Research Project Name: Causes of Mismatch between Ideal Transportation Workforce Skills vs. In-Practice Sought-after Skills, and Strategies to Close the Gap
Recipient/Grant (Contract) Number: Florida A&M University; Stony Brook University
Center Name: Rural Safe Efficient Advanced Transportation (R-SEAT) Center
Research Priority: Improving Mobility of People and Goods
Principal Investigator(s): Anil Yazici
Project Partners: -
Research Project Funding: $66,932 (Federal request); $45,780 (Non-Federal cost share)
Project Start and End Date: 6/1/2024 to 12/31/2025
Project Description: In the technology driven transformation in transportation industry, literature emphasizes the need for transportation agencies to recruit workforce with skills that can adopt to the rapidly changing industry. Researchers argue that digitalization and autonomy fueled by the technology innovation will transform the transportation workforce both in numbers and new necessary skills (i.e., *"digitalization literate workforce"*), e.g., skills relevant to the increasing utilization of automated equipment and tablets, big-data analytics and sophisticated decision support systems, connected and automated vehicles, shared mobility and electric vehicles. Researchers also emphasize that an increasingly stretched workforce can face difficulties to absorb the changes due to quick-paced development of new technologies.   In contrast with the literature's emphasis on the changing landscape for necessary workforce skillset, the preliminary findings of the REAT Center project ("Identification of Workforce Skills Sought by DOTs: What do job ads look for?") indicate that the existing job advertisements for transportation industry do not necessarily reflect the evolving needs of the industry. This finding indicates that there is a mismatch between the workforce skillset that the transportation agencies are projected to need, and the skillsets that are sought in job advertisements. Considering the importance of job ads in recruitment, there is a need to address this mismatch.   The mismatch can stem from various sources. The transportation companies compete with more resourceful technology and start-up companies to recruit and/or employ workforce that are well-versed in emerging topics such as autonomous systems, sensors, machine learning, and artificial intelligence. In the meantime, the technology driven transformation of the industry does not happen overnight, hence the traditional skills are still crucially needed and valuable. Given the already competitive recruitment environment and shortage of middle-skill trade workers across the industries, the transportation agencies may be forced to seek on-the-job training for their workforce needs related to technological skills. There is also a chicken-egg situation within the hiring process. About one-half of the state transportation agencies depend significantly on consultants for key technical positions such as systems engineering, information technology, and intelligent transportation systems (ITS) device maintenance, because agencies face difficulty in filling those positions. Hence, the transportation agencies may not have the in-house expertise to narrow down the necessary skillsets for the job ads, or to vet the applicants properly. Very likely, all these factors (and others) contribute to the aforementioned mismatch in different combinations for each agency. This project aims to rank those causes in order to device effective solutions.

US DOT Priorities: This project aligns with the USDOT the strategic objective of "Economic Strength and Global Competitiveness", particularly the research priority of "Creating Pathways to Good Quality Jobs"
Outputs: Causes of mismatch between the skills that are required in transportation job ads and the necessary skills that are sought-after by the transportation industry
Outcomes/Impacts: The formulated recommendations based on the identified causes of the mismatch will help the industry professionals create targeted job advertisements and device more effective screening processes as the first step of recruiting skilled workforce
Final Research Report: N/A