

MOBILITY REDEFINED:  
THE UTILITY MOBILE  
WORKFORCE IN THE  
CONNECTED GRID



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# INTRODUCTION

As utilities transform into more connected and distributed grids, their mobile workforces must transform as well. Conversations around the Internet of Things (IoT) and Smart Cities often focus on machine-to-machine (M2M) communications, but we also need to consider how these efforts will better connect utility mobile workforces.

Utilities will have significant opportunities for their mobile workforces to leverage real-time data and better connect with their customers and the grid—from installing smart thermostats and smart meter reading, to maintaining solar power or quickly restoring power after outages. Even with all these opportunities, a key question remains: **How can utilities best leverage new technologies and data for their mobile workforces?**

This paper explores how a data-rich world with unprecedented connectivity will transform a utility's mobile workforce, along with the mobile technologies and communication networks they rely on every day. Zpryme surveyed over 150 North American utilities on their mobile workforces in today's changing environment to discuss:

- The changing utility mobile workforce—from demographics to technology
- The ways IoT and Smart Cities are reshaping mobile workforces
- How prepared utility mobile workforces are for these changes
- Ways utilities can take action today to unleash the potential of their evolving mobile environments

## KEY FINDINGS BY THE NUMBERS:

Utilities **expect to see growth in the mobile workforce** over the next 1 to 3 years (88%) even as 63% expect to lose some portion of their mobile workforce to retirement.

Utility agree that **IoT (52%) and Smart Cities (47%) technology** will have a significant impact on their organization's mobile workforce.

The **top three challenges** of integrating real-time data and analytics for utilities are network security (41%), data privacy (35%) and technology maturity (30%).

## RESPONDENTS AT A GLANCE:

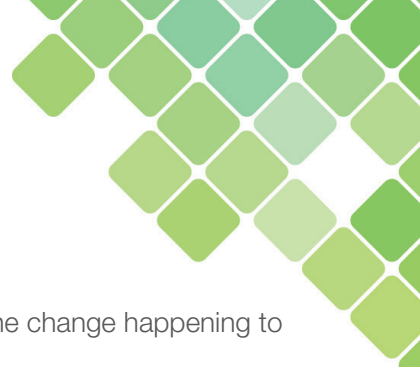
Respondents work for a variety of utilities, including investor-owned (49%), municipalities (24%), and cooperatives (18%)

Most respondents work for **electric (60%) and gas (23%) utilities**

Top regions include the **Pacific (19%), Northeast (18%), and South Central (18%)** areas of the United States

Utility annual revenues range from **over \$1B (41%) to below \$100M (16%)**

Respondent roles in their organizations include **engineering (26%), IT (17%), and operations (14%)**

