

# Preparing the Transportation Workforce for Emerging Technologies

## Research Need

The rapid pace of technological advancements is changing how people and goods move through communities. Emerging and evolving technologies are transforming the transportation system and industry by improving capabilities, connectivity, and user experience. The transportation workforce—enabling the planning, design, operations, and maintenance of the transportation system—is learning more about these technologies and how to adapt and use them within their organizations. Not only is technology itself becoming more dynamic and, at times, complex, but the skills necessary to leverage these technologies represent a growing workforce challenge.

## Methodology

This project's research approach is rooted in foundational research that involved a survey of published literature and stakeholder outreach in the form of a broadly disseminated survey and follow-up interviews. Building on the foundational research, a workforce gap analysis was conducted to contextualize the foundational research and associate gaps in workforce caused by the introduction of new technologies with their root causes. Finally, strategies for overcoming those root causes were developed for inclusion in a Workforce Preparedness Guidebook. This guidebook is expected to be published in October 2025.



## Key Findings

The transportation workforce is adapting to the expansion of emerging technologies, which has raised awareness of challenges that are inhibiting the industry's ability to efficiently and effectively leverage value from these technologies. While every transportation agency's strategy for workforce adaptation is unique, there is a widely acknowledged need for additional resources that can support decision-making, promote continued investment, and focus training efforts to better prepare the industry's workforce.

Industry feedback demonstrates that transportation agencies are experiencing workforce challenges across all levels of staff and project delivery phases including planning, implementing, maintaining, and operating new technologies. In some cases, these challenges are related to finding the most appropriate technical resource to deploy a certain technology. Challenges also arise from existing policies, processes, and cultural norms within the organization that hinder staff's ability to deploy and maintain new applications of technology.

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Workforce challenges associated with adopting emerging technologies that were identified through this project can be summarized into three categories. While presented as distinct, there are overlaps between challenges and solutions to challenges associated with each category.

*In the session, the project team will dive into the specific challenges gleaned from the foundational research. Facilitated discussions will be used to better understand the challenges that attendees are currently experiencing.*



Institutional Agility

Challenges that impact an organization or agency's ability to respond quickly to evolving technologies through its policies, organization, and culture.



Staffing Adaptability

Challenges associated with quickly evolving skillset requirements to support emerging technologies, adapt hiring processes to introduce new candidate pools, and retain the existing workforce by upskilling.



Workforce Pipeline

Challenges associated with bolstering the workforce pipeline by encouraging engagement between industry and academic or trade educational programs. In the session, the project team will dive into the specific challenges gleaned from the foundational research. Additionally, we will facilitate discussions to better understand the challenges that attendees are currently experiencing.

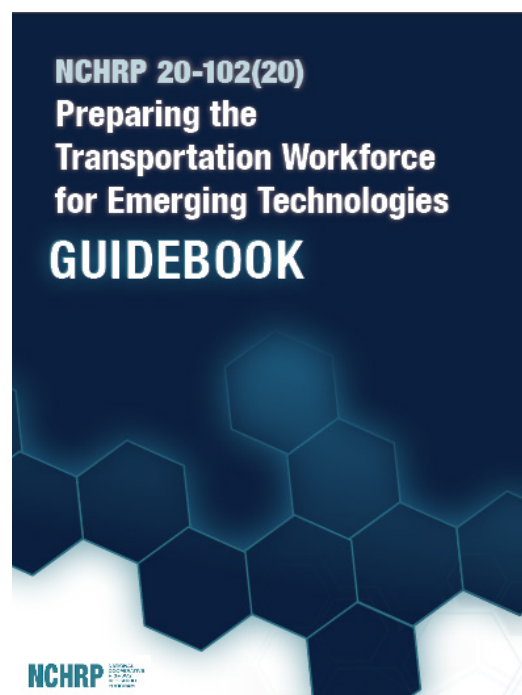
## Outcomes

The Workforce Preparedness Guidebook, under development as a part of this research, is intended to support agencies of a variety of sizes, geographies, and target audiences as they navigate adoption and integration of emerging technologies. The Guidebook includes resources such as discussion guides, checklists, decision trees, and maturity models, covering a wide range of topics. Some of the topics featured in the Guidebook include, but are not limited to:

- ▶ Strategies to modernize organizational structures, culture, and career paths
- ▶ Check lists and worksheets to build business cases for new positions and compelling benefits packages
- ▶ Discussion of emerging skills and parallel industries to aid in recruitment
- ▶ Strategies (arranged in maturity models) to cultivate agency relationships with education partners
- ▶ Strategies to modernize education pathways into the transportation industry (audience for this research is education partners)

The Guidebook is anticipated to be publicly available in October 2025.

*During the session, the project team will showcase the resources from the Guidebook. Engaging breakout groups will help to encourage discussion and connections between attendees as we collectively brainstorm potential solutions for shared challenges.*



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