"Transferring knowledge about the TSMO practice around the country"
2nd Transportation Systems Management and Operations Workforce Development Summit
NOCoE
National Operations Center of Excellence
Segment 1: Setting the Stage
12:00 PM-2:00 PM (Eastern)
Monday, September 20, 2021

Welcome – Scott Marler, Director, Iowa DOT

- Goal of the Summit:

  To identify the actions, resources, and research needs that will most effectively address the gaps and challenges in developing the TSMO workforce.

- Objectives

- Roll Call

Summit Objectives

01

Understand Previously completed work

02

Affirm Accomplishments & Clarify were More Work Needs to be Done

03

Understand Current Industry Issues

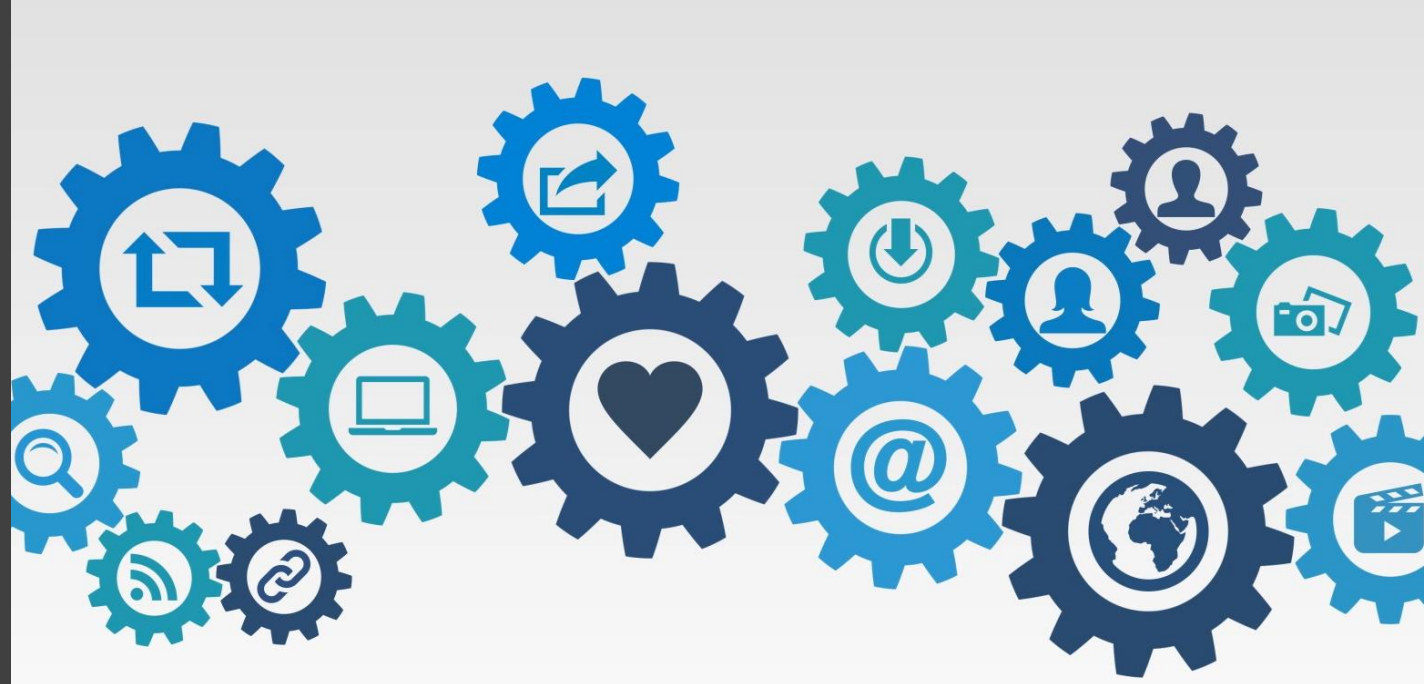
04

Identify Challenges and Opportunities

05

Provide Guidance for Next 5-Years

Let's get to know one another!



