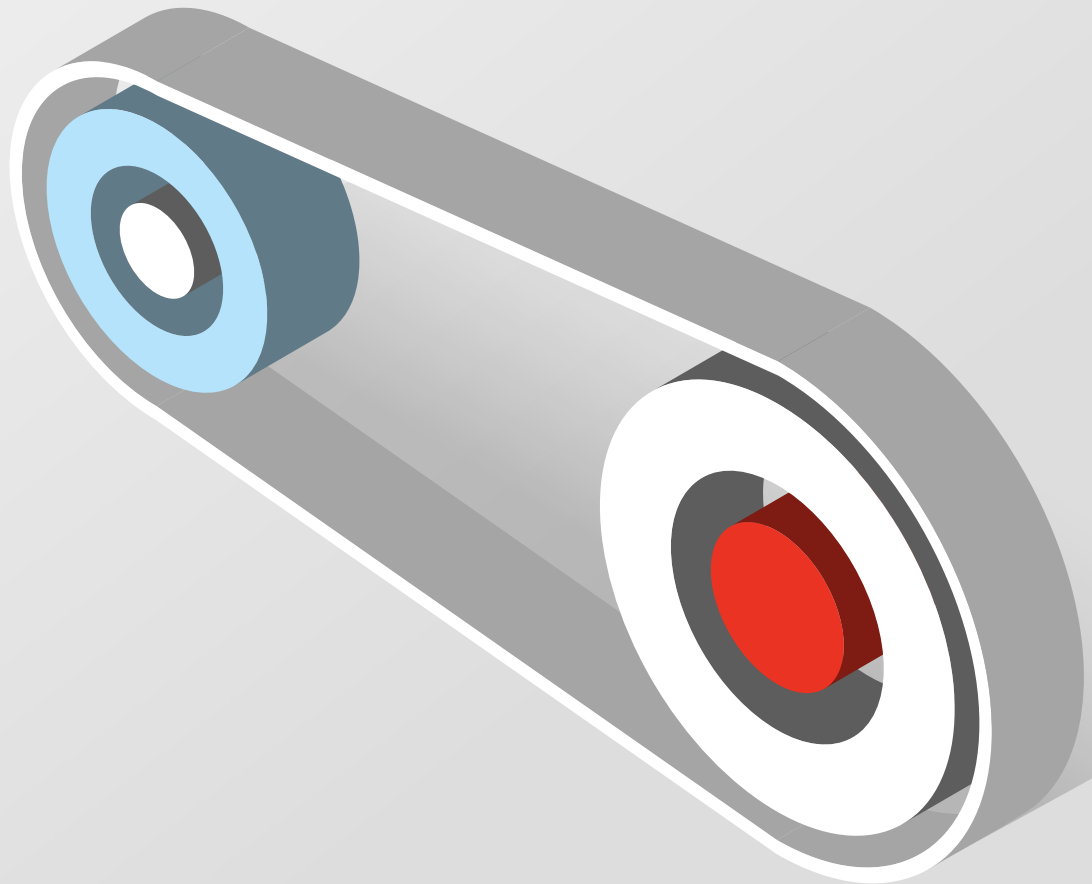




GUIDE

From actions into information

Building “smart” into your field workforce



Power utilities around the globe are heavily investing in smart technologies like smart grids and smart meters, harnessing the power of information technologies to monitor, control, and optimize the usage of the electricity system. Since 2017, the market value of smart grid systems has doubled and is projected to increase by another 50% by 2023.

Clearly, these investments are paying off, no more apparent than in generating a wealth of data that utility companies can leverage to continually improve efficiency. Connecting a central office with all its various endpoints, be it a power station or a customer's house, smart tech allows for a constant flow of data that helps utility companies develop new workflows, tactics and strategies.

A vast improvement on traditional monitoring systems, smart tech lets utility companies stay on top of pressing issues and potential hazards – even going so far as being able to automate reporting for repairs – but



people often overlook other smart technologies that can generate and collect more and better data.

In other words, this is just the tip of the iceberg: With the right tools, there is much more intelligence to be found, collected and leveraged, a treasure trove hidden in plain sight.

Turning Action into data

When you apply a simple question to any task – does that action generate data? – you immediately notice how much data is being directly produced by the everyday workflows of your team as they simply go about following their normal work processes.