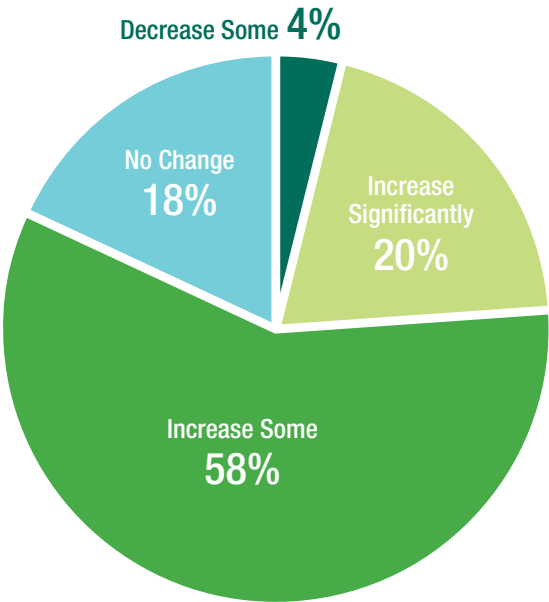


# 1. THE CHANGING UTILITY MOBILE WORKFORCE

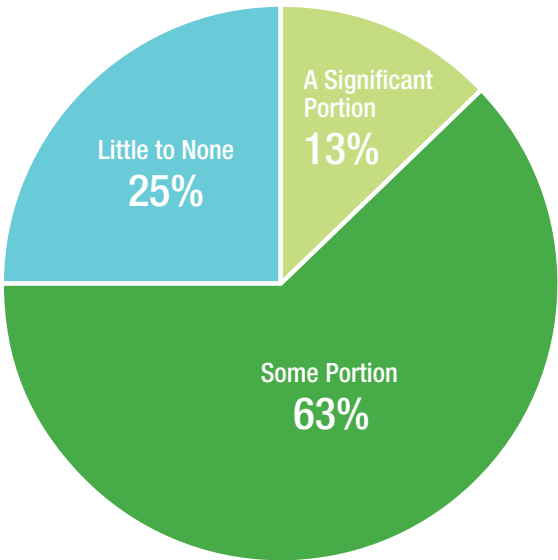
When examining technology changes in a utility’s mobile workforce, we need to first consider the change happening to people as they are critical to driving innovation forward in the field.

## CHANGING DEMOGRAPHICS

Although 76% of utilities expect at least some portion of their mobile workforce to retire in the next few years, 78% of them anticipate that their overall mobile workforce will increase. (Figures 1 and 2) As utility workforces age, many valuable skills and institutional knowledge will be lost to retirement. However, this transition presents utilities with a unique opportunity to introduce new mobile solutions to its workforce and attract new generations of digital natives who may be more comfortable with modern technologies. Ultimately, utilities have the opportunity to adopt new approaches to their mobile workforces—and technology can play a significant role in helping make the transition between different mobile workforce generations.



**FIGURE 1:** GROWTH OF UTILITY MOBILE WORKFORCES IN THE NEXT 1 TO 3 YEARS



**FIGURE 2:** EXPECTED UTILITY MOBILE WORKFORCE RETIREMENT IN THE NEXT 5 YEARS



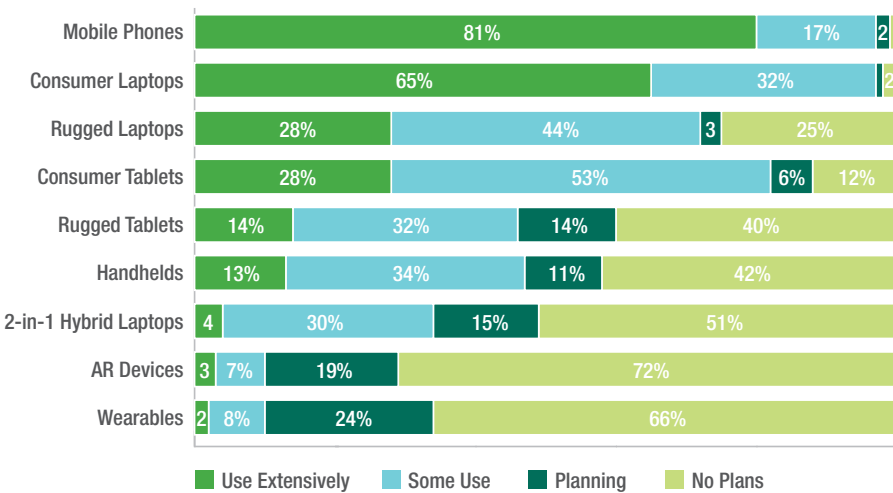
# 1. THE CHANGING UTILITY MOBILE WORKFORCE (CONTINUED)

## CHANGING TECHNOLOGIES

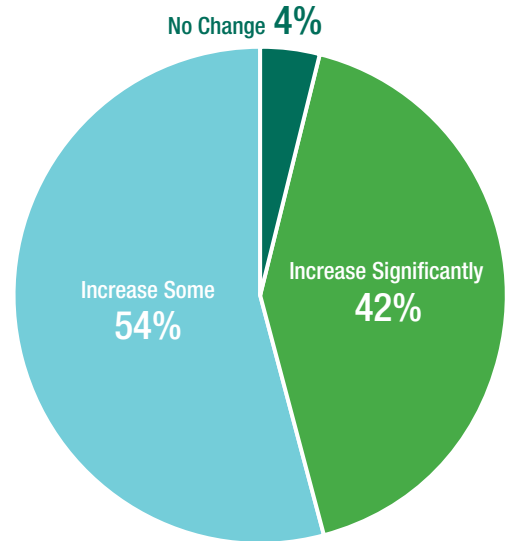
The overall growth and changing demographics of the mobile workforce mean new opportunities for advanced data, analytics and technology. Digitalization is occurring across many industries, and utilities are certainly part of this transformation. Overwhelmingly, utilities plan to increase the digitalization of their mobile workforces (96%)—with over half of utilities saying it will increase significantly in the next 1 to 3 years (54%). (Figure 3)