Roll Call:

- Name, Organization

DREAM **BIG**

START small

Welcome – On behalf of NOCoE Partners

- Jim Tymon - AASHTO
- Martin Knopp - FHWA

Summit Ground Rules

- Your active participation is essential
- Cameras on when speaking and during break-outs
- Mute when not talking
- We are recording all except break-outs
- We will be shifting between WebEx, Slido, and Mural
- Let's have some fun along the way!

SUMMIT AGENDA

DAY 1

Segment 1
Setting the Stage

Segment 2
Changes in Workforce Needs

DAY 2

Segment 3
Establishing a Roadmap

Segment 4
Prioritizing Implementation Strategies

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In 3 words or less, what would you like to get out of the summit?

ⓘ Start presenting to display the poll results on this slide.

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The 1st Workforce Summit

Priority Action 1: Convene forum of DOTs, private sector, and educators to discuss preemployment education needs/solutions.	**Priority Action 2:** Create a repository of existing TSMO-related course materials across all educational institutions—universities and community colleges.	**Priority Action 3:** Conduct an updated systematic exploration of knowledge, skills, and abilities (KSA) needs vs. training materials gaps for TSMO entity-related functions and positions.	**Priority Action 4:** Develop a repository of existing position descriptions (PD) for similar positions/functions, and create model position descriptions.
Priority Action 5: Develop model TSMO training program for new hires, promotions, and transfers—including a review of current best practice for organization policies, practices, and content.	**Priority Action 6:** Develop a strategy to elevate TSMO visibility as a core transportation function.	**Priority Action 7:** Document current best recruitment practice in public and private entities, including targeting of non-traditional disciplines and recruitment sources, and the use of incentives.	**Priority Action 8:** Document current best practices in mentoring, succession planning, cross training, special assignments, and individual career planning for public and private entities.

TSMO Workforce Guidebook

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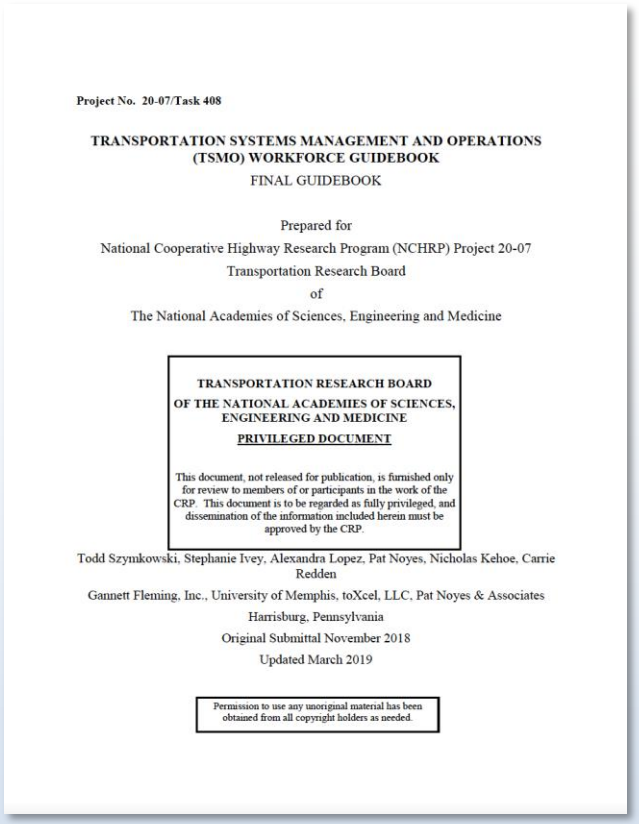
TSMO Workforce Guidebook



Project No. 20-07/Task 408

TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS (TSMO) WORKFORCE GUIDEBOOK

