

Accelerating Deployment White Paper

What is Accelerating Adoption?

The Accelerating Deployment program category, one of six program categories within the USDOT's ITS Strategic Plan 2015-2019, focuses on advancing ITS technologies from initial adoption to wide-scale deployment in coordination with state and local DOT agencies. The ITS Joint Program Office (ITS JPO) is specifically working toward the implementation of connected vehicles and automation.

ITS Deployment Challenges

The USDOT has identified the following as significant barriers to ITS deployment:ⁱ cost; lack of data on the benefits and cost-effectiveness of ITS; lack of deployed examples; need to ensure interoperability with existing systems; need to find qualified staff; and lack of consumer acceptance of advanced ITS technologies.

The USDOT engages in a number of initiatives to overcome these barriers, including: stakeholder outreach and communication; training and education; and Knowledge and Technology Transfer Activities (KTT) such as technical assistance, best practices, and guidance. These activities are the focus of the Accelerating Deployment program category. In addition, the USDOT funds field tests and demonstrations of connected vehicle and automated vehicle technology under those program categories. The USDOT actively promotes the systems engineering approach to ITS deployment, supports the development of regional architectures, and advocates the use of standards to assist with the issue of interoperability.

ITS Technology Lifecycle

Figure 1 shows the ITS technology lifecycle and how Accelerating Deployment outreach and KTT activities span the entire lifecycle, but intensify in the adoption phase. In the early phases, the activities focus on stakeholder awareness and buy-in, followed by increasing understanding of the benefits, then building workforce expertise as early adopters begin deployment.

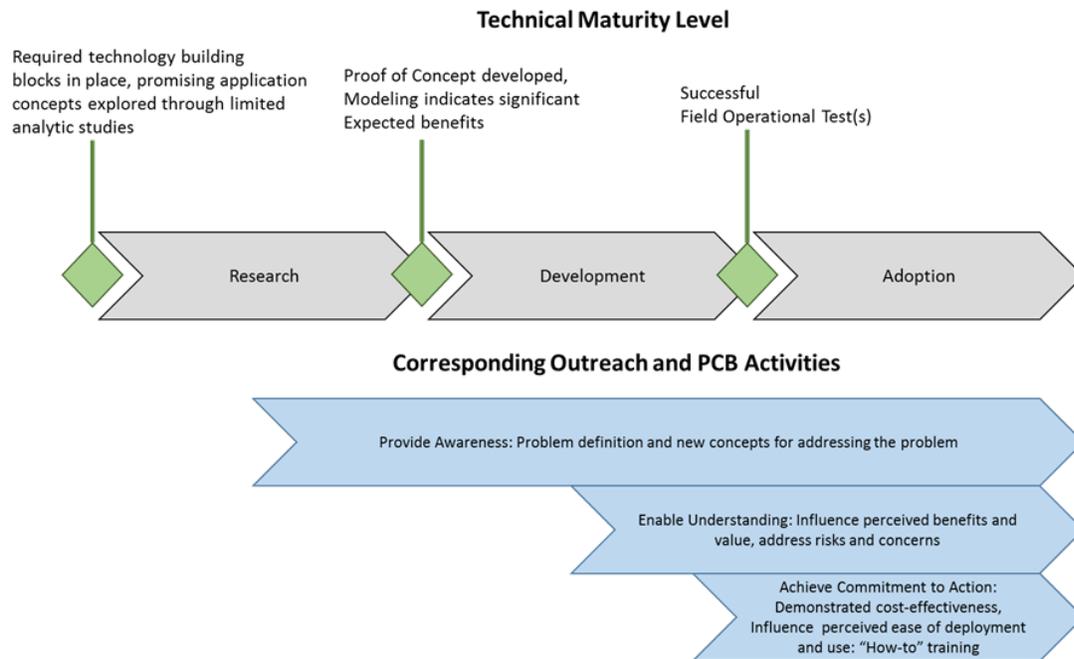


Figure 1: Accelerating Deployment activities involve Stakeholder Outreach, Training and Education and Knowledge and Technology Transfer at all phases of the ITS Technology Lifecycle

Role of Adopters

The USDOT relies on a broad cross-section of public and private stakeholder in deploying ITS technology, including:

- Policy and Decision makers at the national, state, and local levels
- State Departments of Transportation
- Regional planning organizations and metropolitan planning organizations
- Local transportation agencies (county, city, or municipality levels)
- Private sector (roadside technology vendors, wireless technology vendors, software developers, data providers, freight carriers,)

It is essential that the USDOT ensures that the right audiences are engaged throughout the research, development, and adoption phases of the technology lifecycle. In particular, the USDOT endeavors to provide support to stakeholders in the early adoption of ITS technologies.

As technologies transition from adoption to large-scale deployment, the responsibility of support for operators and deployers shifts from the ITS JPO to other agencies within the USDOT and even across other government departments and agencies.