Foundational to digitalizing mobile workforces are fast, rugged and reliable mobile devices. Mobile phones (81%) and consumer laptops (65%) make up most of the mobile devices today, however, other technologies—such as rugged laptops, tablets and handhelds—are making their way into the mobile workforce. Utilities are also planning to use new technologies, such as wearables (24%) and augmented reality devices (19%), to enable their mobile personnel with new opportunities for connectivity.

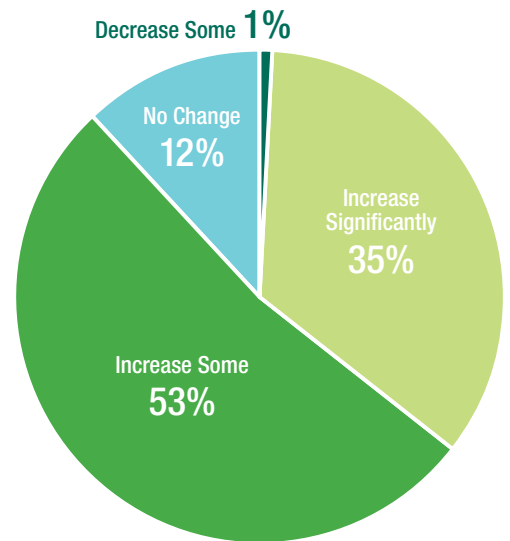
**FIGURE 4: MOBILE DEVICE USE IN MOBILE WORKFORCE**



In addition to mobile devices, connectivity among devices is critical for digitalization. Over the next three years, 88% of utilities plan to increase their use of cellular connectivity for mobile devices—with 35% planning for significant increases. (Figure 5)



**FIGURE 3: DIGITALIZATION OF THE MOBILE WORKFORCE IN THE NEXT 1 TO 3 YEARS**



**FIGURE 5: CELLULAR CONNECTIVITY USE IN NEXT 1 TO 3 YEARS**

## 2. HOW IoT AND SMART CITIES WILL SHAPE THE MOBILE WORKFORCE

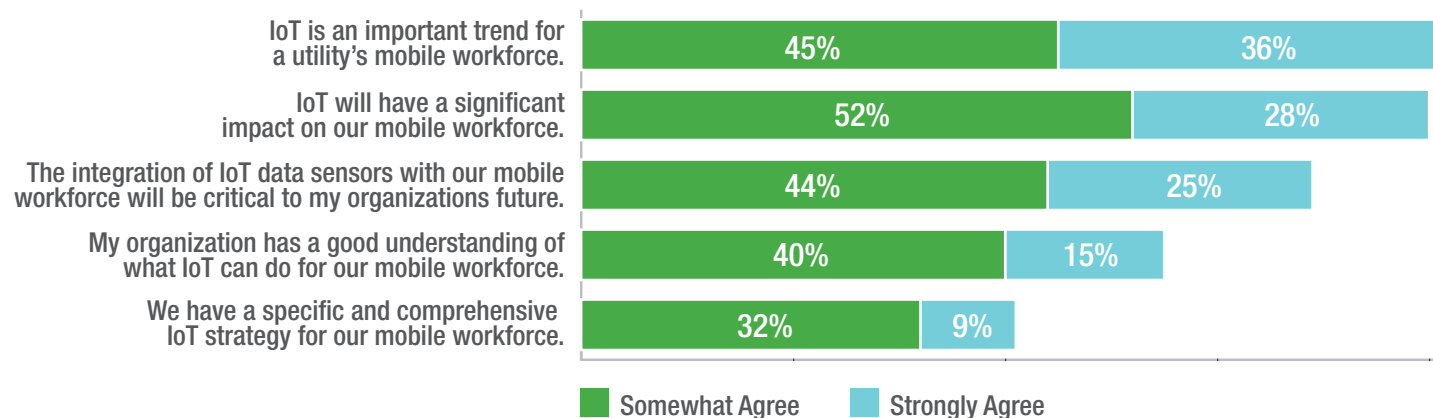
The foundation of mobile workforce digitalization includes mobile devices and communications, but emerging technologies are adding new layers of connectivity—and complexity. These technologies, specifically the Internet of Things (IoT) and Smart Cities, will create incredibly data-rich and connected environments for the mobile workforce.

