



AGENCY SUCCESSSES

Project Executive Summary

Common Understanding

Staffing Practices

Cybersecurity Practices

This factsheet, one of five in a series, focuses on examples of transportation agency coordination between Information Technology (IT) and Transportation Systems Management and Operations (TSMO). Each factsheet draws from [Principles and Strategies for Effective Coordination of IT and TSMO, a Reference Document](#).

The role of IT is becoming increasingly central to TSMO. Leading-edge TSMO strategies involve increasingly complex and interrelated systems, organizations, and institutions. Real-time and predictive tactics, such as active traffic management, integrated corridor management, and vehicle-to-infrastructure systems, are characterized by high levels of complexity and a dependence on integrating with IT.

IDENTIFIED PRACTICES

The reference linked above describes a range of IT-related challenges facing TSMO organizations. It also identifies 28 practices, grouped into five categories, to address those challenges:

- Collaboration
- Program Delivery
- Staffing
- Equipment/Systems
- Planning and Programming

Below are examples of transportation agencies that have successfully implemented practices in these areas.





Collaboration: Louisiana Department of Transportation and Development (LADOTD) Promotes Mutual Understanding through Agency Relationship Management

The Louisiana Office of Technology Services (OTS) was a relatively new Statewide IT group when it formed in 2014 to manage IT across state agencies. As a Statewide IT group, the new OTS staff had little to no experience with Intelligent Transportation System (ITS) operations and technology. In addition, the LADOTD's ITS group maintained a small number of IT staff to help maintain continuity of operations within the LADOTD. Subsequently, LADOTD staff thought this created some overlap and misunderstandings between the two groups.

To promote mutual understanding and improve the working relationships, the LADOTD and OTS meet on a regular basis to discuss the IT needs for maintaining ITS operations. An Agency Relationship Manager within the OTS who is assigned to LADOTD attends the meetings. The meetings have increased OTS's understanding of ITS systems and improved its ability to provide support to the ITS group. Similarly, LADOTD ITS staff have increased knowledge of the OTS organization and procedures and how to leverage OTS technical support.



Program Delivery: Michigan Department of Transportation (MDOT) Uses Outside Services and "Bite-Sized" Projects

TSMO operational strategies require coordination across many groups and often require unique approaches to project development and delivery. When staff of MDOT's TSMO group identified the need for a geographic information system (GIS)-based asset management tool to assist in managing the maintenance of TSMO devices and systems, the project was assigned to the Department of Technology Management and Budget, the statewide enterprise IT agency.

After the project was complete, MDOT staff identified two ways of improving project delivery in the future: (1) acquiring a system that the vendor would host and maintain to reduce internal IT burdens, and (2) breaking the project into smaller, more easily managed (bite-sized) components: asset inventory, GIS development, and maintenance management.



Staffing: Florida Department of Transportation (FDOT) Employs Cross-Training to Bolster IT Staff Resources

Transportation agencies often have difficulty recruiting for TSMO positions requiring multidisciplinary knowledge. They have identified private industry competition and internal human resources constraints as reasons for recruiting difficulties. To combat these issues, FDOT hires people within the current job classifications but outlines some of the potential roles and responsibilities in the job description. Once hired, staff are cross-trained on the job to develop the necessary knowledge, skills, and abilities to carry out the required job functions. As a result of the increased need to train staff, FDOT documented many TSMO-related IT processes, such as those related to Ethernet networks, so training can be consistent and institutional knowledge is not lost when staff leave the department.





Equipment and Systems: Pennsylvania Department of Transportation (PennDOT) Develops Lifecycle Costs

The funds required to deploy and maintain TSMO applications that include IT components can be significant. Budgeting for the recurring costs to ensure adequate operations and maintenance can be particularly challenging for operating agencies. PennDOT developed a holistic lifecycle cost approach to evaluate its IT and ITS investments. They found that the largest hurdle involved developing an inventory of all systems and mapping the assets from the software platform through various network connections to field devices. As a result of the analysis, PennDOT instituted several maintenance cost-saving measures that enabled it to increase upfront investment in technology.



Planning and Programming: Connecticut Uses Integrated Strategic Planning

The Connecticut Information Technology Division is a state agency-level IT group under the Secretary of State. To manage IT across the entire state, the enterprise group develops customer-specific five-year IT plans based on each agency's objectives. The Connecticut Department of Transportation is one of the agencies that works with the Information Technology Division to develop an IT plan. The plans include defining technology needs and priorities, identifying funding sources (or gaps), and aligning business goals and initiatives with technology solutions.

The Reference Document and the other IT-TSMO factsheets are available at:

https://ops.fhwa.dot.gov/plan4ops/focus_areas/integrating/it.htm

For More Information:



Jim Hunt, FHWA Office of Operations



202.680.2679



@ jim.hunt@dot.gov



U.S. Department of Transportation
Federal Highway Administration