ORACLE

Utilities Report

Dual Innovation in the Field

2019

Introduction

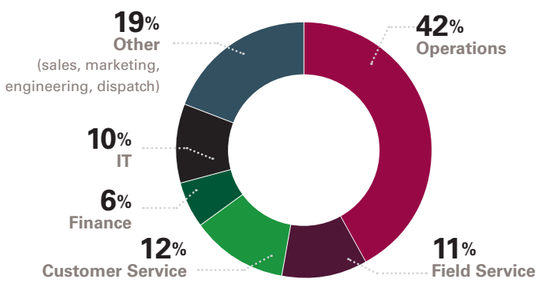
Utilities grapple with what appear to be competing concepts: the need to provide reliable service today in concert with planning and implementing new technology, new thinking and new strategies to shape a dynamically changing future. This two-pronged thinking requires a delicate balance: establishing the necessary foundation today to reach that customer-centric grid of tomorrow. How can we best leverage existing distributed energy resources (DER) and also tap into new DER strategies in our five-year plan? Executing that dual-pronged vision (with an eye on both now and new) can be difficult. Where (and when) should investments begin? And what does dual innovation really mean in an industry where even small improvements often require major capital investment and large-scale infrastructure changes?

In this evolving environment, we sought to assess the impact striving for this balance has had on the business models of utilities providers, exploring their relationships with innovative technology in their field service space from mobile to AI. The goal: to assess their ability to thrive in an environment predicated on rapid change. To that end, 114 utilities professionals in the United States, Mexico, Canada, and the United Kingdom were surveyed regarding the current and planned usage of innovative technology within their organizations.

Executive Summary

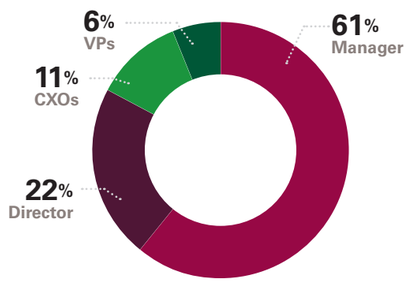
Respondents unanimously agreed that investment in innovative technologies was critical in the field service arena, but the study revealed significant disagreements regarding the shape and scope of advancement needed. Depending on where they sat within the organization, the size of the utility, and their proximity to the customer, respondents expressed a lack of clarity regarding the future. Is improving the mobile application critical? Investing more in AI or machine learning? Software updates? Hardware tie-in mandates (such as DER)? No one seems sure exactly where to begin, and those questions highlight misalignments within each utility's blueprint for the future. After all, it's difficult to set the team on a singular path to future-proofing if no one agrees on the direction.

Functions



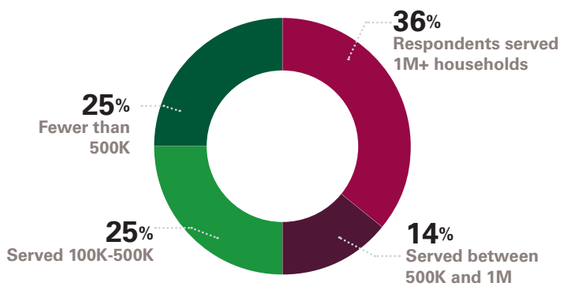
The majority of surveyed respondents were in operations (42%) with the balance coming from field service, customer service, HR, and finance.

Level



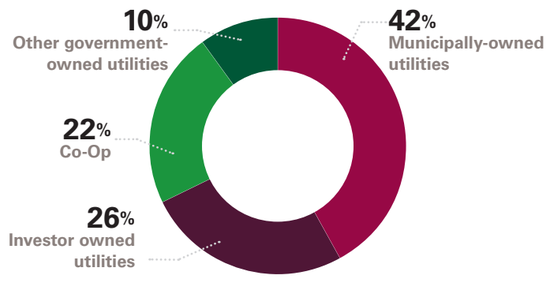
The most common job roles were manager (61%) and director (22%), followed by CXOs and VPs at 11% and 6%, respectively.

Households



The utilities surveyed varied in size from serving over 1M to fewer than 500K households: 36% of respondents served 1M+ households, 14% served between 500K and 1M, 25% served 100K-500K, and 25% served fewer than 500K.

