Intelligent Transportation Systems
Joint Program Office
ITS Standards Program

For Discussion:
Standards Considerations for Automation

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A Case for Harmonization

- Automation goals are globally universal
  - Minimize risk of loss of life/harm and property
  - Minimize risk of impeding mobility
- Requirements likely similar across regions
- Standards compliance costs likely to be significant:
  - Complex system-of-systems with many layers of software
    - Testing will likely require extensive monitored real-world and simulated operations
    - Preferable to only test once for multiple markets?
What Might Automation Standards Look Like?

- **Performance standards focus**
  - Complex, often proprietary systems
    - Frequent substitution of hardware likely
  - Meet public interest needs while allowing maximum flexibility
  - Targets based existing system performance?
    - E.g. “better than the 99th percentile driver”?

- **Design standards in limited cases**
  - Human-Machine Interface?
  - Failure modes?
  - Redundancies?

- **Software reliability**
  - Software standards, including stress-test requirements?
Testing and Certification

- **Extensive ►►► Expensive**
  - How to assure performance standards are met?
  - Compliance testing will likely include extensive monitoring of real-world and simulated operations
  - Single, harmonized test protocol vital to controlling costs

- **Certification processes**
  - Test and certify only once if at all possible!
  - Harmonized certification across regions?
Early Standards Development Benefits?

- In some cases, developing standards too soon can impede research...
- However, might in this case early standards development incentivize research investment?
  - If standards are performance–based to the greatest extent practical
  - Are developed cooperatively with industry
  - Are developed cooperatively across regions
  - Are developed with harmonized testing procedures/certification processes
- Might having standards sooner allow greater certainty in investment decision-making and greater investment in research?

- If so ... how to best accomplish this?
  - How to engage industry? Regulators? SDOs?
  - Cooperation between Trilateral Automation in Road Transportation WG and the EU-US Standards Harmonization WG?
Discussion/Questions?

Thank You!

www.standards.its.dot.gov
www.its.dot.gov/connected_vehicle/international_research.htm