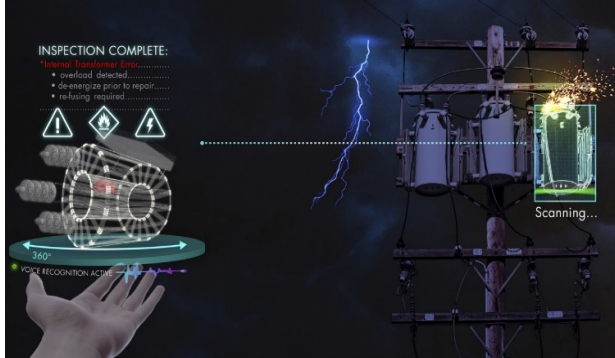


Advanced Technology Applications to Assist the Distribution Workforce



Background, Objectives, and New Learnings

“Access to information” is becoming an increasingly critical part of modern utility worker needs. Whether performing complex tasks with multiple steps or performing precision tasks that require a great deal of accuracy – the worker requires easy access to information concerning the work processes to be performed, the environment the work will be performed in and the safe working practices of the utility. This information is typically available but may at times only be accessed through different data sets from various software packages or paper copies printed prior to the work function.

“Access to information” may also include the ability to input new data into relevant software packages as the work progresses. This may include software for maintenance management, inspections, vegetation management, work order development, work procedures, utility safety guidelines, and others. Allowing new data to be input directly into the relevant systems would increase efficiency and decrease the opportunity for data discrepancies as data is handled multiple times.

“Access to information” may also include an extended reality (such as augmented or virtual reality) environments for worker training applications. These applications could allow trainees to engage in training activities that go beyond the paper-based classroom training. By immersing the trainee in a virtual environment, trainees may better simulate a hands-on experience in a safe environment. This training experience may enable them to better understand the multiple steps of their assigned task.

Project Highlights:

- Demonstrate digital technologies to assist the distribution workforce in complex and precision tasks
- Develop guidance, based on utility SMEs, for vendor demonstrations of digital work aides
- Engage with advanced technology vendors to demonstrate application approaches and technology options
- Evaluate demonstration applications to quantify performance versus typical work methods

Advanced digital applications that enhance worker access to information are in the early stages of deployment and evaluation, but utilities do not yet have the data that is needed to support deployment decisions. Specific needs include an objective assessment of efficiency gains, safety improvements, and task accuracy improvements.

The objective of this project is to investigate the feasibility and performance of digital worker aides in creating a safer, better informed, and efficient distribution work force. Specific objectives of this project are to:

- Identify high-value utility applications where a digital aide can help carry out distribution work processes;
- Investigate the feasibility and performance of various digital aides for the complex and precision work processes performed by distribution workers;
- Execute digital aide demonstrations to evaluate the applicability and quantify the performance of various technologies relative to existing and traditional methods.

Benefits

The potential benefits of this project include:

- A forum for the electric utility community to collectively identify needs and develop application requirements for advanced digital applications;
- Guide developers in the demonstration of engaging and functional digital assistant tools;
- An assessment of technologies to assist the field workforce and how they could be used to increase

worker access to information during complex and precision tasks; and

- Increased access to digital tools for the distribution workforce, advancing the industry towards the “digital worker.”

The benefits of this project are expected to be improved public and worker safety and greater system reliability as work methods are improved through the use of advanced digital technology applications.

Project Approach and Summary

The overall approach for this project is to develop requirements for the complex and precision tasks that utility workers perform to inform technology vendors in developing demonstrations of digital worker aides. The research tasks for this project are:

Identify Applications and Develop Requirements: Determine utility applications for a digital aide to assist in carrying out work processes and develop functional requirements for the applications based on input from project members.

Vendor Discovery: Utilizing the identified applications and functional requirements, develop a Request for Information (RFI) that will be sent to the vendor community to solicit interest in participating in this digital assistant demonstration project. The RFI would request interested vendors to respond with an expression of interest and preliminary demonstration concept.

Application Selection: EPRI and utility members plan to evaluate RFI responses and choose several applications to explore further. A Request for Proposal (RFP) will be sent to vendors based on the selected applications.

Vendor Proposal: EPRI intends to facilitate meetings with project members and vendors to review RFP responses and determine which proposals should be demonstrated. EPRI plans to organize and host these demonstrations.

Vendor Demonstration: EPRI plans to develop an approach to evaluate the demonstrations against the requirements for performance and usability by the field workforce. The demonstration of the digital assistant applications will be documented, and lessons learned reported to the utility members.

Deliverables

A written report providing a detailed description of the functional requirements of the digital assistant applications, a description of the demonstration architectures, and results of the technology evaluations.

The non-proprietary results of this research will be incorporated into EPRI’s Distribution Systems R&D Program and made available to the public for purchase or otherwise.

Price of Project

The cost of the project is \$50,000 per participant.

The project is expected to take twelve months from the start, and eight utility participants are necessary to execute the full scope of the project. This project qualifies for Self-Directed Funding (SDF) or Tailored Collaboration (TC) funds.

Project Status and Schedule

This project will commence once the minimum number of eight funders are under contract. All collaborative results are expected to be completed and delivered within 12 months of commencement.

Who Should Join

This collaborative project could be of value to field workers and crew leaders that are a part of the complex and precision work tasks inherent in the maintenance of the overhead and underground distribution utility systems. Members who are involved with team member training activities may also benefit by utilizing advanced technologies in their training regimes.

Contact Information

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askepri@epri.com).

Technical Contact

Brian D. Green at 865.230.4891 (bgreen@epri.com)

Member Support Contacts

Brian Dupin at 650.906.2936 (bdupin@epri.com)

Barry Batson at 704.905.2787 (bbatson@epri.com)

Electric Power Research Institute

3420 Hillview Avenue, Palo Alto, California 94304-1338 • PO Box 10412, Palo Alto, California 94303-0813 USA
800.313.3774 • 650.855.2121 • askepri@epri.com • www.epri.com