Transportation Research Board
94th Annual Meeting

Intelligent Transportation Systems Committee:
International Standards Harmonization

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Motivation for Cross-Regional Harmonization

International, collaborative coordination of ITS standards work enables:

- Reduced research costs through shared research and results
  - Can be very significant when cooperating to meet common needs
- Reduced development and manufacturing costs by enabling common hardware and software across regions
- Improved interoperability across borders, facilitating safety and commerce
- Accelerated deployment of new technologies

“Harmonized” need not be identical for substantial benefits:

- Sufficiently similar to allow, for example, common hardware or software
- Sufficiently similar to allow similar architectures, policies
- Differences often needed to address technical, legal policy differences across regions
USDOT Role in ITS Standards Harmonization

The USDOT seeks to harmonize standards *when in the public interest* by engaging other governments and standards development organizations (SDOs).

Diverse USDOT activities include:

- USDOT participation and leadership in standards working groups (WG)
- Direct contracting to draft candidate standards language when needed
- Incentives for stakeholder participation in standards development
- Funding to support:
  - SDO activity
  - Public sector and volunteer expert WG participation
  - Participation in ITS research efforts around standards development
- Legislative authority to self-publish standards if needed
SDO Collaboration

- Active support including strategic input, funding, and working group participation
  - IEEE
  - SAE
  - oneM2M
  - ISO

- Observation and strategic cooperation
  - CEN/TC 278
  - ETSI

- Highest priority of USDOT investments is to support standards required for the US National Highway Traffic Safety Administration (NHTSA) Vehicle-to-Vehicle (V2V) rulemaking
- Ongoing work with AASHTO/NEMA, and ITE on infrastructure standards
# Intergovernmental Collaboration

<table>
<thead>
<tr>
<th>Country</th>
<th>Agreement Details</th>
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<tbody>
<tr>
<td><strong>Australia</strong></td>
<td>Agreement to cooperate on information sharing on architecture issues and security policy harmonization via EU-US agreement, information sharing agreement with FHWA</td>
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<tr>
<td><strong>Canada</strong></td>
<td>Longstanding agreement to cooperate on ITS issues including architecture and standards, border architecture</td>
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<td><strong>European Union (EU)</strong></td>
<td>Implementing Arrangement to enable cooperative efforts including work under EU-US Joint ITS Technical Task Force</td>
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<td><strong>Japan</strong></td>
<td>Memorandum of Cooperation to facilitate joint activity in standards harmonization, cooperation on EU-US standards work items</td>
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<tr>
<td><strong>South Korea</strong></td>
<td>Memorandum of Cooperation to facilitate joint activity in standards harmonization</td>
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Structure of EU-US Cooperation

EU-US Joint ITS Technical Task Force

Standards Harmonization Working Group (HWG)

Harmonization Task Groups (HTGs)
Other Harmonization Activity

The EU and US signed an Implementing Agreement in 2009 to develop coordinated research programs, focusing on cooperative vehicle systems. The Task Force executes work programs under the Agreement.

One of six Working Groups, the HWG facilitates coordination and harmonization where appropriate, as defined in a Harmonization Action Plan.

An HTG is any organizational construct that allows accomplishment of a specifically agreed joint harmonization activity – flexibility is key.

Japan has now formally joined this cooperative structure.
EU-US Harmonization Action Plan

Provides the basis for EU-US work in ITS coordination and harmonization

Five tracks:

Track 1. High-level assessment ("landscape") – completed in 2011

Track 2. Agreement on governmental harmonization principles – final draft

Track 3. Gap/overlap analysis for standards needs – begun in 2014

Track 4. Facilitation of harmonization of specific standards – ongoing

Track 5. Planning future cooperation – underway
**EU-US Harmonization Task Groups**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Status</th>
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<tbody>
<tr>
<td>HTG#2 BSM / CAM</td>
<td>Work completed and showcased at 2012 Vienna World Congress</td>
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<tr>
<td>Harmonization</td>
<td></td>
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<tr>
<td>HTG#1 ITS Security</td>
<td>Work completed early 2013 and being fed into standardization processes. Reports published at:</td>
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<td><a href="http://ec.europa.eu/digital-agenda/en/international-transport-cooperation">http://ec.europa.eu/digital-agenda/en/international-transport-cooperation</a></td>
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<td><a href="http://www.its.dot.gov/connected_vehicle/international_research.htm">http://www.its.dot.gov/connected_vehicle/international_research.htm</a></td>
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<td>HTG#3 ITS Communications</td>
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<tr>
<td>HTG#4/5 Infrastructure Messages</td>
<td>Messaging standards development is in progress, executed through ISO TC-204 and CEN TC-278</td>
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| HTG#6 ITS Security Policy | Underway, complete early 2015  
Australia is an equal participant                                                                                         |
| HTG#7? Stds./Profile Recs., Gap Identification |                                                                                                                                 |
| HTG#8? Probe Data Standards |                                                                                                                                 |
| HTG#9? Testing and Certification | Candidate Future Work Items                                                                                                                                                     |
|                   | Australia, Canada, Japan and Korea have been observers and/or active participants in HTG activities                                   |
HTG#6: ITS Security Policy

Overview

- Develop an end-to-end policy framework to facilitate implementation of Connected Vehicle systems seeking to harmonize with adjacent systems
- Considers:
  - Risk categorization
  - Cross-jurisdictional interoperability
  - Functional decomposition of a security solution
  - Recommendations for building and operating a harmonized security solution
- Work began early 2014 with equal participation from EU, US, and Australia

Status

- Draft documents for public review and comment: Early 2015
- Final publications: Mid-2015
- Briefings on findings/recommendations: Early 2015
  - Public workshop(s) and/or briefings at conferences anticipated in 2015
HTG#7: Standards Selection
Recommendations and Gaps, Identifiers

- What standards needed for key interfaces in a complete C-ITS architecture?
  - Multiregional requirement ➤ cooperate and share workload
    - Also achieve harmonized results

- Most interfaces not-ITS specific:
  - Recommend available standards to *adopt*
    - Include specific profiles of each standard when known

- ITS-specific interfaces:
  - Identify interfaces where *adapting* extant standards is best
  - Identify gaps where there is a need to *create* new content
    - Key opportunities for cooperative standards development

- Assure *globally unique* identifier for any C-ITS application/service
  - Current informal agreement needs to progress to formal inter-SDO arrangement

- Status: Work Item Description, execution plans under development
  - Execution subject to reaching multi-regional agreement
Issues and Risks: USDOT Experience

- “Harmonization” cannot always result in identical standards across regions due to technical, policy, or institutional constraints
  - Benefits and interoperability are still possible if there is a harmonized approach to identifying and accounting for differences
- Progress depends on:
  - Continued organizational commitment of international partners
  - Continued funding commitment among international parties
  - Program management excellence
- Diverse stakeholder groups/objectives complicate harmonization
  - Automotive vs. infrastructure vs. government sectors
    - Region vs. region, often uncooperative attitudes
  - Multiple SDOs seeking dominance in same space
Thank You

For More Information:

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

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