Business Structure

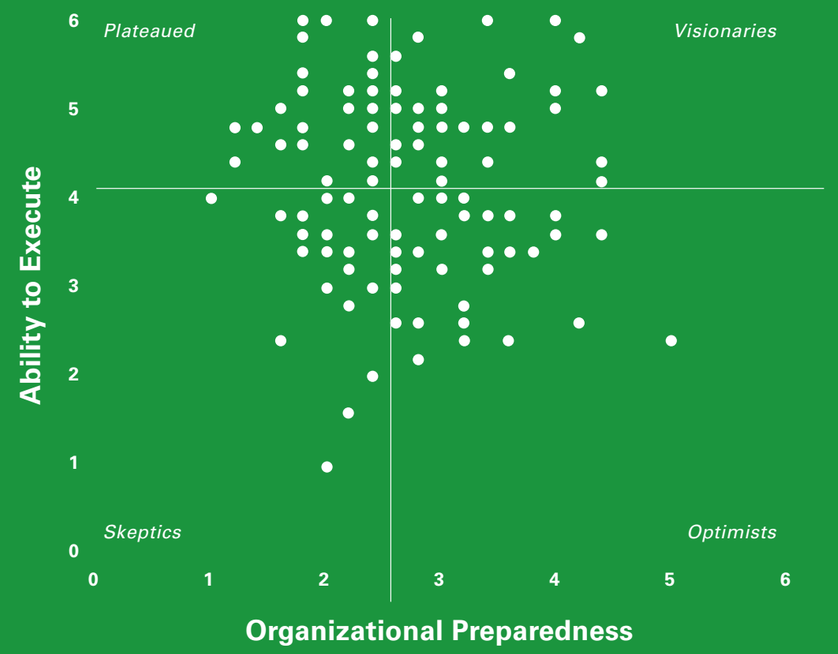


The majority of respondents came from municipally-owned utilities (42%), followed by investor owned utilities (26%), co-op (22%), and, finally, other government-owned utilities (10%).

Utilities Feel Unprepared for Innovation

Our panel of utilities professionals received a battery of questions to determine where they believe their team stands across eleven fundamental measures of innovation and mobile maturity. This self-assessment was designed to gauge how ready they, and by extension their organization, felt to tackle the evolution facing the industry.

We plotted responses along two key axes: "Organizational Preparedness" (i.e., do you have the organizational support, resources, and infrastructure to succeed?) and "Ability to Execute" (i.e., Is your current technology strategy on track to support customer-centric innovation?).

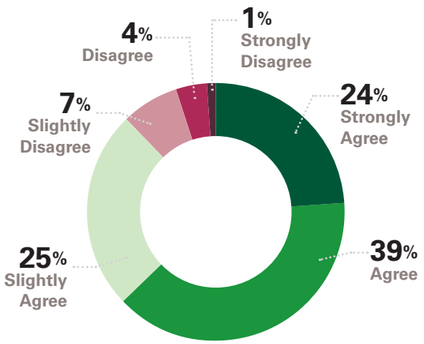


From this, we classify respondents as falling into one of four quadrants:

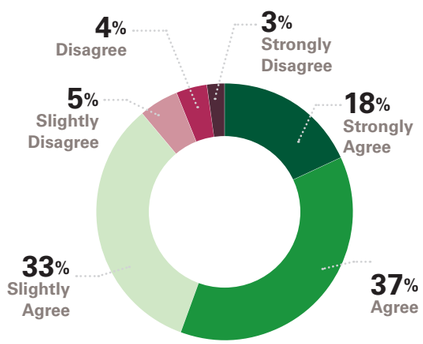
- *Skeptics* in the bottom left quadrant represent 27.2% of respondents. These utilities professionals report the least mobile maturity and use of innovative technology, citing weaknesses in both their organization's readiness and execution.
- 20.2% fell into our least populated quadrant, seeing themselves as *Visionaries* in the top right. These respondents tend to agree with both statements that confirmed their team's prowess in service delivery as well as how forward thinking their organization is in adopting new technology.
- Professionals who would be otherwise able to execute, but who feel hampered by what they see as their organization's lack of preparedness fall into the *Plateaued* quadrant in the top left at 28.9% of the surveyed group.
- Finally, 23.7% of respondents believe their team has all the future preparedness elements in place, but are still struggling with current ability to execute. These *Optimists* are captured in the bottom right quadrant.

Such quadrant classification mapping reveals the utility industry's significant growing pains. Organizations feel pressure to move forward, but nearly 80% of respondents fell within the skeptic, plateaued, or optimist quadrants, indicating that they currently don't feel capable now or fully confident about the future.

Regardless of their quadrant placement, respondents universally agreed that enhancing their field service solution was imperative, both for meeting short-term goals and for supporting future innovation. Approximately 90% of respondents said their utilities are prioritizing changes to their field service solutions and field service mobile apps to better address customer needs and to provide more customer-centric capabilities.



A top priority over the next two years is to make significant changes to our field service solution to better meet customer needs.