FINAL GUIDEBOOK

Prepared for

National Cooperative Highway Research Program (NCHRP) Project 20-07

Transportation Research Board

of

The National Academies of Sciences, Engineering and Medicine

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES OF SCIENCES, ENGINEERING AND MEDICINE
PRIVILEGED DOCUMENT

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Harrisburg, Pennsylvania

Original Submittal November 2018

Updated March 2019

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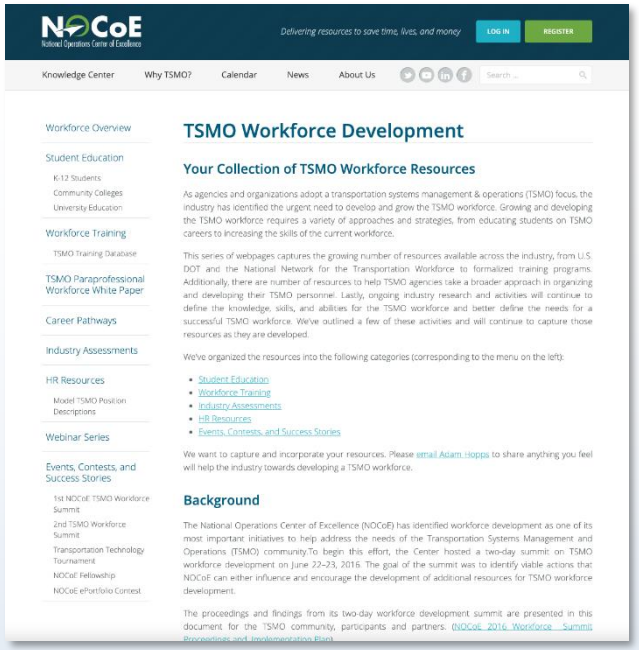

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What Agencies and Academia Are Doing Now

Iowa State University

IOWA DOT
GETTING YOU THERE

Oregon State University

Oregon Department of Transportation

ALDOT
Alabama Department of Transportation

WSDOT

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CASE STUDY

WORKFORCE DEVELOPMENT OHIO TSMO COORDINATORS

By: Ohio Department of Transportation

IN THIS CASE STUDY YOU WILL LEARN:

1. How the Ohio Department of Transportation (ODOT) ensures TSMO would be considered for all projects.
2. Why TSMO district coordinators can be valuable to the implementation of TSMO plans.
3. How successful district coordinator roles are defined.

BACKGROUND

A key approach in the Ohio Department of Transportation's (ODOT) TSMO plan was aligning human resources in the effort to implement the changes. An early action item identified the need to embed TSMO coordinators within each district to support the TSMO implementation and champion TSMO integration from the ground up. Furthermore, the new TSMO programs would identify priority congestion locations in each district that would need to be studied and analyzed. The locations identified for projects in each district would need funding, and coordinators would be the right people to help guide districts through this process. In addition, operations programs, like Traffic Incident Management, are dependent upon local first responders to improve incident clearances. It becomes imperative that a dedicated local contact have the ability to facilitate planning meetings, align resources, define roles, and coordinate after action reviews. District TSMO coordinators would provide this dedicated support.

TSMO PLANNING, STRATEGIES AND DEPLOYMENT

Significant work was done to develop the role and duties of the TSMO Coordinator. Through the action items of the TSMO plan, ODOT formulated what the duties ought to be. These duties then shaped the framework of the position description. The role of the district coordinator varies by district. The more rural districts would have a different focus and would need to take on more of the duties of implementation while the more urban districts would need to be more of a facilitator and true coordinator. Working with ODOT human resources, a position description was developed within the existing transportation engineer series that was able to capture those duties. ODOT also made the decision to include the district coordinators as key contributors to the development of the program,

NOCoE CASE STUDY 1

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CASE STUDY

ITS HEARTLAND'S TSMO UNIVERSITY EDUCATIONAL PROGRAM

BY ITS HEARTLAND AND HDR

INTRODUCTION AND BACKGROUND

In response to a U.S. Department of Transportation (U.S. DOT) request for additional Transportation Systems Management and Operations (TSMO) delivery methods that were innovative and provided greater impact, ITS Heartland created the TSMO University Educational Program to deliver monthly webinars and in-person trainings to broaden the implementation and integration of TSMO among ITS Heartland members. Through SHRP2 funding, ITS Heartland along with their consultant HDR Inc. facilitated two phases of the TSMO University Education Program. The program content is archived for self-paced training on the ITS Heartland website at www.itsheartland.org/TSMOTraining.html. PDH certificates were also offered for each webinar to encourage participation and completion in the TSMO University Education Program.

