



# Mainstreaming TSMO through Agency Culture

Transportation systems management and operations (TSMO) helps agencies maintain and even restore the operational performance of the existing transportation system quickly and cost effectively. Creating a culture that supports TSMO is vital to mainstreaming TSMO in an agency. Through mainstreaming, agencies ensure that leadership and key staff readily understand, value, and use TSMO strategies, which results in cost, efficiency, and safety benefits across an agency's programs and projects.

## What Is Culture?

Simply put, the culture of a group reflects a set of shared beliefs or values. The culture of a group influences the behaviors of individuals belonging to that group. For example, our shared belief system or culture at work influences our work-related behaviors. Often, agency leaders establish organizational culture and then communicate and reinforce it through various methods, ultimately shaping employee perceptions, behaviors, and understanding (figure 1). Sometimes, however, agency champions arise from lower staff levels. These individuals typically work with colleagues and leadership, communicating messages about the need for change and the perceived benefits that would result.

## Why Is Culture Important for Mainstreaming TSMO?

Culture is a key factor in advancing TSMO as a way of doing business within a transportation agency. Traditionally, department of transportation (DOT) culture has focused on delivering projects and designing and building infrastructure. As communities change and grow, DOT cultures are also evolving, with many embracing the concept of TSMO to manage existing infrastructure more effectively and efficiently. Since culture reflects values, when an agency values TSMO as an important approach to accomplishing its mission—and clearly communicates that to staff—its culture will support TSMO which, in turn, leads to mainstreaming TSMO within an agency.

## What Is TSMO?

“TSMO is a diverse set of activities used by a transportation agency to optimize the performance of the transportation system. **...At the heart of TSMO is the mindset and culture to find ways to better use existing infrastructure to improve mobility and safety.**”

Scott Marler, Director, Iowa DOT



Source: FHWA.

**Figure 1. Graphic. Characteristics of organizational culture.**

## How Do You Create a Culture that Helps to Mainstream TSMO?

To establish a TSMO culture, people within the organization work to incorporate new policies or innovations into their daily routines. New behaviors need to become part of their daily routines until they become part of the norm, supplanting old behaviors. Culture

can be influenced in several ways, including through connecting TSMO to an agency’s mission and goals, leadership, employee engagement, and accountability through quantifiable metrics (figure 2). While there is overlap among these levers of cultural influence, they can be useful in framing efforts to use culture to mainstream TSMO.

## Using Culture to Mainstream TSMO

- Connecting to Mission and Goals.** Agencies can help employees understand how TSMO supports the organization’s mission, purpose, and goals by producing and distributing consistent internal materials that reinforce the agency’s dedication to advancing and mainstreaming TSMO. This may entail incorporating TSMO concepts and values into long-range plans, strategic plans, mission statements, and other guiding documentation that employees encounter. Having clear, understandable goals and objectives readily available to employees helps keep long-term projects and day-to-day tasks aligned with the agency’s mission. An agency can also help connect TSMO to its mission and goals by investing in low-cost, readily implemented TSMO strategies and then showcasing TSMO’s effectiveness in supporting agency goals.

**CONNECTING TO MISSION & GOALS**  
Reinforces an organization’s commitment to TSMO and helps align actions with this culture shift.

**LEADERSHIP**  
Establishes values and communicates the need for TSMO, leading the way to cultural change.

# TSMO

**EMPLOYEE ENGAGEMENT**  
Empowers staff to take part in the change process toward TSMO and understand how TSMO relates to what they do, creating a sense of ownership.

**ACCOUNTABILITY THROUGH QUANTIFIABLE METRICS**  
Establishes metrics to support an iterative process of improvement and culture change toward TSMO.

Source: FHWA.

**Figure 2. Graphic. Ways to create a culture to mainstream TSMO.**

■ **Leadership.** Agency leadership plays a key role in bringing about transformational culture change and fostering buy-in from staff. The business case for culture change and mainstreaming TSMO needs to be tailored to their interests (e.g., communicating to both career agency senior management who may be partial to legacy systems, as well as elected officials who may have limited familiarity in the domain).

■ **Employee Engagement.** Training and education are fundamental to culture change within an agency. Change will be unsustainable if employees are not supportive of the initiative because without employee engagement and buy-in, employees will often revert to legacy values and norms. One way to engage employees is to include them in the development of new policies and procedures. By empowering staff to take part in the change process and encouraging engagement among staff in TSMO and other functional areas, individual employees will gain a sense of ownership of the effort and outcome and see how they fit with TSMO.

Training plays a central role in creating any cultural change because it is a medium for communicating the strategic narrative. Expanding training beyond a single organization is also an effective way to emphasize a cultural shift. For example, it is often helpful to include local agencies or other TSMO partners in TSMO training. Interagency TSMO efforts are often more effective when all partner agencies understand TSMO and have integrated it into their processes.

■ **Accountability through Quantifiable Metrics.** The use of metrics to illustrate the effectiveness of TSMO can help with convincing agency decisionmakers to support a TSMO culture within their organization. Data-driven methods, such as goal matrices, key performance indicators, and quantitative metrics, are tools that organizations and agencies can use to support the value of the mission or change goal.