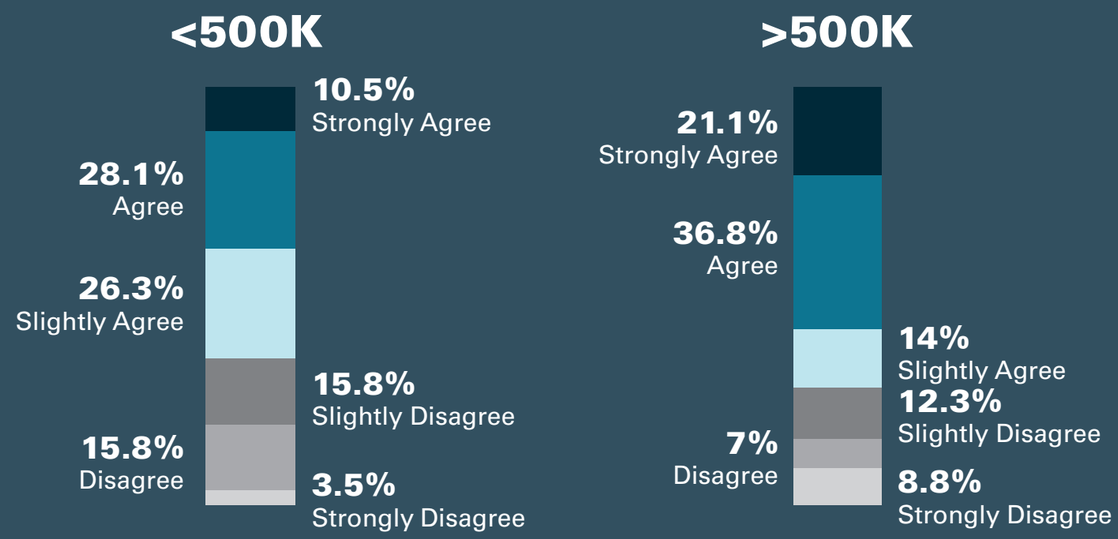


We are looking to improve the extendibility of our field service mobile app so we can build new functionality in line with changing capabilities and needs.

Some Utilities Suffering a Resource Crunch

Among survey respondents, larger utilities (those serving 500K or more households) indicated a strong focus on optimizing and extending their use of innovative technology to enhance field service. As an example, 57.8% of large utility providers reported using advanced analytics and/or machine learning to optimize field work, compared with only 38.6% of providers serving fewer than 500K households.

This gap may be driven by the larger data set available to utilities serving more households. They can more easily segment customers, create pilot programs, and compare the results of beta testing, a luxury that the small to mid-sized utility providers with a leaner team may not be able to afford. Utilities who don't have the luxury of in-house data scientists and software engineers are reaching for simple, automated, "out of the box" solutions to help them close this gap.



We use advanced analytics and machine learning to create work schedules that maximize the use of our field resources and provide customers with short and precise appointment windows.

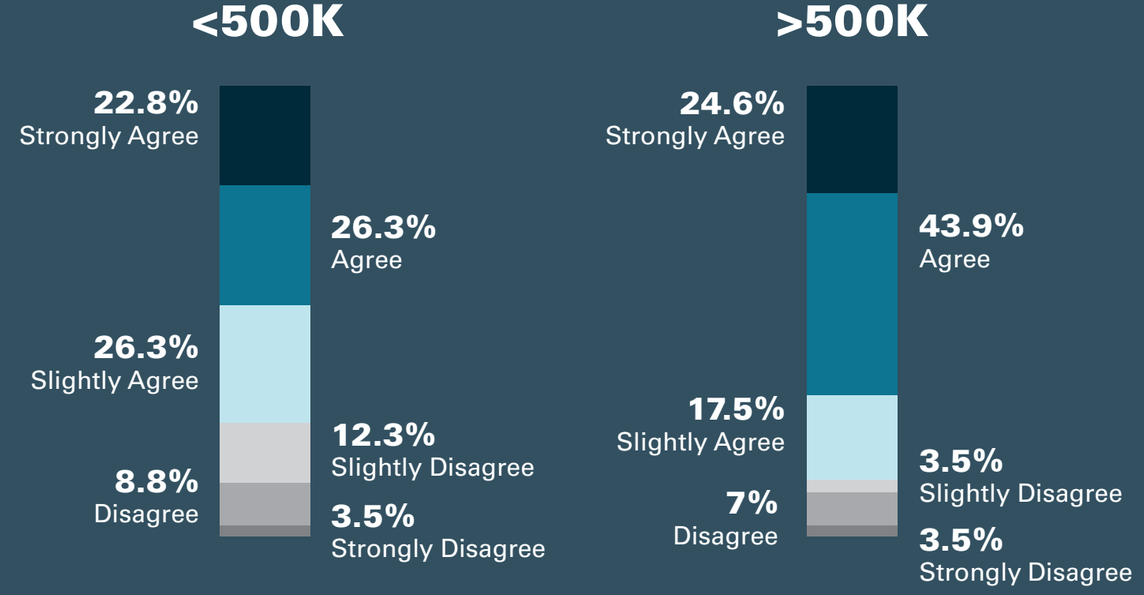
Among utilities that are implementing and expanding customer-centric field innovations, there's some good news; they seem to be working. For instance, larger-than-average utility providers report a high rate of customer satisfaction with field service communications. Among utilities serving over 500K households, 68.4% either agreed or strongly agreed that their field service updates met the needs of their customers. (The figure was lower for utilities serving fewer than 500K households, with only 49.1% reporting the same.)