### UTILITY PERSPECTIVES ON IoT AND THEIR MOBILE WORKFORCES

Overall, utilities understand the importance of IoT to their mobile workforce, but many still lack strategies to effectively integrate these technologies. For this paper, we define IoT as the concept of everyday objects using built-in sensors to gather data and take action on that data across a network.

Most utilities agree IoT will have an impact on their mobile workforce (81%), and 69% of respondents believe IoT integration is critical to their organization’s success. Just 15%, however, strongly agree their organization has a good understanding of what IoT can do for them, and only 9% have a solid strategy for incorporating IoT into their mobile workforce. (Figure 6)

**FIGURE 6: IoT AND THE UTILITY MOBILE WORKFORCE**



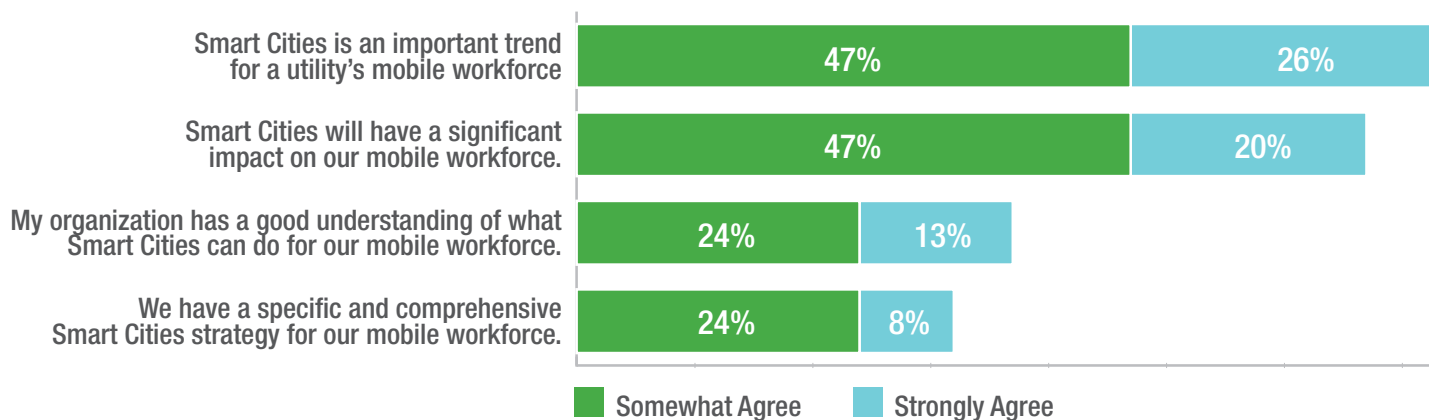
## 2. HOW IoT AND SMART CITIES WILL SHAPE THE MOBILE WORKFORCE (CONTINUED)

### UTILITY PERSPECTIVES ON SMART CITIES AND THEIR MOBILE WORKFORCES

Smart Cities impact a utility's mobile workforce because they apply IoT technologies across multiple sectors in a community, including energy, water, transportation, government, healthcare, and education.

