



POLICY, CERTIFICATION, RULEMAKING

Rapid, unrelenting change is redefining our transportation systems. Automation is used increasingly across vehicle types. Meanwhile, new types of vehicles—from e-scooters to air taxis—are coming on the scene, with many more in development. These changes call for new policies and procedures to ensure the safety of our roads, rails, and skies.

MITRE is a critical contributor in this space.

We have a long history of supporting the Federal Aviation Administration (FAA) with the development of aircraft certification standards. Additionally, to support industry in meeting FAA certification requirements for aircraft avionics, we partner with RTCA to offer [training](#) on that topic.

Advancing the Safe Integration of New Airspace Entrants

Today, our policy, rulemaking, and standards development support extends far beyond traditional aircraft.

To meet the rising demand for FAA approvals of uncrewed aircraft system (UAS)—or drone—operations, we're helping define the policies and practices that govern the [safe use of these vehicles](#).

Our work with states on [UAS integration](#) is helping to mature operational procedures, from the training of UAS pilots to the safety assurance procedures for specific operations. These efforts are laying the groundwork for national rulemaking efforts on the safe use of drones. We've also



developed a [holistic process](#) and a set of [models](#) for assessing drones' risks and societal benefits in specific use cases. This framework can inform FAA authorizations and rulemaking as well.

Other innovative vehicles—such as [unpiloted electric vertical takeoff and landing](#) (eVTOL) aircraft—now loom on the horizon. Part of a category of operations called advanced air mobility ([AAM](#)), these automated vehicles will require a host of new standards, policies, and regulations.

Our work to help the FAA prepare for these innovative operations includes [research into the challenges](#) associated with AAM operations. More recently, we partnered with the FAA to develop a roadmap for the certification of AAM aircraft, operations, and operators. In a related effort, we provided the Department of Transportation with [recommendations on a strategy](#) to accommodate AAM in the coming years.

We're also working on the standards AAM vehicles will need to meet for the [detection and avoidance](#) of other aircraft.

To address the dramatic rise in commercial space operations, we partnered with the Aspen Institute on a [whole-of-nation approach](#) to a sustainable, secure, and resilient space domain. And we've put forth a [plan for seamless traffic management](#) in the space domain, one that supports the growth of the [commercial space industry](#) while maintaining safe and efficient skies for all users.

An Ongoing Aviation Role

While new entrants present unique challenges, our role in shaping policy is not new. As the operator of the [FAA's federal R&D center](#), our data-driven research has often served as the basis for FAA rulemaking and policy decisions.

We also have a long history of participation with various bodies who contribute to the aviation standard-development process, including RTCA, the American Institute of Aeronautics and Astronautics, the International Civil Aviation Organization (ICAO), and the FAA's International Aviation Safety Assessment (IASA) program.

Today, our thought leaders are considering the improved standards, regulations, collaboration, and infrastructure that will be needed to ensure the safety and resiliency of the global aviation system in the face of increasing threats—whether from cyber attackers, natural disasters, or future pandemics—and they have [proposed a pathway](#) for achieving those goals.



Enhancing Safety on Our Roads and Rails

In recent years, we've begun applying our safety expertise and rulemaking support to ground transportation domains.

Our research into [micromobility](#) services, such as electric bicycles and scooters, is informing the policy and infrastructure investments that will enhance these vulnerable road users' safety.

As automated driver assistance systems proliferate, we're [studying how they perform in the real world](#), sharing our findings to inform both automotive design and Department of Transportation efforts to advance traffic safety.

And, as [highly automated vehicles](#) rapidly evolve, we're considering the requirements, certification processes, and regulations that will need to evolve with them to support their safe use.

Our [Driver Research for Intelligent Vehicles and Environments \(DRIVE\)](#) Lab, capable of simulating any type of vehicle or environment, is designed to shed light on complex questions surrounding the introduction of diverse and increasingly automated vehicles into our transportation system. Our researchers' findings will ultimately inform decision makers about the policies and standards necessary to integrate these vehicles safely into the existing transportation system.

"Smart policy"—which focuses on safety outcomes rather than merely compliance with regulations—is also one of the four pillars of our Next Level of Safety visions for both the [aviation](#) and [road and rail](#) environments. By combining industry self-discovery, disclosure, and correction of safety issues with regulatory oversight that coordinates the layers of mitigation across stakeholder organizations, we believe all transportation domains can achieve new safety heights.



transportation@mitre.org

MITRE's mission-driven teams are dedicated to solving problems for a safer world. Through our public-private partnerships and federally funded R&D centers, we work across government and in partnership with industry to tackle challenges to the safety, stability, and well-being of our nation.

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