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Leveraging and Coordinating Information Technology (IT) Resources for Transportation System Management and Operations (TSMO)

October 6, 2020



U.S. Department of Transportation
Federal Highway Administration

Office of Operations
Federal Highway Administration
1200 New Jersey Avenue SE
Washington, DC 20590



Source: GettyImages

Agenda



Purpose of the webinar.

- Project goals and objectives.

First Panelist Presentation – Michigan DOT.

Project summary.

- Products and deliverables.
- Schedule.
- Outreach and stakeholder involvement.

Panelist Presentations.

- Virginia DOT.
- Florida DOT.
- New Hampshire DOT.
- Caltrans.

Reference Document.

Q&A and Discussion.



Project Goals and Objectives



Goals

- Improve coordination between IT and TSMO activities.
- Bridge gaps between IT and ITS/TSMO.

Objectives

- Provide helpful information and effective practices.
- Develop tools to support State and local agencies.
- Provide technical outreach to increase awareness of issues and knowledge of resources.





Panelist Remarks

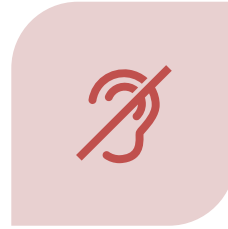
Collin Castle, Michigan DOT



Products/Deliverables



Literature review /
synthesis of
practice.



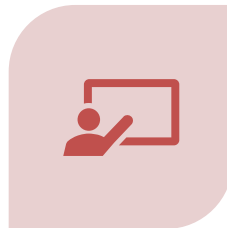
Listening session
and summary (2).



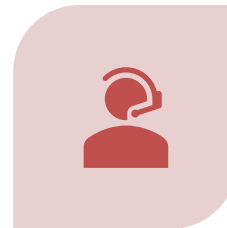
Interview notes.



Reference
document.



Presentations and
webinars.



Technical assistance
meetings/webinars.



Flyers on
noteworthy
practices (5).



Why a Project on Leveraging and Coordinating Technology Resources?



Growing intersection between TSMO and IT

- Expanded use of technology in transportation.
- Expanded use of real-time computing.
- Expanded cybersecurity threats.

Common experiences across agencies

- Challenges.
 - Disconnects and misunderstandings.
 - Conflicts in priorities and risks.
- Opportunities.
 - Increased collaboration.
 - Leverage skill sets.
 - Advantages in procurement.

These challenges are not unique to transportation!



Concerns Outside Transportation



Challenges or issues between Operations and IT

- Governance.
- Oversight versus carrying out operational objective.

Statements from industry:

- Operations and IT: “could not be more diametrically opposed.”
- Operations frustration: IT has “little experience with industrial systems.”

These challenges and frustrations have led industry to convergence between IT and Operations.

- How to better coordinate/integrate IT and Operations.



Reference Document



- Why is coordination between IT and Operations important?
 - What are the pitfalls of poor coordination?
 - Increasing need for coordination.



- Understanding the other discipline.



- How can IT-related operations challenges be overcome?
 - Effective practices.



- How to prepare for future challenges?



Common Understanding of IT and TSMO



Areas where common understanding is critical.



Governing Principles.



Domain Components.



Risk Management & Security.



Industry Standards.



Asset Management.



Future Technologies.



Challenge Categories



- Cultural.



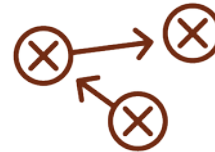
- Staff/Financial Resources.



- Organizational.



- Policy.



- Strategic Planning.



- Procurement.



- Systems and Technology.



- Risk/Security.



Effective Practice Categories



Collaboration.



Staffing.



Planning/Programming.



Program Delivery.



Equipment/Systems.





Panelist Remarks

Murali Rao, Virginia DOT

Raj Ponnaluri, Florida DOT

Susan Klasen, New Hampshire DOT

Nick Compin, Caltrans





CHALLENGE – EFFECTIVE PRACTICE MATRIX



Cultural Challenges General Approaches



Cultural

General Approaches/Practices beneficial to Cultural challenges:

Conduct regular meetings between IT and TSMO staff, Clarify roles and responsibilities, and Establish staffing needs.

Challenge Description	ID	Effective Practice Description	Section #
There may be a lack of mutual understanding between TSMO staff and IT staff.	Culture-1	Integrate IT staff within TSMO unit	6.1.1
		Modify organizational structure	6.1.2
		Implement coordination policies	6.1.3
TSMO's IT needs are not always project-based but require 24/7 availability.	Culture-2	Modify organizational structure	6.1.2
		Implement coordination policies	6.1.3
		Develop MOU or IGA	6.1.4
		Mix TSMO staff and IT staff	6.2.1
		Outsource services	6.2.2
Different staff backgrounds and roles leads to silos.	Culture-3	Integrate IT staff within TSMO unit	6.1.1
		Modify organizational structure	6.1.2
		Implement coordination policies	6.1.3
Shared resources and references for TSMO IT needs are scarce.	Culture-4	Integrate IT staff within TSMO unit	6.1.1
		Modify organizational structure	6.1.2
		Implement coordination policies	6.1.3
		Develop MOU or IGA	6.1.4
		Mix TSMO staff and IT staff	6.2.1



Links to Effective Practice



Clarify roles and responsibilities

In large agencies, it is important for the roles and responsibilities of each group and/or unit to be clearly defined to avoid confusion. This is particularly important as it relates to shared facilities and/or functions as can be the case between TSMO and IT.



Cultural Challenges – Culture 1



Source: Washington State DOT



Cultural

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Links to Challenge Description



Culture-1

There may be a lack of mutual understanding between TSMO and IT staff.

TSMO units and IT units, like many areas within a transportation agency, are separate not only in function but also in location. The physical and functional separation can limit interaction and ultimately limit the understanding and familiarity of the other unit. Staff shortages in some agencies can further distance the groups by reducing the available time to meet and coordinate. While several of these contributing factors are addressed individually in other challenge areas, the resulting lack of mutual understanding is a common challenge that inhibits progress.



Cultural Challenges – Culture 1 Effective Practice



Cultural

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Links to Specific Effective Practice



6.1.1 Integrate IT staff within TSMO

Agency staff is typically assigned to separate and distinct departments that focus on their own missions and business processes. Creating opportunities for IT staff to work within the TSMO structure on current activities can enhance collaboration and improve their understanding of the TSMO mission as well as the end-user experience of data and software platforms.





Source: Washington State DOT

Questions?



Achieving Better Coordination Between Operations and IT – Part 1



- Recording at:
 - <https://transportationops.org/ondemand-learning/webinar-series-part-1-achieving-better-coordination-between-operations-and-it>
 - Or go to transportationops.org and search for “Achieving Better Coordination.”
 - Click on “Webinar Series, Part 1” next to “Presentation.”
 - On the page that comes up, click on “Downloads.”
 - The recording and the presentations are available



Thank You!



- Contact
 - Jim Hunt, FHWA Government Task Manager
jim.hunt@dot.gov
(202) 680-2679