There are multiple factors at play here. First, customer expectations are high across the board. After all, it doesn't matter how big a utility provider is, their customers want the lights to turn on when they flip the switch and their field technicians to show up when they say they will. But the deeper technology stacks used by larger providers lend themselves to more automation, more touch points, and more opportunities for fine-tuning service delivery.

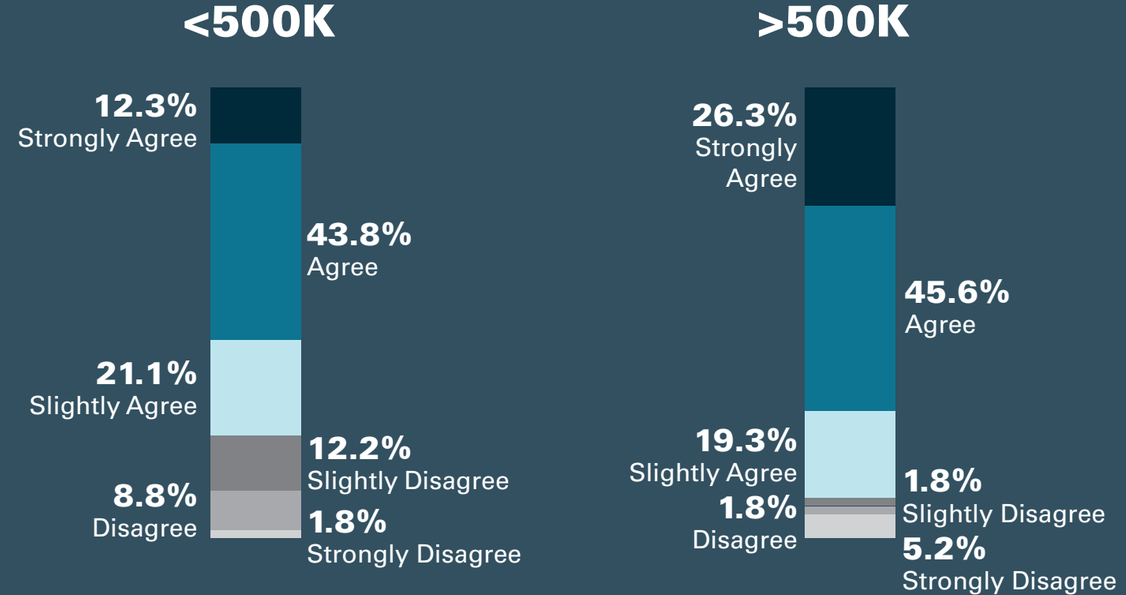
That said, larger organizations have, by definition, larger teams as well. Because there are more layers between those looking at data trends and customer service reports and those who are actually on the front lines answering the phone and making service calls, it's possible that they are simply less acutely aware of issues with customer satisfaction.

Larger utility providers also have different goals for future innovation. Large utilities, often formed through mergers and acquisitions, are tasked with managing complex systems and making disparate or redundant technologies play nicely. Seeing everything under one pane of glass is a complex task and, therefore, a much higher priority for these larger teams.

For instance, obtaining a single system to manage technicians was a primary goal for 72% of larger utilities, compared to 56% of respondents serving fewer than 500K households.