The ITS Heartland TSMO University Education Program increased the TSMO capacity with this innovative training approach in the region of Iowa, Kansas, Missouri, Nebraska, Oklahoma and for ITS Heartland members nationally. ITS Heartland is a strong advocate for better traffic operations and transportation system management through the use of technology, cooperation, communication and education.

> The ITS Heartland TSMO University Education Program was modeled as a means to keep transportation professionals abreast of the latest technologies and trends. ITS Heartland recognized that TSMO was a way for state DOTs and other public and private transportation professionals to do more with less, and get the most operational capacity out of existing infrastructure.

ITS Heartland also recognized that education of transportation professionals would pave the way for change through top-down and bottom-up supported knowledge transfer at all levels of an agency. Guided by a steering committee of ITS Heartland Board Members, the goal of the TSMO University Education Program was to provide greater penetration of TSMO knowledge for a wider audience of transportation and operations professionals.

PROGRAM PLAN

Development of phase one of the TSMO University Education Program was completed in early 2017 through a literature search for TSMO resources to determine topics and speakers that would be suited for ITS Heartland members. From June 2017 to April 2018, eight monthly webinars and two live training sessions were conducted by ITS Heartland via the TSMO University Education Program.

The webinars featured a wide range of topics starting with the basics and working into more complex TSMO subjects. Each of the monthly webinars built upon the information presented in previous webinars, but each was also an opportunity to learn about a specific TSMO topic.

PHASE 1 DEMOGRAPHICS

In early 2018, ITS Heartland entered into phase two of the TSMO University Education Program focused on live trainings at a greater frequency for smaller groups in a specific sub-region (i.e.: a specific state DOT), based on skills a group seeks to develop further (i.e.: performance measures and system monitoring), and toward specific sectors of TSMO professionals (i.e.: operations personnel).

NOCoE CASE STUDY 1

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What is the most significant workforce challenge the TSMO community faces?

What position have you had the most difficult filling?

What has been your most important success in helping to build a TSMO workforce?

What actions can be taken to help foster the TSMO workforce of the future?

What Do We Need Now?

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Convene forum of DOTs, private sector, and educators to discuss preemployment education needs/solutions.

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Priority Action 8:
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Which aspect of the first Summit has been or is anticipated to be useful to you?

ⓘ Start presenting to display the poll results on this slide.

Case Study

Defining the TSMO Workforce Pipeline

Defining the TSMO Workforce Pipeline

Key challenge: Where do we find TSMO talent?

Defining the TSMO Workforce Pipeline

- Typical sources - Students
  - University
    - Civil engineering
    - Planning
  - Community college or technical school
    - Computer information technology
    - Computer engineering technology
    - Electrical engineering/electronics technology
    - Commercial driver programs

