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Standards for increasing vehicle connectivity

Research Goals

- To globally harmonize ITS technologies by taking an active role in developing and harmonizing standards and architecture around the vehicle platform.
- To provide standardization for vehicles and infrastructure to communicate using widely available, affordable, and interoperable technologies that maximize safety and efficiency.

Research Outcomes

- Vehicle connectivity through harmonization of standards and architecture will reduce costs to manufacturers and consumers.
- Hardware and software development costs will be spread over a larger user base, resulting in reduced unit costs.
- Differences between vehicles manufactured for different markets will be minimized, allowing private sector markets greater global opportunities.

The ITS Standards Program meets Section 5206 of the 1998 Transportation Equity Act for the 21st Century (TEA 21) mandate that the U.S.DOT “develop, implement, and maintain a National Architecture and supporting standards and protocols to promote the widespread use of ITS technology, ensuring interoperability and efficiency to the maximum extent practicable.”

Standards and Architecture Harmonization

INTRODUCTION

The Intelligent Transportation Systems (ITS) Standards program has teamed with standards development organizations and public agencies to accelerate the development of open, non-proprietary communications interface standards to support ITS application development and deployment. These standards define how ITS systems and components interconnect and exchange information to deliver ITS services within a multimodal transportation network. The consistent and widespread use of ITS standards will permit data and information sharing among public agencies and private organizations, fostering an environment of information sharing and interoperability. Currently nearly 100 standards have been developed under this program.

Harmonization of international standards and architecture around the vehicle platform is a process through which various stakeholders, vehicle and equipment manufacturers, standards organizations, and governments work together to agree on common standards.

Through the ITS Standards and Architecture Harmonization program, the U.S. Department of Transportation (U.S. DOT) participates in international standards harmonization activities focusing on standards needed to provide connectivity among vehicles, and between vehicles and infrastructure.

The ITS Standards program is a key research program of the Intelligent Transportation System Joint Program Office (ITS JPO) within U.S. DOT’s Research and Innovative Technology Administration (RITA).

RESEARCH PLAN

The objective of the Standards and Architecture Harmonization research program is to work with the international standards community to harmonize standards and architecture in order to increase vehicle connectivity.

Harmonization facilitates interoperability among products and systems, which benefits transportation management agencies, vehicle manufacturers, equipment vendors, and other stakeholders. By overcoming institutional and financial barriers to technology harmonization, stakeholders could realize lower life-cycle costs for the acquisition and maintenance of systems. Efforts under this research program include collaboration with standards development organizations (SDOs), original equipment manufacturers (OEMs) and other stakeholders to seek agreement and provide appropriate incentives.



MULTI-TRACK RESEARCH ACTIVITIES

Track 1: Establish a U.S. DOT ITS Standards Working Group.

Track 2: Develop a program of work identifying specific harmonization efforts that require negotiation with relevant global authorities.

Track 3: Engage global authorities to seek agreement on the selection of standards requiring harmonization and provide appropriate Federal government support (possibly funding) for these efforts.

Track 4: Provide appropriate Federal government support to ensure maintenance of standards.

Track 5: Monitor ongoing and future global activities to identify harmonization and standardization opportunities.

FOCUS

It is critical to reduce barriers to standardization and achieve a broad agreement on harmonization that can benefit both the public and the motor vehicle industry. To that end, U.S. DOT has established a Joint Declaration of Intent on Research Cooperation in Cooperative Systems with the European Union (EU). The purpose of the agreement is to encourage international cooperation on information and communication technology research, as applied to transportation. U.S. DOT and the European Commission Information Society and Media Directorate have pledged to work together to identify the research areas that would benefit from a harmonized approach and which should be addressed by coordinated or joint research. In particular, the parties intend to make efforts to preclude the development and adoption of redundant standards and to support and accelerate the deployment and adoption of Cooperative Systems.

Using ITS Standards makes good business, technology, and planning sense because:

- ITS standards are open and non-proprietary, helping state and local transportation managers avoid costly single-source procurements and locked-in maintenance relationships with vendors.
- ITS standards support the deployment of interoperable ITS systems, helping agencies link together different types of ITS technologies and making system expansions easier to plan and implement.
- ITS standards are being developed for many different types of ITS technologies and their use is being supported by U.S. DOT through technical assistance programs, training, and deployment outreach and guidance.
- Using ITS standards in project deployment is a key aspect of conformity with the FHWA Rule/FTA Policy on ITS Architecture and Standards



Broad networks hold opportunities for accelerated standards adoption and deployment.



Collaboration and joint research efforts support a harmonizing approach to standards adoption and deployment.

To learn more about the ITS Standards and Architecture Harmonization program, contact:

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