete integration with Altran, we are the only global firm with both the depth of product engineering and breadth of ability to master data, and deploy technology at scale.

**The future of industry is intelligent.
And powered by data.**

Capgemini orchestrates the entire autonomous driving cycle, and thanks to our engineering and IT capabilities **we make driver assistance safe and real.**

● **Get in touch** to discuss how we can help you bring autonomous driving closer.