As our transportation system becomes more technologically advanced, it is generating unprecedented amounts of data—and the data generated will continue to grow in size and complexity as vehicles and travelers become increasingly connected to each other and physical and digital infrastructure. Increasing automation will further increase data production and demand. ITS data holds great potential to improve the safety, mobility, and accessibility of our transportation system and drive economic opportunities. In fact, according to KPMG’s 2017 Global Automotive Executive Survey, in the future, the digital ecosystem will generate higher revenues in the automotive value chain than the car itself.¹

Our transportation system as a whole, and how we manage data within it, is at a crossroads. Decisions that the public and private sectors make now regarding data and information technology will determine whether the next generation of ITS technologies realize their potential benefits. Which data should be retained and shared, and with whom, and for what purposes? What digital infrastructure will support local and national needs as they evolve? How can the transportation system keep up with the pace of change in technology and consumer expectations while protecting privacy, ensuring safety, and enabling private sector innovation? Through its Data Program, the ITS Joint Program Office (JPO) provides strategic and tactical support to the ITS community as we navigate this transition.

The ITS JPO Data Program is a multimodal effort that works in partnership with the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the National Highway and Traffic Safety Administration (NHTSA), the Federal Motor Carrier Safety Administration (FMCSA), other federal agencies, state and local governments, academia, and the private sector. These partners are aligned around the need for new ways to manage data efficiently and securely through the transportation system to support the next generation of ITS technologies.

The ITS JPO Data Program is investing in data management technologies and methods that are:

- Low cost and interoperable to enable regional and national data sharing and integration with other government and third-party data applications
- Scalable and flexible to adjust for different size deployments and evolving needs
- Secure to protect and safeguard personal and proprietary data
- Fast enough to support real-time decision making.

Supporting Deployers with Data Products

The ITS JPO Data Program sponsors the collaborative development of data management products – software, guidance, and architectures – that state and local agencies and other early deployers can use to effectively manage data emerging from the changing transportation environment and accelerate deployment of new technologies. This toolset is available at no cost and will expand over time based on the needs of the community. Wherever possible, products are developed using agile methodologies, open source code, and standards to increase interoperability and flexibility while lowering costs.

Example products include:

- **ITS Operational Data Environment (ODE):** The ITS ODE is a real-time data acquisition and distribution software system that processes and routes data from connected vehicles, personal mobile devices, infrastructure sensors, and other sources as needed and distributes data to subscribers based on their needs and level of authorized access. To learn more about this product, or to get involved, visit: [https://github.com/usdot-jpo-ode/jpo-ode](https://github.com/usdot-jpo-ode/jpo-ode).

- **Basic Safety Message (BSM) Privacy Module:** Although the BSM does not contain information that directly identifies a driver or a particular vehicle, privacy concerns increase when location data is collected in larger quantities. These collections facilitate innovation and open research. The Privacy Module is an algorithm that enables sharing of BSM data in larger quantities by addressing specific location privacy issues. It significantly reduces the risk of linking collections of BSMs to identifying information, thus safeguarding travelers’ privacy. To learn more about this product, or to get involved, visit: [https://github.com/usdot-jpo-ode/jpo-cvdp](https://github.com/usdot-jpo-ode/jpo-cvdp).

- **ITS Data Policy Playbook:** The ITS Data Policy Playbook is a concise online collection of existing policies, principles, and real-world examples of successful data management policies and practices that will help state and local agencies transform how they collect, manage, and deliver transportation data to meet the needs of emerging ITS technologies. *(Coming in 2018)*

### Enhancing Third-Party Access to Data

A shortage of data sharing stymies the rollout of new technologies and limits their ability to prove their value. The ITS JPO Data Program enhances third-party access to real-time and archival ITS data to accelerate research and demonstrate the value of sharing and retaining data within the ITS ecosystem.

Example investments supporting this objective include:

- **The ITS Situation Data Clearinghouse and Warehouse (SDC/SDW):** The SDC and SDW are proof-of-concept operational data exchange systems to support early deployers of connected vehicle technologies to share data with third parties on a national scale. To learn more, or to get involved, visit: [https://cvcs.samanage.com](https://cvcs.samanage.com).

- **The ITS Secure Data Commons (Commons):** The Commons is a proof-of-concept system to advance the state of the art around sharing sensitive transportation data with authorized users in a collaborative environment with algorithms and shared computing resources. The project will help establish low-cost ways to accelerate research with sensitive data. *(Coming in 2018)*

- **The ITS Public Data Hub:** The ITS Public Data Hub is the public access point to USDOT funded ITS research data to support third-party research, evaluation, and application development. To access the growing number of real-time and archived datasets to provide to the public including the Connected Vehicle Pilots data, please visit: [www.its.dot.gov/data](http://www.its.dot.gov/data). Additional ITS research data focused on road weather is publicly available at: [https://wxde.fhwa.dot.gov](https://wxde.fhwa.dot.gov).

One key focus of the ITS JPO Data Program is to enable real-time data sharing among state and local data systems and third-party partners. The program will work with stakeholders to create a national strategy for sharing and archiving data that addresses public, commercial, and academic sector needs.

For more information about this program, please contact:

**Ariel Gold**, ITS JPO Data Program Manager


For more information on the broader ITS Enterprise Data research area, please visit:

[www.its.dot.gov/research_areas/enterprise.htm](http://www.its.dot.gov/research_areas/enterprise.htm).