What is routine work to you or your field teams – say, checking vegetation on a power line, replacing meters or even driving to a site – can actually deliver a rich and constant flow of information that will help you not just improve workflows, but work downstream to prevent hazards and cut costs.

Even though they may not realize it, a field team is constantly generating useful data, often by simply making their way through a checklist. And while it might not look like the data collection of a smart grid, each specific action represents a point of data waiting to be collected.

Let's look at a few examples of basic work that utility companies perform regularly to get a sense of how an everyday action generates data:

- ▶ **Inspections** – An inspection has many touchstones that can produce an enormous amount of situational data relevant to an overall workflow. For example, how long does it take your teams to finish

each inspection? What safety or quality issues seem to be the most common? Was that the shortest route your team can take from one location to the next? All of this situational data can reveal if there are inefficiencies in their process.

- ▶ Tailgate briefings – Something as simple as short safety briefings generate data. For example, if you continue to have briefings that cover the same topic, then that often means the same problems are cropping up over and over again on work sites. On the other hand, if safety incidents are occurring that because of hazards that aren't being discussed in toolbox talks, you can see that you need to start discussing them. On its own, it's just another toolbox talk, but from a data POV, it is generating training requirement data lets you see gaps in your training.
- ▶ Site visits – The simple act of going to a site and doing work there generates all kinds of location specific data that when leveraged properly, helps you see larger patterns and trends. For example, if your data lets you know that a certain site takes longer to complete vegetation management because it has more overgrowth than other locations, you can schedule your teams more efficiently.



- ▶ Remediation – When you're fixing something, you're may not be thinking about collecting data; you're there to remediate a hazard. But correlating this small point of data – one hazard at one site – with other, similar incidents, paints a much bigger picture: how effective your safety programs are. By bringing together simple remediation data, you actually produce ROI data that can show a return on your investment in safety programs.

On the ground, in the field, visiting sites, every mobile workforce is constantly generating all kinds of useful data – situational data, training requirement data, location-specific data, ROI data – no matter how routine their tasks.

So with a swath of fertile data ready to be cultivated, why haven't utility companies been collecting it?

Smart tech = Smart people

The problem is that this kind of human intelligence is rarely being optimized because it can't easily be gathered using traditional methods. More antiquated tools like pens, paper, paper maps, or even spreadsheets are not designed to collect action-based data in an efficient way.

Say, for example, that during their regular inspections, your teams record that there's a specific element that keeps failing in all the towers at various sites (maybe they were all made by the same manufacturer or were installed in a specific way). When different teams in different locations fill out separate paper reports and file them separately, no one will be able to see the common, underlying problem – it remains hidden because a paper-based system disperses crucial data across teams, time, and forms.

If an organization is trapped using old tech with inherent inefficiencies, it will never capture the full richness of the data right before their eyes. And those failing to take advantage of recent technological advances that can digitize and automate the collection process are missing an amazing opportunity to improve their business operations.

When you provide your workforce with the right tools – tools that digitize and automate their normal work processes – you can convert everyday actions into useful data and transform them into a smart workforce. With smart tech comes smart people.



Power utilities already invest in smart technology. Now they need to invest in making their people smarter. And when an entire smart workforce is applying digital technology to their workflows, they come to form a continuous, connected web of automated, real-time data-generating nodes simply by going about their jobs.

What's stopping you? The problems of old tech.

By looking at the many pitfalls of a paper-based system, we can see how digitization and automation will exponentially improve the collection, distribution and retention of data any utility company needs to ensure not just better decision-making but better work.

Materiality. The most obvious of setbacks concerns paper's materiality, seen in how easy it is for important documents to get lost, ripped, or stained. On top of that, paper is cumbersome, and field workers have enough to do without rifling through forms and hauling around reams of different paper checklists.

Error-prone. Whether filled out incorrectly by a single team member, or differently by individual team members, paper forms are prone to serious input errors and inconsistencies that make your basic data unreliable. Over time, errors lurking beneath the surface can multiply into full-blown systemic problems that need to be addressed but remain hidden.

Information transfer. Manually filling out detailed forms, bringing data back from the field, or transcribing stacks of records: All of this wastes time and slows down information transfer. Not only that, paper is very difficult to circulate and share with multiple stakeholders without adding additional tasks, from photocopying to collating and sending. Critical utility issues need fast, real-time reactions – decided by multiple stakeholders – that paper can't handle.