ITS JPO's Approach

The USDOT employs a full range of technology transfer activities over the course of the ITS Research and Development lifecycle. These activities include: Outreach and Communication, Training and Education,

and Knowledge and Technology Transfer (KTT). In addition, the ITS Evaluation program plays a role in ensuring progress toward achieving wide scale ITS deployment by measuring the effectiveness and benefits of deployed ITS and the value of ITS program investments.

The ITS Outreach and Communications Program works to ensure that stakeholders are actively informed and engaged during the research, development, and adoption phases of the ITS research programs. Communications and outreach effort include not only stakeholder engagement but also media relations, online and print communications, social media, and public meeting.

Training and Education is carried out through the **ITS Professional Capacity Building (PCB)** Program, which serves to educate the public sector transportation workforce about ITS. The PCB Program delivers free ITS learning resources including: online and in-person courses, Talking Transportation Technology (T3) webinars, an online ITS ePrimer, and ITS case studies to bring ITS research and proven solutions to the user community. More information can be found at www.pcb.its.dot.gov.

Working with the FHWA Office of Operations and the FHWA Resource Center, the ITS JPO offers a range of **KTT activities and technical assistance** to public-sector transportation agencies seeking assistance with ITS planning, deployment and operational challenges. These resources include technical assistance, workshops on specific technologies, guidance documents, and best practices.

The USDOT measures the effectiveness of ITS in solving transportation problems through its **Evaluation Program**. The ITS Knowledge Resources database (<http://www.itsknowledgeresources.its.dot.gov/>) contains over fifteen years of summaries of the benefits, costs, lessons learned, and deployment status of specific ITS implementations, drawn from written sources such as ITS evaluation studies, research syntheses, handbooks, journal articles, and conference papers.

The growth of ITS over the past 15 years has been documented through a periodic deployment tracking survey effort. **The ITS Deployment Tracking Database** contains the results of surveys of the nation's 75 largest metropolitan areas <http://www.itsdeployment.its.dot.gov/>.

Success Stories

Through the Department's **Integrated Corridor Management (ICM)** program, two pioneer sites (San Diego, CA and Dallas, TX) demonstrated promising multimodal strategies that enable agencies to manage a corridor as an integrated asset in order to improve travel time reliability and predictability as well as manage congestion. Evaluation of these demonstrations reported potential ten-year net benefits of ICM of up to \$570 million. These results have been shared with prospective ICM deployers, and the number of agencies reporting plans to implement ICM has noticeably increased.

The **511 program** serves as an example of successful peer-to-peer technical assistance. 511 provides a standard 3-digit telephone number for obtaining traveler information. The USDOT worked with AASHTO, the American Public Transportation Association (APTA), the Intelligent Transportation Society of America (ITS America), and other organizations to form the 511 Deployment Coalition which worked to

implement 511 nationally using information sharing and a cooperative dialogue. As of February 2014, 511 had been deployed across 36 states, as well as portions of California, Hawaii, Missouri, and Texas.

The ITS JPO worked with the Every Day Counts in a focused, stakeholder- engaged effort to accelerate the deployment of **Adaptive Signal Control Technology (ASCT)**, a well proven but under-utilized technology. USDOT staff provided technical assistance to implementing agencies accompanied by high visibility and executive commitment from FHWA leadership. As a result, the number of ASCT installations doubled in a three year period (2010-2013), and many agencies plan ASCT systems in the next few years.

The Next Generation 9-1-1 (NG9-1-1) Initiative focused on the research required to produce a design and a transition plan for a next-generation 9-1-1 system. The goal was to design a system that is capable of voice, data, and video transmission from different types of communication devices into PSAPs and on to emergency responder networks. Working closely with a wide range of stakeholders, the initiative's efforts focused on two areas—technical/engineering and institutional/transitional. Specifically, the initiative focused on delivering an NG9-1-1 system architecture, or a technological framework, that can accommodate today's stakeholder interests and existing market-based solutions as well as future technological advances.

Conclusion

The overall goal of the accelerating deployment program category is to accelerate the transformation of ITS research and prototypes into market-ready technologies that are commercially viable and are adopted by the transportation community. To achieve this goal, the ITS Program will:

- Identify innovators, early adopters, and mature adopters for each technology.
- Engage the private sector in research partnerships with the aim of commercialization
- Integrate communication and outreach, training and education, and knowledge and technology transfer into the technology research lifecycle to involve users in the early resolution of problems to speed market adoption.

As adoption is carried out by state, local, and commercial organizations, the ITS JPO plays a vital supporting role in gaining market support, understanding, and commitment to innovative ITS technologies.

ⁱ Greer, Elizabeth, et al. "The Use of Incentives to Encourage ITS Deployment," USDOT, FHWA JPO-14-149, July 31, 2014.