



AV SAFETY PARTNERSHIP

We propose a safety data sharing partnership among Automated Vehicle (AV) development organizations, with MITRE serving as a trusted data steward, to support collective safety analyses and risk mitigation initiatives on a scale not possible through the efforts of individual organizations. MITRE would provide a secure data environment and related processes to protect and manage partner data and analysis results. Initially, the partnership would conduct a small-scale study as a proof of concept of the partnership’s data sharing and analysis capability and potential impact.

Motivation

AVs hold the promise of saving lives by preventing accidents that arise from risky driving behaviors and systemic flaws in the existing road traffic system. Achieving this promise requires data-driven analyses of real-world safety performance and principled safety management practices, to understand and mitigate safety risks of AVs operating on the nation’s roadways. AV developers have a common interest in advancing their own safety performance and practices, given an

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accident involving any AV negatively affects the public perception of the safety of all AVs. Further, AV developers seek to accelerate the adoption and acceptance of AV technologies by the traveling public and regulators. Since early 2021, AV development organizations have been working with MITRE in an AV Safety Forum to exchange information about ongoing Safety Management System (SMS) activities and industry best practices. Given that work and precedent from other transportation safety data sharing and analysis partnerships, we expect that an AV safety partnership – to be co-designed by AV developers to meet their business, security, privacy, and legal expectations – is both valuable and viable.

Demonstration

The proposed partnership would initially undertake a small-scale study to demonstrate the operational concept and potential impact of aggregating and analyzing AV safety performance data. This initial phase of the partnership would occur late 2022 through 2024. The demonstration study would inform a future proposal for participation and funding from partners and/or NHTSA, to expand the scope of AV safety performance analyses and sustain long-term impacts of the partnership on national road traffic safety.

The aims and scope of the demonstration study would be established by consensus among participants. Based on discussions with several AV development organizations, the following are two candidate ideas for consideration:

- **Analysis of Unwanted Public-initiated Interactions with AVs** – Members of the public are putting themselves and others in harm's way by initiating contact with AVs in hazardous ways (e.g., jumping in front of the vehicles, grabbing onto moving vehicles, tampering with vehicles for entertainment purposes). Together, AV developers can investigate how to mitigate these unwanted public-initiated interactions by pooling and analyzing their event-related data.
- **Gap Analysis of Testing Environments** – To accelerate adoption, the AV community must demonstrate to the public that AV operations are safe in varying operational design domains. AV developers presently share selected test activities through the NHTSA's AV Test program. Through the proposed partnership, AV developers can address gaps in AV testing environments by aggregating existing AV test activities across environments in a manner that safeguards partners' interests and data.

Next Step

We plan to convene willing partners in September 2022 to explore the partnership concept and co-design the demonstration and governing principles (e.g., share data strictly for advancing safety, collaborate in decision-making, protect partner data, voluntarily participate for mutual and public benefit, contribute meaningfully to transparent operations), as well as clarify roles and near-term actions.

This document is subject to change based on AV developers' inputs.

VALUE PROPOSITION

We propose to co-design and launch a data sharing partnership among AV development organizations that provides benefits like:

- **Insights into real-world safety performance.** Aggregate and analyze safety performance data in a deidentified way to accurately characterize the overall safety performance of automated driving capabilities.
- **Performance benchmarking.** Provide confidential summaries of individual safety performance measures and how they compare to those of the AV community at large.
- **At-scale safety improvements.** Collectively identify the most promising safety improvement opportunities and build consensus to jointly invest in their adoption at scale.
- **Systemic hazard mitigation.** Collaboratively address systemic hazards (beyond any one organization's reach) to influence automated driving stakeholders including AV policymakers, safety regulators, roadway infrastructure planners, and the traveling public.
- **Data-driven decisions.** More effectively influence the USDOT's safety policies and regulations through evidence-based findings.
- **Proven information protection protocol.** Be protected from technical, financial, and reputational risks associated with sharing operational data about their vehicles and safety incidents.