Inefficient. A paper-based system drains precious resources. Tasks like filling out paperwork, tracking down information and people, and organizing files and reports are time-consuming for both field teams and management, weighing down your whole company with administrative chores that very quickly affects productivity, morale, and bottom lines.



Data inflexibility. Paper is paper, nothing else, which makes it unusable for other data. If you want to add something to it, you can only staple on more paper. It is difficult or impossible to incorporate additional assets like photos, maps, video, or any sort of multimedia information.

Spreadsheets. Although they're often an organization's first step into digitization, spreadsheets haven't proven to be much better than paper. Lugging around laptops in the field is a burden, and spreadsheets are just as prone to data-entry errors. People still have to manually enter all relevant information into a spreadsheet, and when multiplied across field teams and tasks, there is the same potential for error, inefficiency, and lack of visibility that holds paper back.

Ultimately, whether paper or spreadsheet, the casualty of these outdated methods is always the truth. Transcription errors, versioning problems, lost paper documents, missing multimedia data, endless re-writes, confusing filing systems – each skew the reliability of your data and amount to either an erroneous version of events or multiple versions of the same event.

But one of the most damning gaps of a paper-based system is its inability to properly capture useful location data, a serious issue for utility companies who critically rely on it.

Where are we? The disappearance of location data.

There are few variables as important to utilities as location. Teams need to collect location data that continually documents their work progress, letting you know where they are, what they're doing, and how they're doing it. Or, at other times, they need to have easy access to location data to complete their jobs, like site inspections and repair maintenance. Finally, they often need to collect important location data for its own sake, for work like surveys and canvassing. Being able to collect quality location information gives you access to an entire stratum of fortified data that the entire workforce of a utility company can use to make better, more informed decisions.

So when your field teams are saddled trying to extract location data from a paper-based system, especially maps, it's hard to collect the human intelligence that comes from their actions; it's hard to be “smart”.

By having separate paper documents – maps and checklists and SOPs – to gather location data, once you scale up all your work processes, this complexity quickly compounds. If you only use one map as a reference point for many records or, conversely, have several teams using multiple maps with multiple checklists, it becomes difficult to reconcile your data, jeopardizing its reliability.



This proliferation of paper documents also makes it harder to keep records straight, harder to audit, and harder to share location intelligence – which means that, at the end of the day, very little location intelligence is actually made available.

The inherent drawbacks of leveraging location data from paper maps usually means the map is an adjunct or afterthought to additional material like a paper checklist. And even when it isn't, it still needs to be used in conjunction with other material to draw a conclusion. Separating map from information builds in unnecessary complexity and frustration when you need to quickly find out what is happening where.

Where do we go from here? Go digital, get data.

Now that we know that everyday action can generate data and that a paper-based system is riddled with problems, what are the real benefits of empowering your field teams with the digital tools that make them a smarter, more efficient, data-generating workforce?

Better quality data

The transition from paper to digital is a vast improvement, putting behind all the problems of a system that often fails to capture quality data. No longer subject to paper's shortcomings, adopting digital tools means that no record is lost or destroyed. And with the ability to easily integrate other forms of media like maps and pictures directly into a record, digitization exponentially boosts both the quantity and quality of a record's data.

Using digital platforms also means your data is more reliable. Not just less susceptible to input errors compared to a paper-based system, a digital record becomes the record of choice, so that there aren't

multiple paper copies of the record in circulation, possibly with different data, and muddling the reliability of the data – and your decisions.

User-friendly, digital tools are easy to adopt by all segments of an organization, especially when anyone on your team with a smartphone or tablet can build checklists and apps specifically to make their work easier, all without using code. Because of this, a standardized data collection process can quickly permeate a work culture and become universal across an organization: better data becomes pervasive when every employee is using the same tools, every record is digitally documented, and your entire organization is working from the same underlying data.

Digital tools also exponentially improve the collection of quality location data, the importance of which can't be overstated for utilities: Almost any action performed by field teams, when collected and analyzed with digital technology, can yield rich, value-added location data. When you can digitally add photos, video, or maps to any record, when you can automatically geotag every record, when you can easily integrate your data into a GIS platform, you are effectively transforming everyday actions into location-enriched data, giving you better information, higher visibility, and the strategic insights you need.