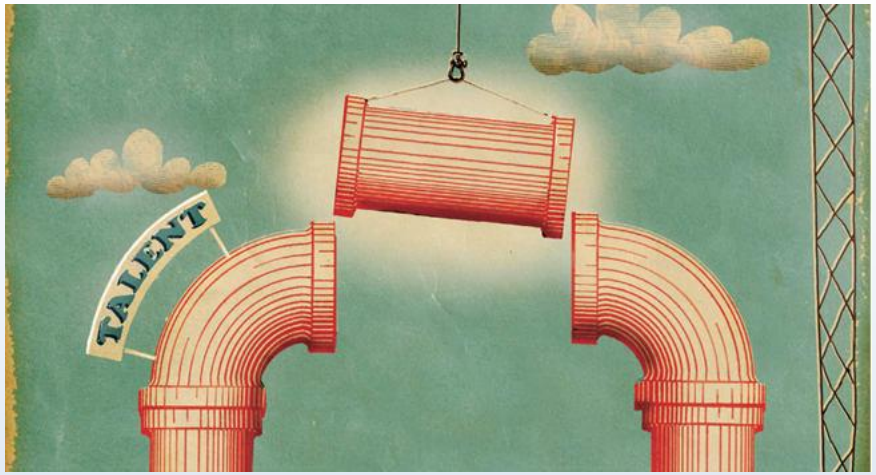
Defining the TSMO Workforce Pipeline

- Typical sources – Incumbent workers
  - Veterans
  - Emergency management professionals
  - Construction industry
  - IT industry

Defining the TSMO Workforce Pipeline

Additional Sources of TSMO Workers

- Expanding academic pipelines
- Creating strategic partnerships
- Tapping neurodiverse talent
- Cross-training existing staff
- Encore careers



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Barriers to Increasing TSMO Awareness

- Visibility
- Hiring practices
- Organizational silos

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Best Practices for Building the TSMO Pipeline

- Start EARLY!
- Expand industry-academia partnerships
- Cast a wide net
- Provide exceptional learning experiences

Best Practices for Building the TSMO Pipeline

- Pre-apprenticeship/apprenticeship programs
- Elevate awareness of TSMO
- Recruit from within
- Create a culture of innovation

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What internal or external challenges do you have related to the ability to bring new professional staff into the TSMO Workforce?

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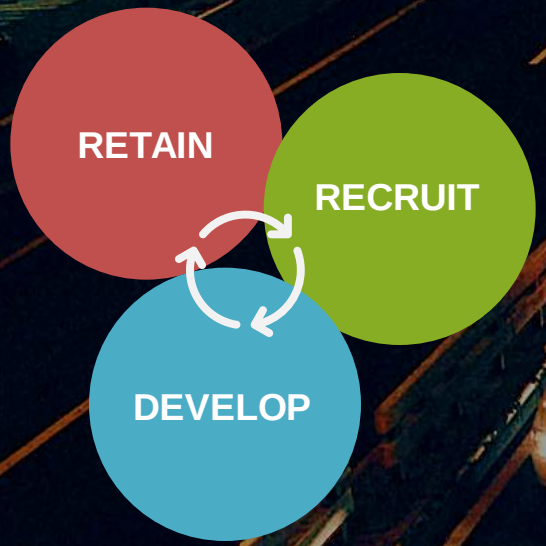
Group Break-out



At the professional level, what issues are you facing related to TSMO Workforce Development?