## Planning for Strategic Change

- **Maryland DOT State Highway Administration (SHA)** incorporated TSMO in the job description for the deputy director who serves as the agency's TSMO program manager.
- **Tennessee DOT** has included TSMO in job descriptions for managers and operators, and **Washington State DOT** is beginning to add TSMO into job descriptions for new applicants.
- **Pennsylvania DOT** is incorporating TSMO language into various agency publications and is developing a series of guidebooks to address the planning, design, construction, maintenance, and operations aspects of TSMO.
- **Iowa DOT** developed a TSMO strategic plan and a TSMO program plan that aligned with the DOT's overarching strategic plan.

## Leadership in Action

- **Ohio DOT** cited the strong buy-in for TSMO from leadership as helping to overcome resistance to change agency culture.
- **Washington State DOT** leadership publicly supports TSMO, culture change initiatives, and the need to effectively operate the system using TSMO strategies.
- **Texas DOT** and the **Maryland DOT SHA** issued executive directives that promote and support advancing TSMO to make strong policy and guidance statements from leadership.
- **Tennessee DOT's** agency leaders sent regional operations directors to a regional operations leadership forum, which fostered a better understanding of TSMO and generated buy-in on its usefulness.

## It's All in the Data

- **Arizona DOT's** TSMO Division uses a scorecard to track approximately 30 performance metrics in areas such as systems maintenance and systems management.
- **Ohio DOT** built a set of dashboards to track all the program numbers and performance measures identified in their TSMO program plan.
- **Pennsylvania DOT** developed a traffic operations analytics tool to provide districts and planning partners with access to a wide range of performance data that support operational improvements.

“ Success absolutely has to do with culture... We had to invest a good deal of time for training and just explaining what we do.”

James Gomes, Arizona DOT  
Operations Traffic and Safety Group  
Southern Region Traffic Engineer



“ It takes time for everyone to understand TSMO and its role, and to achieve a shift in thinking. It's a **culture shift.**”

Susan Anderson, Arizona DOT  
TSMO Division  
Systems Technology Group Manager



## Focusing on Daily Activities

**Maryland DOT SHA** focused its employee engagement on connecting TSMO to what staff had already been doing in their day-to-day duties and explaining how TSMO could support those efforts. The agency is also translating TSMO terminology in ways that can be incorporated into agencywide communications and is developing documents that detail how TSMO strategies and concepts can be embedded in various planning, engineering, construction, operations, and maintenance activities that various offices and district personnel perform on a day-to-day basis.

Source: E+, Getty Images Plus

## Questions to Consider for a Culture That Supports TSMO

The following questions are examples that transportation agencies can use to assess their progress in creating a culture that supports mainstreaming TSMO.

Mission and Goals	Leadership
<ul style="list-style-type: none"> <li>■ Do your agency’s mission and goals incorporate TSMO?</li> <li>■ Is TSMO regularly considered as a strategy or solution for addressing transportation needs or issues in support of agency goals?</li> <li>■ Have you leveraged TSMO efforts that have been successful in supporting agency goals to help mainstream TSMO?</li> <li>■ Does the organizational structure of your agency facilitate the integration of TSMO throughout other areas of the agency, thereby demonstrating the importance of TSMO to the agency mission?</li> <li>■ Has your agency built the partnerships among other agencies and stakeholder groups necessary for effective TSMO, reinforcing the importance of TSMO to the mission?</li> <li>■ Is TSMO part of job descriptions, which is crucial to early staff exposure to the central role of TSMO in the agency?</li> </ul>	<ul style="list-style-type: none"> <li>■ Does your agency’s leadership understand and communicate to others in the agency about the value of—and the need and business case for—TSMO?</li> <li>■ Do executive-level managers support the advancement and mainstreaming of TSMO activities?</li> <li>■ Do agency leaders promote regular cross-functional or inter-departmental collaboration focusing on TSMO?</li> </ul>
Employee Engagement	Metrics
<ul style="list-style-type: none"> <li>■ Are staff in different functional areas within an agency knowledgeable about TSMO, and do they understand how TSMO connects with their role?</li> <li>■ Is TSMO integrated into staff training across the agency?</li> <li>■ Is TSMO part of job descriptions and staff performance goals?</li> <li>■ Is there a plan for addressing resistance to mainstreaming TSMO?</li> <li>■ Are additional workforce capabilities needed to mainstream TSMO?</li> </ul>	<ul style="list-style-type: none"> <li>■ Do your agency’s metrics track the effectiveness of TSMO solutions?</li> <li>■ Does your agency have a plan or approach to measuring the impact of organizational changes?</li> <li>■ Is TSMO part of staff performance goals and measures?</li> </ul>

## For More Information

See the Federal Highway Administration’s (FHWA) Organizing and Planning for Operations web page at <https://ops.fhwa.dot.gov/plan4ops/index.htm>.

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