Better data availability

Instantly-saved records, cloud connectivity, and near-real time synchronization means that, at any stage of the data collection or distribution process, your data is always available to you and your teams at the push of a button. Paper is the ultimate silo, but digitization lets field teams, supervisors, and management access and share data instantly, so they can prioritize issues and react to any situation, knowing the full story, and make data-driven decisions.

Whether for compliance or auditing purposes, stakeholders will also want to see your data, and digital tools can instantly make it available to them and tailor it to their needs. Some will prefer a steady trickle of information – asking to see every safety or remediation report as it comes in – while others prefer a data dump, months and years of records, say, when they are looking into the effectiveness of your entire safety program. Digital tools let you find, organize, and collate your data efficiently, no matter how few or how many records you need to pull together.



Not just that, but each stakeholder, internal or not, often prefers a certain format to analyze data. Regardless of whether your boss needs a PDF but the compliance officer needs a history of individual records, digital tools make creating and sharing different data formats just as easy, so nobody is wasting time trying to please each person.

The quick availability of data through digitization, automation, and cloud-based storage makes jobs easier at the individual level, streamlining workflow data and integrating into other processes that are within your own immediate scope of work. Without digital tools, for example, if your team inspects several locations using paper checklists, then someone needs to drive home to transcribe them into a spreadsheet; after which, back in the office, someone else collates those spreadsheets into a master spreadsheet, from which a manager writes a report that is emailed to stakeholders. Thankfully, digitization streamlines this entire process, where the line from inspection to reports is entirely automated – mobile checklists, e-forms and reports – and handled with a few clicks. This means you, as an employee, can manage your area more efficiently.

Widening the scope, digital tools also automate processes at the enterprise level, leveraging instant data availability to do away with unnecessary steps, like finding and collating multiple spreadsheets to send bills to clients or having to feed a spreadsheet data into a CRM or warehouse database. Digitization streamlines high-level and critical corporate functions that keep the entire business running smoothly, efficiently, and profitably.

Better field team performance and agility

Digital tools yield better data that is more easily available and shareable back in the office, but what about on the ground? When you equip your team with smart technology, you're building in both consistency and flexibility that allow them to tackle whatever job is at hand, increasing their agility to perform better data collection that leads to a more productive and more efficient performance.



Jobs like inspections vary all the time, and teams need flexible solutions to respond in an agile way to a wide range of conditions that often change by the day, even the hour. Digital apps and checklists can be easily created to adapt to specific conditions of individual jobs, whether you need to take into account different state, county, or municipal boundaries, the needs of different clients, the requirement for different equipment, or even the fluctuating weather or physical conditions of a geographic site.

At the same time, for a team to truly be productive in the face of such flux, digital tools need to be consistent, especially at a granular level. This consistency is baked in when you're using purpose-built checklists that require teams to follow the same step-by-step instructions, and which can easily be made to either hide or show relevant information depending on the employee or the task.

Boosting this consistency, full integration across devices and near-real-time updates means fields team and offices are always connected. At one end, on-the-ground teams can alert the office of any immediate hazard or emergency that needs remediation, or moving in the other direction, teams can be updated at moment's notice of any changes in the scope of work or regulation requirements – all so that the right information is getting to the right people at the right time.



When everyone is working from the same underlying data, potential problems are always pushed to the fore so they can be tackled immediately. And, back in the office, this wealth of real-time information gives supervisors greater oversight to monitor everything from job progress to emergencies. As digital tools widen your scope of visibility, you start to see all the trends affecting your team's ability to do quality work effectively, and you can plan accordingly, making better informed decisions to allocate resources and continually streamline processes

The time is now.

With their investment in smart grids and smart meters, power utilities are leveraging technology to become smarter. However, what is currently missing, for truly advanced operations that fully harness the power of cutting-edge innovation, is the smart – in other words, technology-empowered – workforce. Failing to take advantage of other smart technologies to empower their employees, utility companies will always lack critical data that could dramatically improve their operations.

Purpose-built to automate and streamline data collection for your mobile workforce, a robust set of versatile digital apps and checklists can transform not just how your teams work in the field, but your entire organization.

By digitizing and automating a field team's everyday actions, you can effectively turn your workforce into a perpetual data-generating engine. And with a wealth of useful, reliable, location data at your disposal, you are always equipped with a wide visibility and positioned to continually improve productivity, safety, and efficiency across your entire organization.



Talk to Fulcrum to learn how we can help you digitize and automate your workflows – without writing code.

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