



**Intelligent Transportation Systems  
Joint Program Office  
ITS Standards Program**

**For Discussion:  
Standards Considerations for Automation**

January, 2015

# A Case for Harmonization

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- 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?

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- **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 99<sup>th</sup> percentile driver”*?

- **Design standards in limited cases**

- Human-Machine Interface?
- Failure modes?
- Redundancies?

- **Software reliability**

- Software standards, including stress-test requirements?



# Testing and Certification

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- **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?

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- 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](http://www.standards.its.dot.gov)

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