Autonomous Vehicle Industry Association Presentation to the Interim Joint Committee on Transportation

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Agenda

1. Introduction to AVIA
2. What Are Autonomous Vehicles?
3. Current Legal Landscape
4. Overview of Proposed AV Legislation

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The Autonomous Vehicle Industry Association

The Autonomous Vehicle Industry Association (AVIA) is comprised of the world's leading technology, ridesharing, trucking, and automotive companies. Our mission is to advance and promote the benefits of autonomous vehicles (AVs) and to support the safe and timely deployment of these innovative and potentially life-saving technologies.

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OUR MEMBERS

Argo AI, Aurora, cruise, Embark, Ford, Gatik, kodiak, lyft, May Mobility, Motional, navya, nuro, tusimple, Uber, Volvo, Waymo, Zoox

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What Are Autonomous Vehicles?

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Levels of Automation

Level 0: Momentary driver assistance (automatic emergency braking, lane warning)

Level 1**:** Sustained driver assistance (adaptive cruise control, lane keeping)

Level 2**:** Partial automation – driver must constantly monitor

Level 3**:** Conditional automation – driver must be ready to take control upon request

Level 4: High automation – system handles all driving functions within ODD

- *Does not require human driver*
- *These operate on roads today, but are not available for consumer purchase*

Level 5**:** Full automation – system can drive everywhere in all conditions

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AVs in Practice

Examples of Use Cases

- Goods delivery
- Passenger ride hailing services
- Last-mile transportation services
- Shuttle services
- Long-haul trucking

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Benefits of AVs

Safety

- AVs have the potential to dramatically improve safety
- 2021 saw nearly **43,000 fatalities** from crashes on U.S. roads, up from 38,000 in 2020 and 36,000 in 2019
- Unlike human drivers, AVs do not drive drunk, text while driving, or fall asleep at the wheel
- AVs have been tested and deployed in various contexts for over a decade and tens of millions of miles

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Benefits of AVs

Increased Mobility

- AVs can **expand mobility options** for Kentucky residents through:
  - Servicing direct trips to workplaces and other endpoints
  - Providing greater mobility to residents with disabilities and those with limited access to personal vehicles
  - First-mile/last-mile connections
- Through additional transit options, AVs can:
  - Provide **safe and affordable access** to food, resources, and key community features
  - Based on studies, potentially **increase access to jobs** within a metropolitan area by 45% by 2040

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Benefits of AVs

Economic & Job Growth

- The AV industry is currently creating new jobs and opportunities for workers with a wide array of expertise and educational backgrounds
- AV trucks in particular can help:
    - Spur $111 billion in **aggregate investment** spending across the U.S. economy, according to research.
    - **Increase supply chain efficiency** through productivity enhancements, fleet flexibility, and travel time savings.
    - **Decrease the cost of goods**. 65% of U.S. consumable goods are brought to market by trucks. Studies show that full autonomy has the potential to decrease operating costs by 45%.

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Current Legal Landscape

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Federal vs. State Regulation of AVs

Federal government is responsible for oversight and administering performance and safety standards

- Federal Motor Vehicle Safety Standards (“FMVSS”) establish preemptive performance standards
- 2021 National Highway Traffic Safety Administration (“NHTSA”) Standing General Order requires manufacturers to report crash data
- Federal Motor Carrier Safety Administration (“FMCSA”) imposes additional regulations on AV trucking

States are responsible for regulating **AV operation** (licensing, registration, insurance, traffic enforcement)

- A **majority** of U.S. states expressly authorize AV operation
- Some requirements are common across states, such as:
    - **Minimum insurance requirements** for AV operation
    - Being capable of achieving a **minimal risk condition**
    - Submitting a **law enforcement interaction plan**

