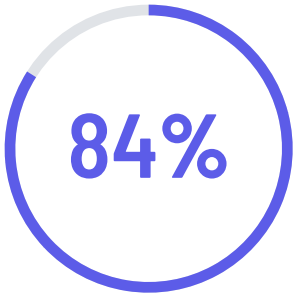
November 18, 2021

How can utilities use technology to address our skilled workforce shortage?

- 84 percent of energy employers are experiencing difficulty hiring qualified workers.
- Strategic innovation and outsourcing to technology can help alleviate some of the pressure.
- Digital transformation is the key to modernizing and creating a workforce for the future

Growing industry concern

In every corner of the electric utility industry, we struggle to hire, train, and retain a knowledgeable and experienced workforce. The National Association of State Energy Officials (NAESO), representing 56 energy offices of States, Territories, and the District of Columbia, recently published a report stating that just over **84 percent of energy employers are experiencing difficulty hiring qualified workers.**



of Energy Employers

are experiencing difficulty hiring qualified workers

According to the National Association of State Energy Officials (NAESO)

Combined with the fact that 40% of the electric utility workforce is eligible for retirement by 2030, we begin to see the magnitude of the crisis. The top reasons cited for hiring challenges have been lack of experience, inadequate training, and lack of technical skills.

Complex work in the utility industry requires a level of expertise not often found in a new crop of candidates. While efforts are underway by government agencies and utilities themselves to assist in closing the knowledge gap, the industry is stretched thin.

One solution can be found in the adoption of new technologies to modernize our existing workforce. By embracing digital transformation, we can lower barriers to entry and streamline workflows to further advance our energy infrastructure. However, it is no simple task. We need strong utility leaders to champion the adoption of new technology and own the associated organizational change. Thankfully, we are seeing progress. Innovative utilities and engineering service providers (ESP's) are rapidly deploying commercially viable technologies in the field, where many manual practices are still prevalent.

Drivers for change

Innovation

Today, Utilities and ESP's are starting to embrace innovative commercialized technologies that provide high ROI business use cases, including Artificial Intelligence & Machine Learning. These use cases address constraints and eliminate human error in the field while delivering highly accurate results. So, the deployment of innovative technology with demonstrated high value will leave more time for our limited workforce to accomplish what is important.

Outsourcing

Historically, outsourcing has been cast in a negative light. Many see it as an unnecessary displacement of the workforce to another party just to drive down operational costs. In years past, when outsourcing meant losing jobs to another person, that may have held true. But today, outsourcing human activities to technology can be revolutionary in terms of productivity for both utilities and their existing workforce.

Instead of looking at outsourcing in terms of operational cost, it should be viewed through a productivity lens as a key optimization advantage. With strategic outsourcing using technology, experienced utility employees can better leverage their years of expertise and pass on knowledge more easily.

How do we modernize the workforce?

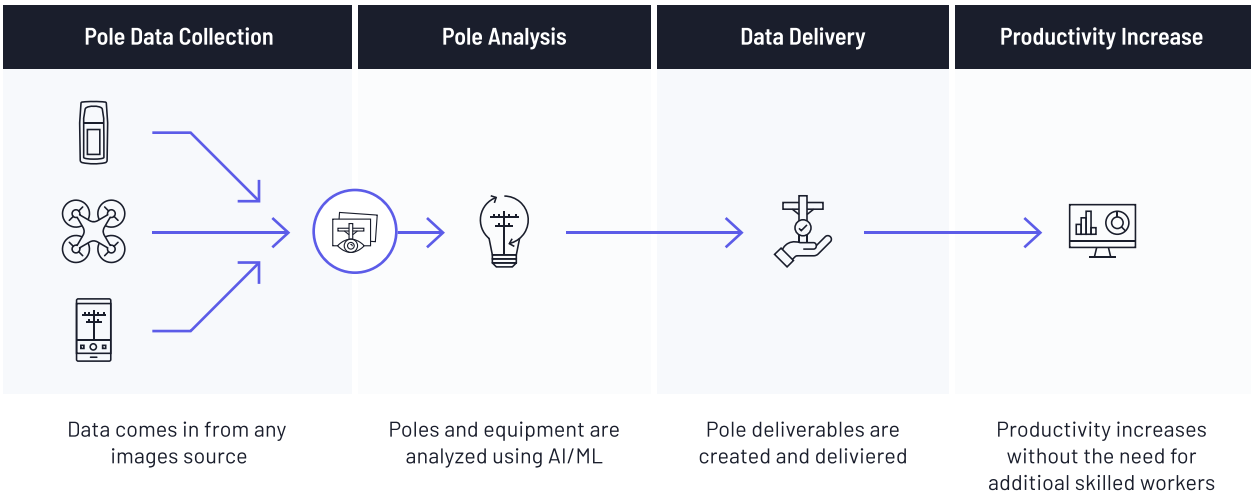
In two words... **Digital transformation.**

Modernization starts with digitization. Analog processes represent a massive barrier to creating a more modern workforce. Often, manual data entry points in the field are a major culprit in holding back modernization. Today utilities can leverage advancements in Artificial Intelligence and Machine Learning to create digital entry points for data while improving efficiency and accuracy. Utilities can also synchronize disparate data and digital imagery available from existing T&D utility repositories or outside organizations. Then, improved digital data leads to superior results over traditional field crew-based asset condition inspections.

Thanks to advancements in object recognition technologies and their algorithm's, design engineers can easily link GIS data and improve workflows for projects such as:

- Identification of defective equipment
- Improving data collection
- Identification of vegetation growth in the right-of-way
- High volume grid-wide as-built analysis

Imagine having a technology partner provider who can ingest any existing digital imagery of distribution utility pole plant. It does not matter whether it was captured on previous audits, or from one of many open public imagery sources. Then using AI/ML, utilities could identify damaged pin insulators, missing guy markers, NESC violations, or damaged cross arms in a matter of days. In comparison with traditional methods, the use of technology removes months of waiting on a manual field inspection and provides results at a fraction of the cost.



Scenarios like the one above are not some far-off pipe dream. They are available today to any utility seeking to address the problems we all face in staffing. As the crisis of mass retirement looms, the solution can be found in technology. Simply put, **the industry needs to modernize the workforce through digital transformation and the removal of high volume, error-prone, manual field collection of critical data.**

To do so, we need to arm our workforce with technology solutions and process flow improvements that deliver accurate results at lower costs while improving safety metrics and shortening time to project completion. By starting there, we prepare an aging workforce to better leverage the expertise they have. Then, we open the door to a new generation who will lead the charge towards a more modern workforce.

Where to start

Embrace new technologies by committing to an exploratory proof-of-concept engagement where both the utility and the technology vendor have something to gain. Seek to fail fast, iterate, adjust and focus on automating your workflow wherever possible.

Be willing to engage in an initial discovery workshop with leading technology companies that have demonstrated commercial success in your utility's desired use case.

Be open to sharing sample data that can be analyzed to properly identify project scope requirements .

If the proof-of-concept delivers the desired results, move quickly to further define what a full program should look like to scale operational efficiencies and move to program execution.

For T&D energy delivery utilities looking for promising use cases focus on identifying and automating current manual activities and processes in the field. That's where the low hanging fruit is located that provides high impact ROI projects that benefit all stakeholders.

Resources

1 Building the net zero energy workforce

2 Electricity workforce of the 21st century: changing needs and new opportunities

3 Who Will Replace Power's Aging Workforce?

4 The aging workforce will retire soon. Is the utilities industry ready?

5 2020 US Energy and Employment Report

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