Although utilities understand the importance of both IoT and Smart Cities, they have a better understanding of IoT. More utilities agree they have at least some strategy for IoT (41%) than Smart Cities (32%). Just 8% of utilities strongly agree that they have a comprehensive Smart Cities strategy for their mobile workforce. Furthermore, only 37% say their organization even has a good understanding of how Smart Cities can benefit their mobile workforce. Harnessing the full value of Smart Cities technologies may be tough for many utilities to fully comprehend, but nearly half of respondents think it will ultimately impact their mobile workforce (47%). (Figure 7)

**FIGURE 7: SMART CITIES AND THE UTILITY MOBILE WORKFORCE**



## 2. HOW IoT AND SMART CITIES WILL SHAPE THE MOBILE WORKFORCE (CONTINUED)

### EXPECTED IoT AND SMART CITIES BENEFITS FOR MOBILE WORKFORCES

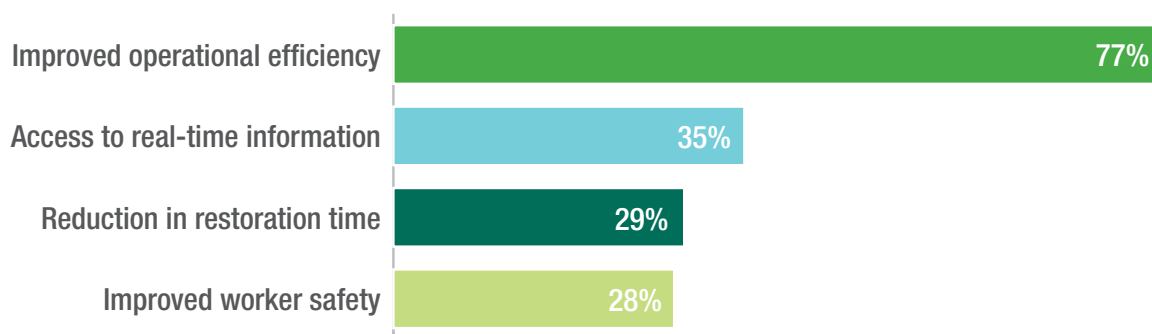
Most utilities agree on the importance of both IoT and Smart Cities, and the next step is implementing strategies to leverage the true benefits of these technologies. We will look at two key areas where utilities expect to benefit: business efficiencies and customer service enhancements.

The top expectations for IoT and Smart Cities business benefits include: (Figure 8)

- Improved operational efficiency (77%)
- Access to real-time information (35%)
- Reduction in restoration time (29%)

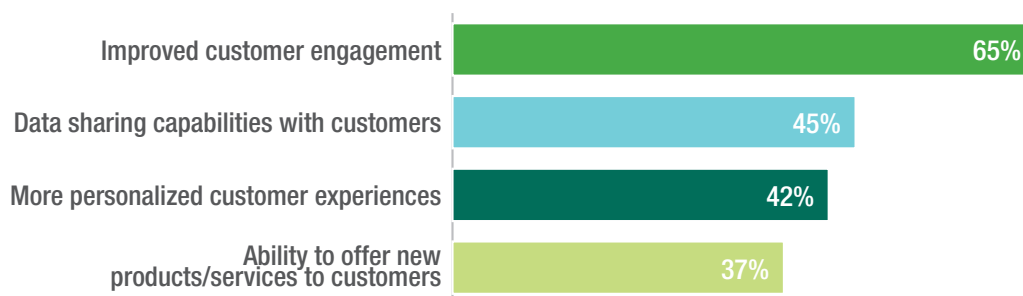
Improved operational efficiency is the most valuable improvement to overall business efficiency because of a more connected and knowledgeable mobile workforce, as well as the opportunity for more automation among distributed assets and personnel. But improving business efficiencies isn't the only positive impact these technologies have on the mobile workforce; they can also improve customer service efforts.