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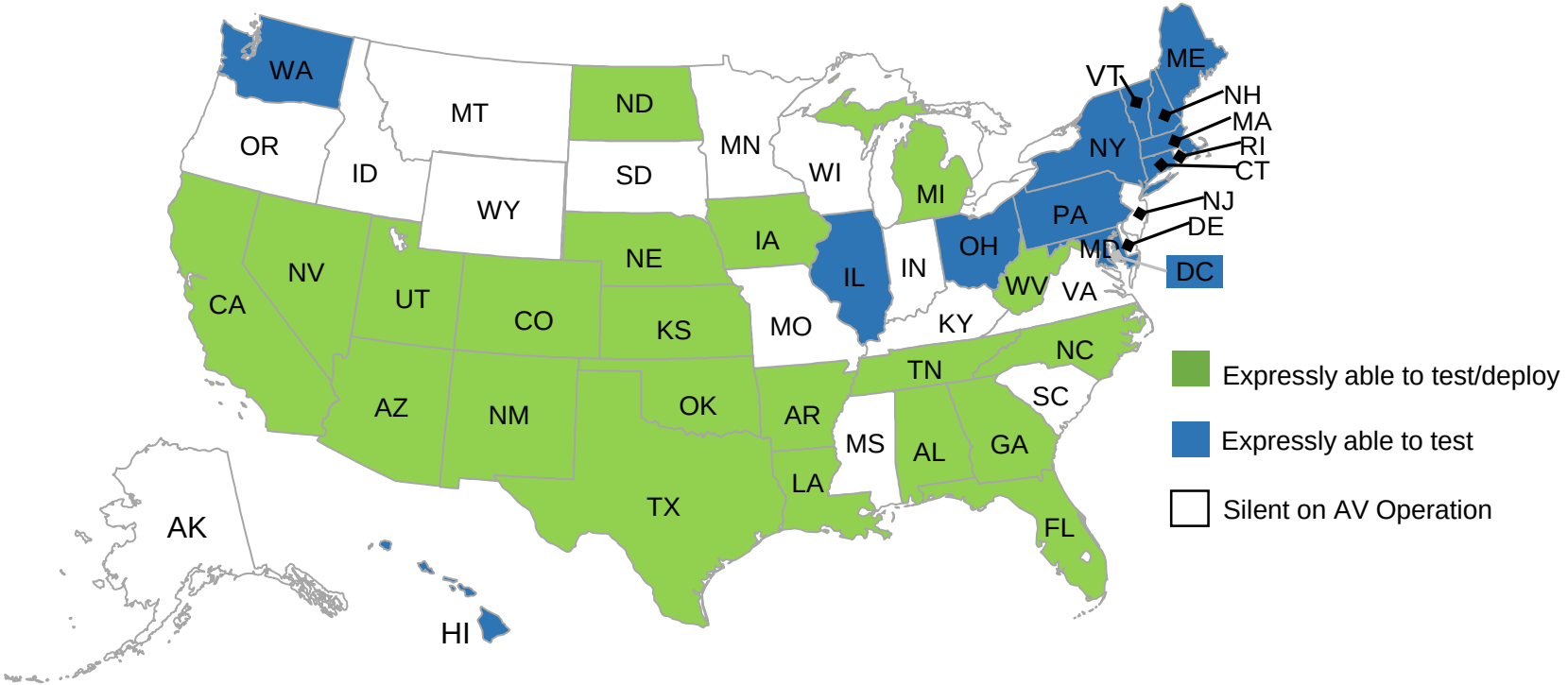
U.S. State AV Laws & Regulations



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Why Does Kentucky Need an AV Framework?

- A patchwork of state laws can lead AV operation to cluster in a few states.
- AV technology is being deployed in locations that support AV operation, including in neighboring states.
- A state framework authorizing AV deployment would help:
  - Bring **safety, mobility, and efficiency benefits** of AVs to Kentucky residents
  - Support Kentucky's **competitiveness** as surrounding states enact AV laws, especially in advanced manufacturing
  - Bridge geographic gaps, **improving the movement of goods** across state lines
  - Establish **U.S. leadership** in the global AV industry

AVIA
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Overview of Proposed AV Legislation

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Key Concepts

AUTOMATED DRIVING SYSTEM. The hardware and software that are collectively capable of performing the entire dynamic driving task on a sustained basis, regardless of whether it is limited to a specific operational design domain.

DYNAMIC DRIVING TASK (DDT). All of the real-time operational and tactical functions, as further defined in SAE J3016, required to operate a vehicle in on-road traffic, excluding the strategic functions such as trip scheduling and selection of destinations and waypoints.

FULLY AUTONOMOUS VEHICLE. A motor vehicle equipped with an automated driving system designed to function without a human driver as a level 4 or 5 system under SAE J3016.

MINIMAL RISK CONDITION. A condition to which a person, human driver, or automated driving system may bring a vehicle after performing the DDT fallback to reduce the risk of a crash when a given trip cannot or should not be completed.

OPERATIONAL DESIGN DOMAIN (ODD). A description of the specific operating conditions under which an automated driving system is specifically designed to function, including but not limited to (a) environmental, geographical, and time-of-day restrictions; and (b) the requisite presence or absence of certain traffic and roadway characteristics.

SAE J3016. The Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles published by SAE International.

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Core Framework

Legislation mirroring that of neighbor states would allow AVs to operate in Kentucky without a human driver, subject to certain conditions:

- Able to achieve a **minimal risk condition** in the event of a system failure;
- Capable of operation in compliance with **applicable traffic and safety laws**; and
- **Certified to be in compliance** with applicable Federal Motor Vehicle Safety Standards, including reference to any exemption.

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Other Key Requirements

- **Licensing**. The licensed “operator” of the vehicle would be the automated driving system (ADS).
- **Registration and Titling**. AVs would need to be properly registered and titled in accordance with state law.
- **Insurance**. Proof of insurance would be required in compliance with state law as a precondition to the operation of AV technology.
- **Duties Following Crashes**. AVs would be required to abide by crash requirements imposed on other vehicles and report accidents consistent with state law.
- **Law Enforcement Interaction Plan (LEIP)**. An LEIP would need to describe how to communicate with a fleet support specialist, how to remove the AV from the roadway, and how to recognize whether the AV is in autonomous mode.

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Questions?

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