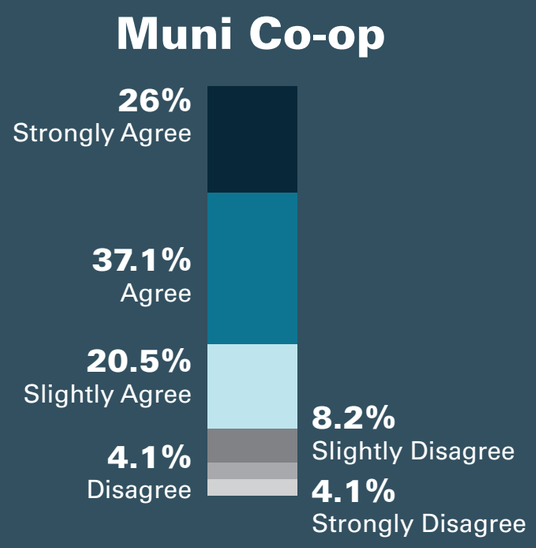


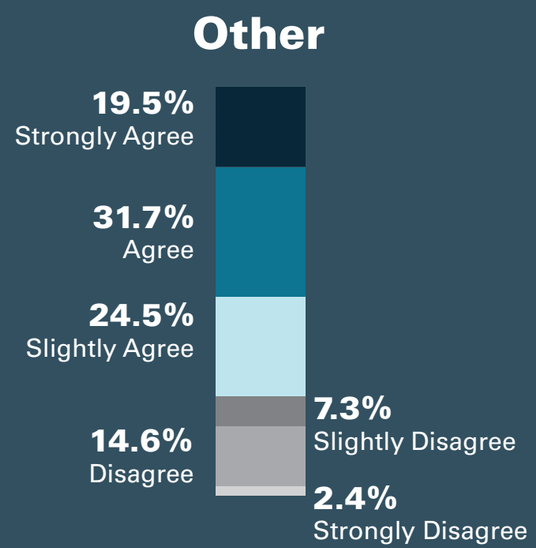
Our customers are satisfied with the updates they receive indicating when their field technician is expected to arrive.



A primary goal for us is to schedule, manage, and track internal and contractor technicians from a single system in real-time for short-cycle and long-cycle tasks.

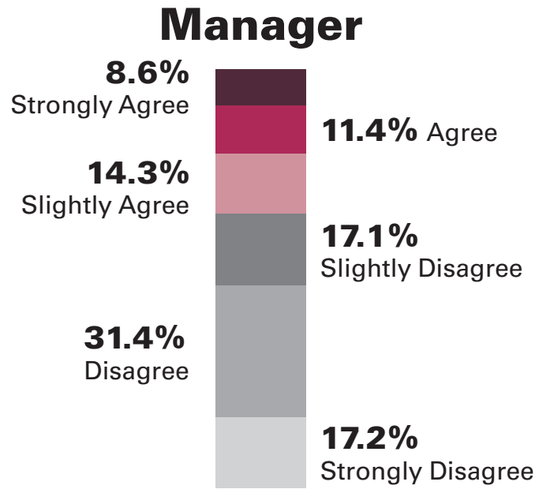
When responses from municipal and cooperative utilities were compared with other providers, an interesting trend emerged. Only 8% of municipal and cooperatively-owned utilities felt that their field service alerts did not meet customer needs, compared with nearly 17% of other utilities types. (This may be attributed to a difference in culture within the utility organization, a feeling of being closer to the end-user overall given the utility type, or simply the smaller customer base, making them inherently more flexible to adjust to changing customer desires.)

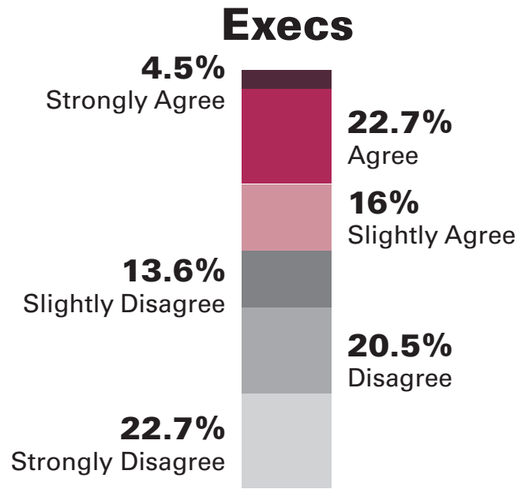




Our customers are satisfied with the updates they receive indicating when their field technician is expected to arrive.

A disconnect also seems to exist between front-line managers, who have a closer view of field operations, and the C-suite. While front-line managers generally report a slightly more optimistic view of their field service delivery, 12.5% more of the CXOs surveyed expressed concern over long wait times for field technicians.





Our customers often wait more than 3 hours for a field technician to arrive.