**FIGURE 8: TOP THREE EXPECTED BUSINESS EFFICIENCY ENHANCEMENTS**



The digital customer produces massive quantities of data, which needs to be filtered and analyzed; IoT and Smart Cities technologies can assist in that effort to improve areas such as customer engagement and customer experience. Approximately 65% of utilities seek improved customer engagement through a more data-rich and connected environment. Utilities also expect to see customer service improvements through data sharing capabilities with customers (45%), more personalized customer experiences (42%), and the ability to offer new products and services to customers (37%). (Figure 9)

**FIGURE 9: TOP THREE EXPECTED CUSTOMER SERVICE ENHANCEMENTS**

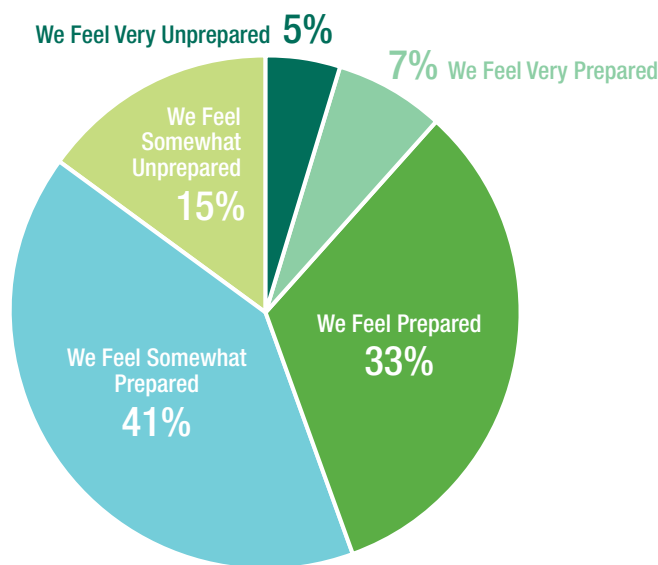


### 3. MOBILE WORKFORCE PREPAREDNESS FOR IoT AND SMART CITIES

Given the potential benefits of embracing IoT and Smart Cities technologies in the mobile workforce, utilities must create an infrastructure to support these advances. In this section, we discuss how prepared utilities are to incorporate the data-rich and real-time nature of IoT and Smart Cities efforts.

#### INFRASTRUCTURE PREPAREDNESS

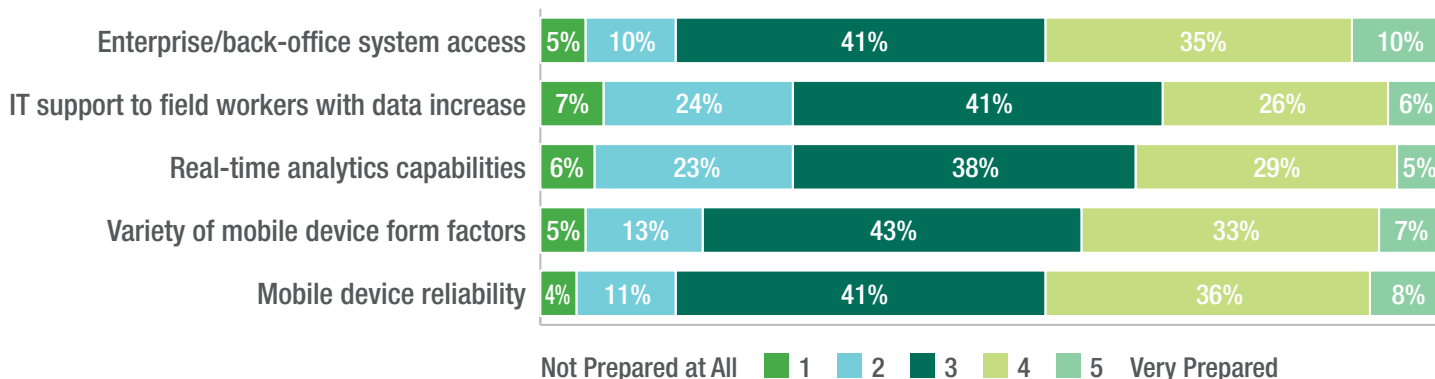
To reap the full benefits of these technologies, utilities need a secure mobile infrastructure to embrace an emerging data-rich, real-time and connected environment. Currently, 33% of respondents feel prepared, with 7% feeling very prepared, to take on this change. But there is still some hesitancy with making this shift as 20% of utilities still feel unprepared. (Figure 10)



