Transportation Research Board
94th Annual Meeting

Intelligent Transportation Systems Committee:
International Standards Harmonization

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U.S. Department of Transportation (USDOT)

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

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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

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SDO Collaboration

U.S. Based	International	Non-U.S. Based

Active support including strategic input, funding, and working group participation

Observation and strategic cooperation

- 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
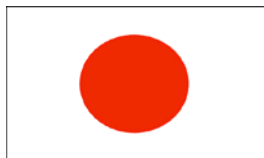
	Australia – Agreement to cooperate on information sharing on architecture issues and security policy harmonization via EU-US agreement, information sharing agreement with FHWA
	Canada – Longstanding agreement to cooperate on ITS issues including architecture and standards, border architecture
	European Union (EU) – Implementing Arrangement to enable cooperative efforts including work under EU-US Joint ITS Technical Task Force
	Japan – Memorandum of Cooperation to facilitate joint activity in standards harmonization, cooperation on EU-US standards work items
	South Korea – Memorandum of Cooperation to facilitate joint activity in standards harmonization

Structure of EU-US Cooperation

EU-US Joint ITS Technical Task Force

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.

Standards Harmonization Working Group (HWG)

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

Harmonization Task Groups (HTGs) Other Harmonization Activity

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.

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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**

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EU-US Harmonization Task Groups

Activity		Status
HTG#2	BSM / CAM Harmonization	Work completed and showcased at 2012 Vienna World Congress
HTG#1	ITS Security	Work completed early 2013 and being fed into standardization processes. Reports published at:
HTG#3	ITS Communications	*http://ec.europa.eu/digital-agenda/en/international-transport-cooperation* *http://www.its.dot.gov/connected_vehicle/international_research.htm*
HTG#4/5	Infrastructure Messages	Messaging standards development is in progress, executed through ISO TC-204 and CEN TC-278
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	Candidate Future Work Items
HTG#9?	Testing and Certification	

Australia, Canada, Japan and Korea have been observers and/or active participants in HTG activities

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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 ***adapt**ing* 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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