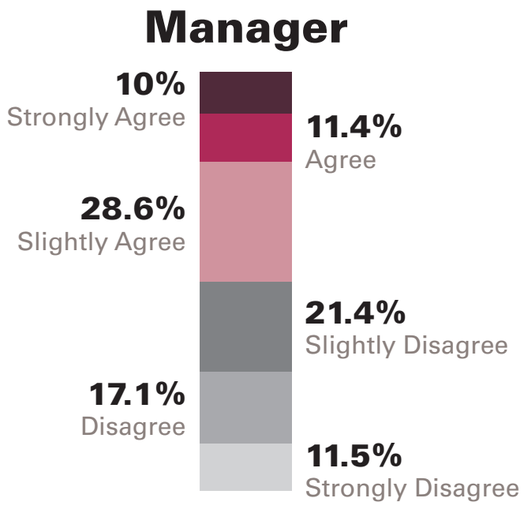
Excitement Over Innovation Shadowed by Anxiety

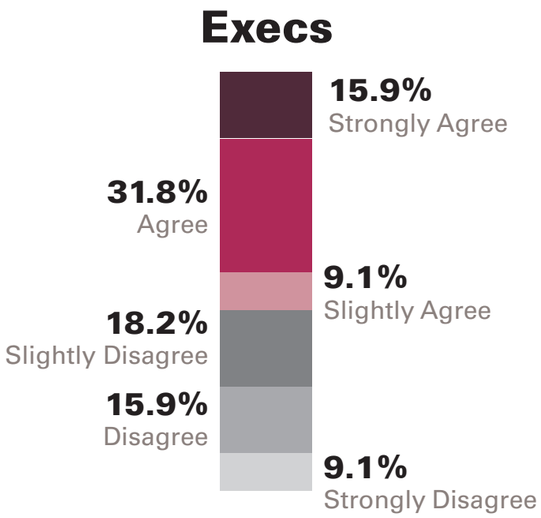
Drones and machine learning and AI. Oh my! There's clearly excitement around innovation within utilities. Thinking about building the grid of the future, planning to add intelligence to infrastructure, and empowering customers to reduce consumption are all lofty goals. But when it's time to start taking concrete steps toward innovation, anxiety creeps in. Utilities pros all agree that they need to do something, but that's where the consensus ends.

Executives, for instance, were very concerned that their organizations aren't investing in new technology quickly enough, with 47.7% agreeing or strongly agreeing that they weren't keeping pace with the industry. Managers seemed significantly less likely to express the same concern, with only 21.4% agreeing or strongly agreeing with the statement.

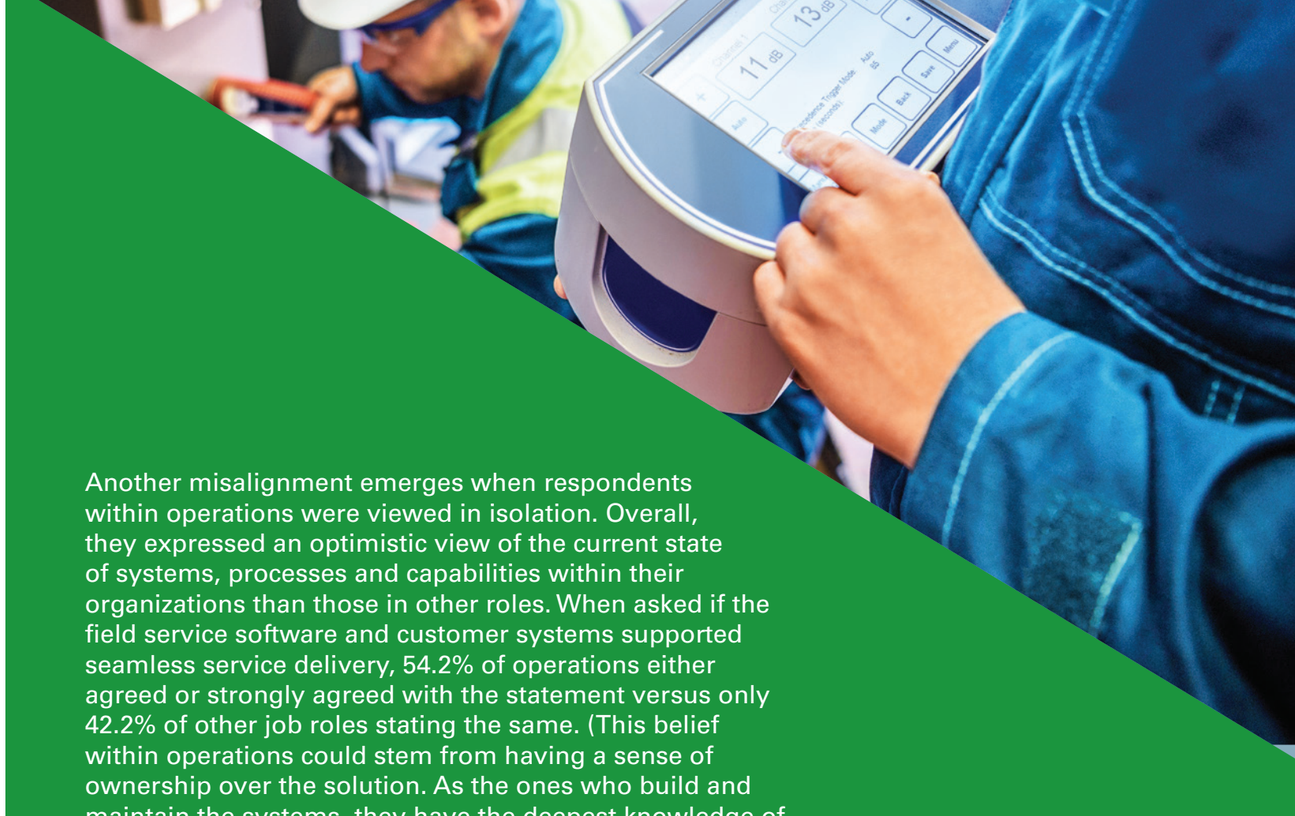
This can be attributed to the challenge of dual transformation required for utilities providers. The managers are more likely to focus on immediate needs. They are working more closely with the technologies already in place and using them to enhance customer service, maintain reliability, and keep up with regulatory requirements. Executives, on the other hand, are keeping a closer eye on what will be needed five, ten, or fifteen years down the line.

