Utility Arborist Newsline

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Considerations When Deploying Crew Technology

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It's amazing how quickly the digital land-scape has changed for utility vegetation management (UVM) in just a few years.

While work management software has been widely used in the utility industry for more than a decade, until recently, most VM crews still received work instructions and reported work progress on paper.

As crew-level software moves into the mainstream, it's been unlocking efficien-cies for contractors and utilities. Not only are crews receiving clear information, but utilities are getting better information back from crews faster than ever. Utilities are using crew technology to elevate high-priority tasks and help crews find the right work location—even if it's miles off a dirt road and down a remote, mountain-ous transmission right-of-way (ROW). Im-portantly, back-end processes are being streamlined with reduced times for audit and inspection which, in turn, serve to get invoices processed and paid faster. However, the shift away from paper comes with its own set of challenges in-cluding some complex considerations.

■ **Contractor-Owned Devices vs. Utility-Owned Hardware**

A few years ago, as an early adopter of crew technology, a large U.S. transmission operator opted to provide utility-owned de-vices to their contractor crews in order to meet internal cybersecurity requirements

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and foster usage through turnkey device support. Today, however, many utilities are pursuing the bring-your-own-device (BYOD) strategy (i.e., smartphones, tablets, and laptops not owned by the utility) with their contractors as the bene-fits may outweigh the challenges.

The benefits of BYOD:
- Reduced direct costs for utilities as the technology investment is absorbed by the VM contractors
- Better user experience as crews utilize the same devices for their work instruc-tions as they do for other work- related functions (e.g., safety applications, time sheets, expense management, training) without the need to carry multiple devices
- Uniform end-user support and greater control for the contractor (where con-tractors don't need to assist employees with the use of a second hardware device, which can be the case with utility-owned mobile devices)

The challenges with BYOD:
- Blurred employee privacy issues when company-owned devices are used to conduct personal business (e.g., family pictures, private phone calls)
- Heightened security concerns as the responsibility for managing the hard-ware shifts to the VM contractors
- Support for end-user applications on

contractor-owned devices can create a learning curve for contractor IT team

Just as utility VM contractors have been expected to expand their core competencies over time as the techniques and approaches to UVM have matured, the digital revolution in the UVM world is requiring these same contractors to become experts in deploying, managing, and securing hardware that carries mission-critical and sensitive information.

■ Security Risks

The electric utility industry takes its responsibility to maintain a strong electric grid very seriously. As such, with the distributed workforce of contractor crews comes the challenge of remote device monitoring to address viruses, hacking, and other cybersecurity issues. Data loss through security breaches can happen as the result of unauthorized users gaining access to the contractor or utility network to view, copy, or transmit data. To minimize this threat, companies are employing sophisticated data management tactics, including device encryption and remote wipe capabilities to erase data on devices that have been lost or stolen so the data won't be compromised.

Other options to minimize security risks include third-party management and/or reducing access to sensitive data.

Throughout 2020, a large Midwest utility is partnering with one of the leading UVM contractors to deploy software to hundreds of users—from crews to general foremen—by leveraging an enterprise mobile device management (MDM) system for remote device management, application security, and control. A proven third-party solution can provide the expertise needed without the investment of in-house personnel.

A large, electric distribution company in the southeast U.S. enabled its community of UVM contractors to download an app from the public Apple and Google app stores onto smartphones owned by the contractors or the employees themselves. The utility provided the work locations on the map along with non-sensitive background data, thereby eliminating security risks of putting utility asset data on the devices.

■ User and Identity Management

UVM employs a dynamic workforce with high turnover, which presents unique challenges in the form of user management (i.e., access and control), including the ability to revoke access immediately when needed.

Today's technology often provides a simple user management interface that the utility and its software vendor jointly manage—and with different roles—role-based technology that automatically adjusts based on position is critical. For ease of use, crew members, crew leaders, general foremen, and supervisors install the same application; however, it automatically changes appearance and functionality based on the role of the user.

Three Main Uses of Crew Technology

■ Pre-planned work
Contractor crews receive work instructions for specific locations within a territory (e.g., circuit, feeder, geography) that the utility or contract arborist has identified during a planning patrol. These work locations can be individual tree trims, removals, or other discrete work. The contractor crews need to navigate to the work locations, view instructions (including any restrictions), mark the work complete, and note any exceptions.

■ Work-to-standard
Contractor crews are instructed to meet clearance specifications. Via digital maps, crews can view work locations/spans, utility assets, restricted areas, customer notes, access routes, and other information to improve safety, efficiency, and transparency of the work. Crews can mark each span complete providing real-time progress updates to the utility and their supervision. For out-of-scope or add-on work, crews can create new work locations, capture the attributes of the work, and share before-and-after photos.

■ Reactive work
Contractor crews receive tickets for storm events, customer trim requests, and priority work. These work locations are placed on a map and annotated with relevant information. The app allows the crew to view a list of open tickets, sort by due date or priority, and navigate to the work location. When the work is marked complete, the status (along with any notes) automatically flows back to the UVM department and can also pass back to the call center software (or another system of origin).

■ Training and Adoption

It comes as no surprise that most crew members have smartphones. Learning how to navigate apps has become second nature. Think Facebook, Venmo, Waze, YouTube, and more. With time, the need to train users has taken a backseat. Today's focus is on creating a user experience that is simple and intuitive—and one that makes work easier and burden-free. Crew-facing software is no exception; it is focused solely on the task of enabling crews to find and complete assigned work. As the software is constantly evolving with new features, bug fixes, and ongoing changes to the visual and logical parts of the application, pushing updates should be easy and seamless to the end-user.

■ You're Not Alone

Utilities and contractors alike are facing important challenges to ensure the successful adoption of crew technology in an era of heightened security risk. At Clearion, we encourage all interested companies to consult with their preferred technology partner to evaluate the benefits and drawbacks of different approaches and identify the optimal solution for their specific environments. We're all in this together.