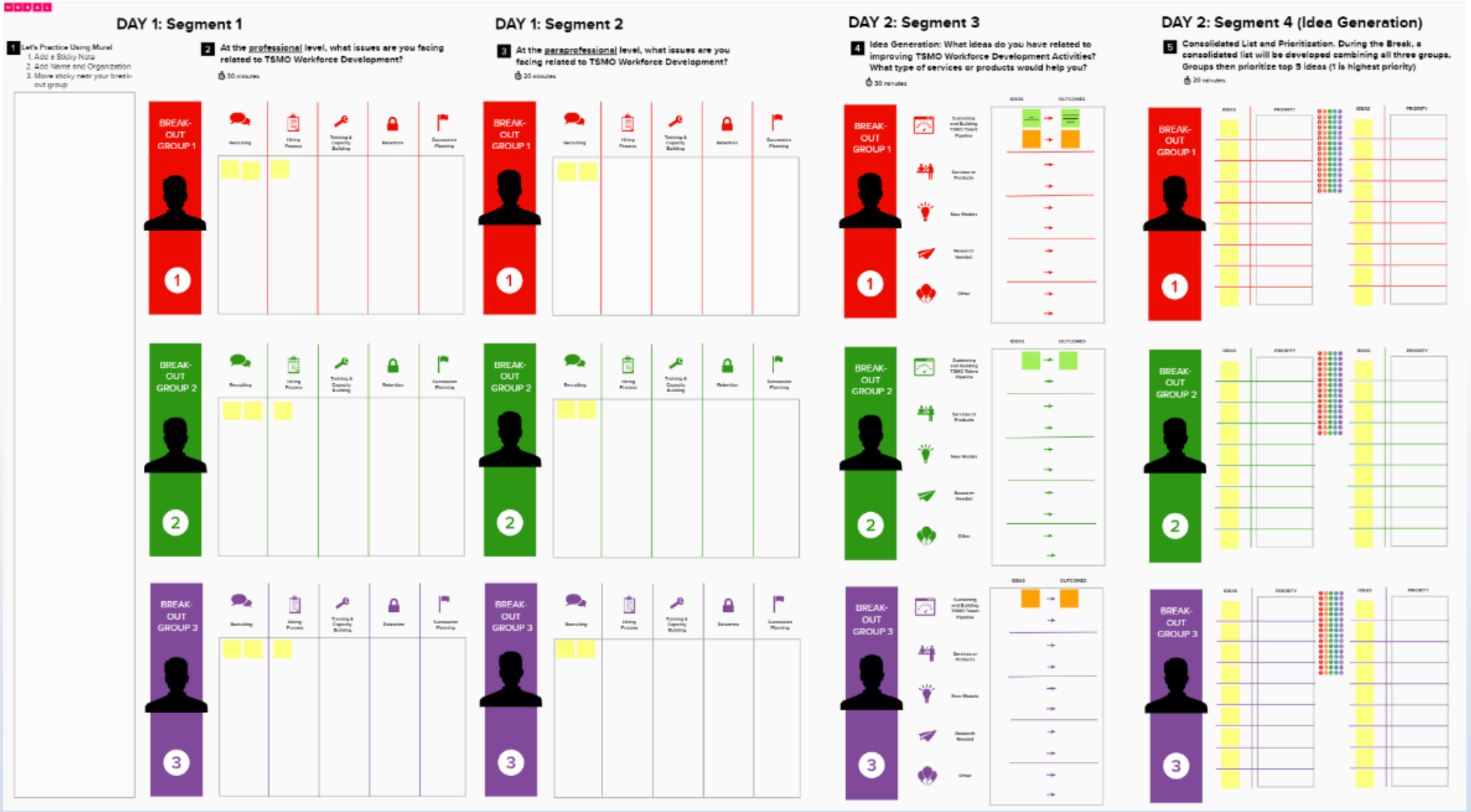
Introducing Your Break-Out Session Facilitators

Dr. Stephanie Ivey, Ph.D., PE
University of Memphis
Associate Dean for Research,
Professor, Civil Engineering
Director of SETWC

Pat Noyes
Pat Noyes & Associates
Principal

Todd Szymkowski, PE,
PTOE, PMP
Gannett Fleming
Senior Project Manager

Transition to MURAL



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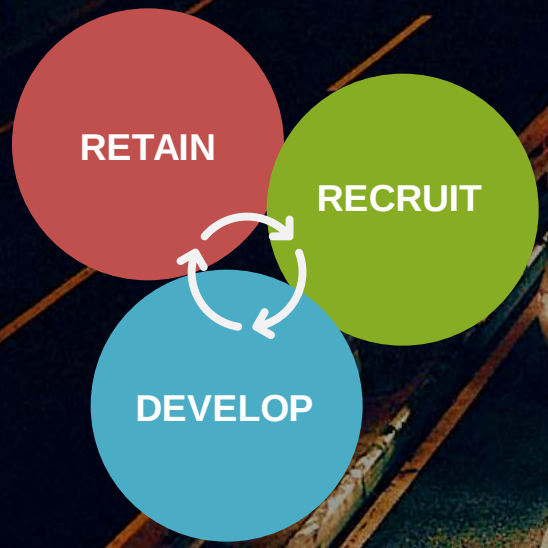
Group Break-out Reports



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THANK YOU
We will reconvene at
2:30 PM (Eastern)