EPRI

ASSESSING THE USE OF VOICE ASSISTANTS FOR INDUSTRY

PROJECT HIGHLIGHTS

- Demonstrate and evaluate innovative use cases across the utility sectors.

- Assess workforce productivity, satisfaction, and safety enhancements using the transformative technology.

- Illustrate the ways to overcome challenges to IT integration and cyber security.

- Analyze adaptations and changes to work procedures for the use of voice technologies.

- Usher in voice computing and hands-free data entry into clean, touchless work environments.

Background, Objectives, and New Learnings

The world of human-to-machine interaction is brimming with voice-based interactions and transactions. This technology is migrating to the electric utility industry supported by transformative technologies of artificial intelligence (AI) and voice computing. The objective is to build upon the popularity of personal voice assistants in the world of personal entertainment and task assistance—such as Amazon's Alexa, Google Assistant, Apple's Siri, Microsoft's Cortana, and Samsung's Bixby—and to integrate these capabilities into industrial systems. The goal is to empower the utility worker with enhanced capabilities—simply by having a conversation. This research project proposes to investigate multiple use cases within the maintenance, operations, construction, and other sectors of electric utilities, as well as to explore the underlying data, IT/OT, communications, and cybersecurity functions that support these segments.

Operations use cases seek to assess conversational tools to assist in data access, procedural guidance, log keeping, inspections and other everyday tasks associated with operating the grid or generation plants.

Maintenance use cases aim to evaluate voice technologies for completing preventative and corrective work orders, ensuring procedure adherence, recording operator rounds (logbooks), and troubleshooting assistance and guidance.

Construction use cases intend to measure the benefits of voice computing and analytics to engineer and construct the grid or plant, as well as to evaluate the project-management tools used.

Safety and Health use cases endeavor to test and adapt algorithms to detect changes in utility workers' voices to pinpoint health issues and stress and to evaluate enhanced safety benefits of voice assistants in a new paradigm of clean, touchless workspaces.

All use cases will seek to determine potential improvements in workforce efficiencies and productivity, operational reliability, adherence to safety and performance standards, and accurate data capture.

Benefits

Participating utilities may benefit from a better understanding of new voice technologies and obtain a practical knowledge of how this capability, applied to utility use cases, may benefit both field and office-based workers. There are potential benefits in synthesizing large text-based documents into a voice-searchable format. Insights from this research could inform the utility of the costs and benefits of integrating this emerging technology. The public will benefit from a modernized, safe workforce that is more informed and capable to execute day-to-day tasks, is better equipped to safely manage asset performance, and ensures reliable power generation and energy delivery.

Project Approach and Summary

EPRI intends to work with project participants to test and evaluate voice technologies for several use cases. Research trials will be designed to gauge the usefulness and practicality—as well as the capabilities—of voice technologies. The project seeks to:

- Document the state of the art in the industry, including AI and natural-language processing.

- Hold a series of meetings/webcasts with technology providers to understand the potential of this emerging technology and its impact on industry workers.

- Engage new and existing utility software vendors to assess pathways for implantation of voice technology into applications and management systems.

- Conduct proof-of-concept demonstrations across various utility focus areas.

- Develop and implement a protocol to assess performance, with and without applying voice technologies for each use case.

- Perform cost-benefit analyses of implementing voice technologies per use case.

Deliverables

Project participants will receive the following:

- A technical report assessing each use case and observations on the costs and benefits of the applied technology.

- A technology-assessment methodology for evaluation of voice technologies.

- Hands-on experience with proof-of-concept voiceassistant technologies.

- Quarterly webcasts and/or meetings to keep utilities abreast of the learnings during the project, including vendor/developer forums.

- The non-proprietary results of this work will be incorporated into EPRI's R&D programs and made available to the public for purchase or otherwise.

Price of Project

The cost of this project is $105,000 per application demonstration (use case) per participant. Add an extra $60,000 for a demonstration of an enterprise application. The cost to be an observing participant is $60,000. This project qualifies for EPRI Self-Directed Funding (SDF) or Co-funding.

Project Status and Schedule

The project is slated to begin in Q4 2020 and will run through Q4 2025. The estimated time to complete the project tasks is up to 18 months per demonstration.

Who Should Join

Utilities that are interested in how voice technologies may augment or supplant day-to-day utility tasks.

Contact Information

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

Technical Contacts

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