This tension is not easily resolved as both paths are essential to the success of the organization.

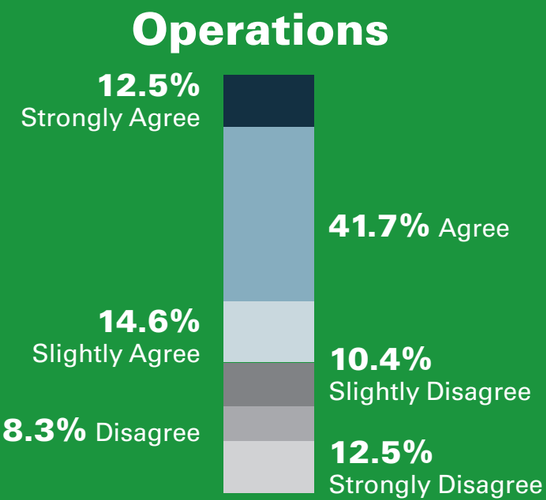


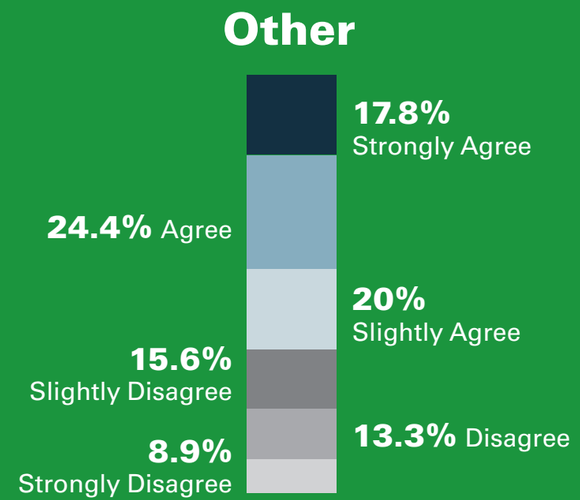


I am concerned that our utility is not investing quickly enough in new technology like Mobile, AI, and Machine Learning, to keep pace with speed of technological change or customer experience.



Another misalignment emerges when respondents within operations were viewed in isolation. Overall, they expressed an optimistic view of the current state of systems, processes and capabilities within their organizations than those in other roles. When asked if the field service software and customer systems supported seamless service delivery, 54.2% of operations either agreed or strongly agreed with the statement versus only 42.2% of other job roles stating the same. (This belief within operations could stem from having a sense of ownership over the solution. As the ones who build and maintain the systems, they have the deepest knowledge of current capabilities.)





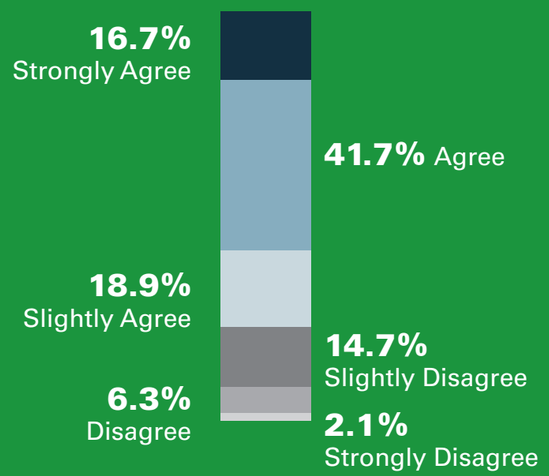
Our field service software and core customer systems are well integrated, allowing us to provide customers with a seamless end-to-end service

When asked if they are frequently unhappy with the decisions and schedules made by the service software, operations were also much less likely to express discontent. Only 16.7% of operations agreed that they are unhappy, versus 26.7% of other job roles. And they were much more likely to disagree with the statement than the rest of the organization, at 50% versus 42.2% respectively.

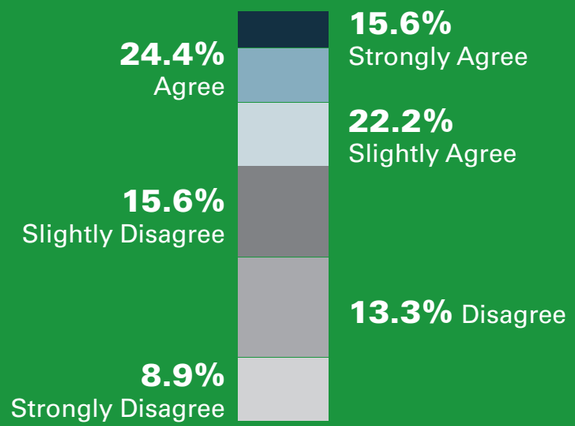
The schedules the solutions produce don't typically touch all areas of operations directly, which could contribute to this finding. The causes of unhappiness with scheduling across job roles can be difficult to quantify, as someone who is looking at a schedule with an eye toward efficiency will be happy to see even coverage across weekends and holidays, while the person who is on call may have a different view entirely.

Similarly, when asked if advanced analytics and machine learning were in use to maximize scheduling efficiency and service delivery, operations had a much rosier view of the situation. 58.3% of operations folks either agreed or strongly agreed with the statement, versus only 40% of people in other job roles. Perhaps more interestingly, only 8% of operations respondents disagreed or strongly disagreed with the statement versus 22% of other roles. The misalignment may also indicate the need for more education and awareness initiatives to calibrate and align the vantage point and perspective between operations and those that sit outside of the function.

Operations



Other



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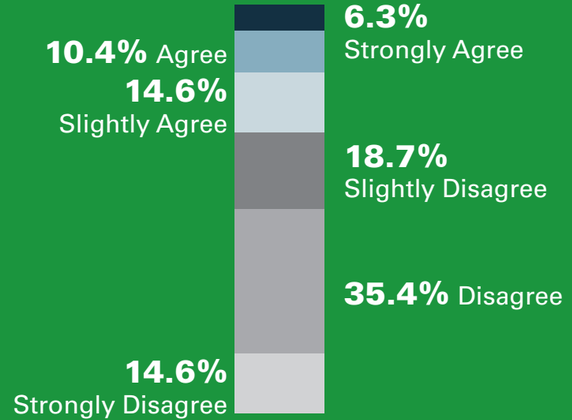
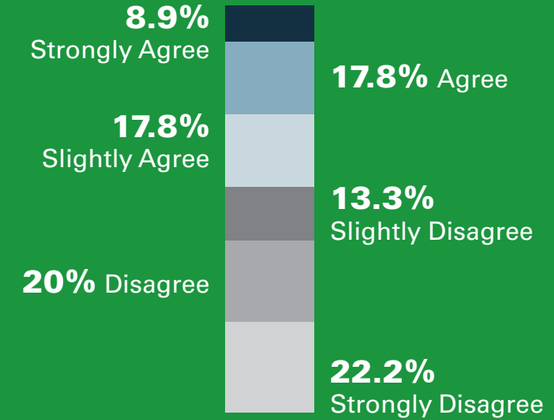
Operations



Other



We are frequently unhappy with the decisions and schedules made by our field service software.

Key Takeaways

1. **Utilities are experiencing a crisis of confidence.**
   The challenge of dual transformation is intensified for utilities providers by the long lead times and often bureaucratic processes **required to make infrastructure and service delivery changes.**

2. **Current misalignments must be explored.**
   Silos within utilities organizations feed misunderstandings of the goals, capabilities and performance of these innovative technologies. It's essential that where advanced technology is already in place, it is understood and utilized to its fullest capacity. Therefore, education and awareness efforts are critical to ensure that everyone is on the same page regarding the current usage of innovative technology.

3. **In the end, utilities must embrace the dual innovation path.**
   Executive leadership wants to invest in AI, machine learning, drones and more, while the managers on the ground are more focused on improving usage of customer-facing areas. In reality, they're both right. Leaders must focus on better communicating their vision for the future, and explaining why the framework for introducing advanced tech needs to be built today. Conversely, those closer to the field need to surface opportunities for optimizing and automating current processes and procedures.