**FIGURE 10: ORGANIZATION PREPAREDNESS FOR REAL-TIME ENVIRONMENT**

Diving deeper, currently, most utilities are on making progress in preparing access to back-office systems, IT support to field workers, real-time analytics capabilities, mobile device form factors, and mobile device reliability. (Figure 11)

**FIGURE 11: IT INFRASTRUCTURE PREPAREDNESS (ON A SCALE OF 1 TO 5, 1 = NOT PREPARED, 5 = VERY PREPARED)**





### 3. MOBILE WORKFORCE PREPAREDNESS FOR IoT AND SMART CITIES (CONTINUED)

To maximize the efficiency of the new data-rich mobile infrastructure, utilities also need a reliable wireless communications network. Cellular connectivity is an important option for managing high-volume data, as well as interacting with utility customers. Approximately 44% of respondents strongly agree that cellular connectivity is an important part of their mobile device strategy in the age of IoT and Smart Cities. (Figure 12)

**FIGURE 12: CELLULAR CONNECTIVITY WILL BE AN IMPORTANT PART OF OUR STRATEGY FOR MOBILE DEVICES IN THE AGE OF IoT AND SMART CITIES**

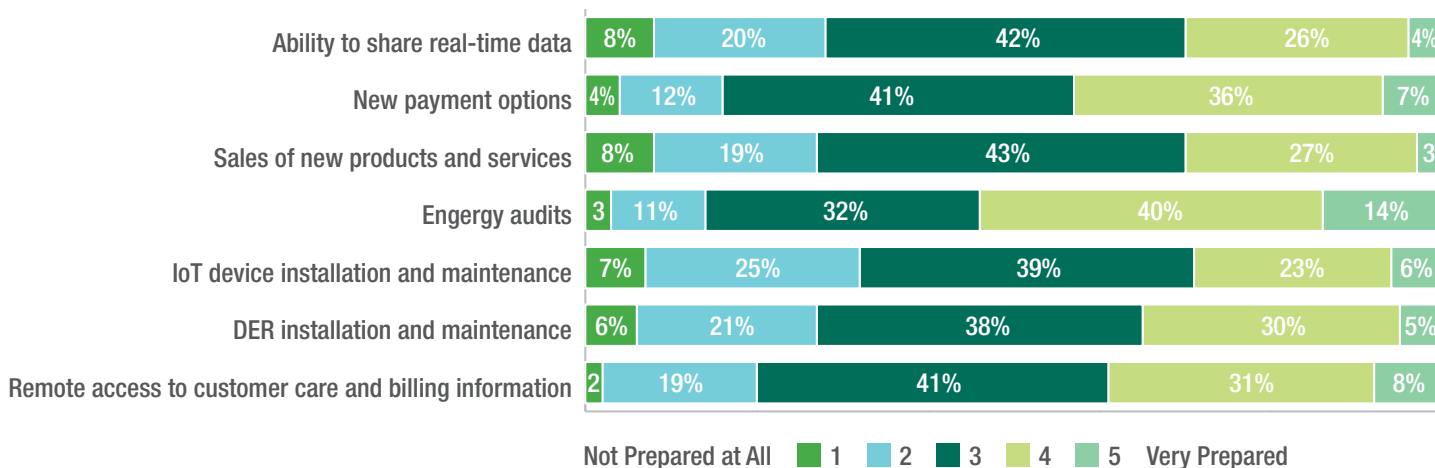


### MOBILE WORKFORCE PREPAREDNESS

Along with creating a sustainable digital infrastructure to handle all the changes coming at utilities, the mobile workforce must also be equipped to make the shift toward digitalization.

Overall, most organizations are starting to prepare their mobile workforces for the increase in real-time data. They are also working toward enhancing the customer experience through new customer engagement opportunities. For example, 43% of utilities revealed they are at least somewhat prepared for the sales of new customer products and services, and 39% feel least somewhat prepared for remote access to customer care and billing. Only 8% of respondents did not feel prepared at all to share real-time data with customers.

**FIGURE 13: OVERALL MOBILE WORKFORCE PREPAREDNESS (ON A SCALE OF 1 TO 5, 1 = NOT PREPARED, 5 = VERY PREPARED)**



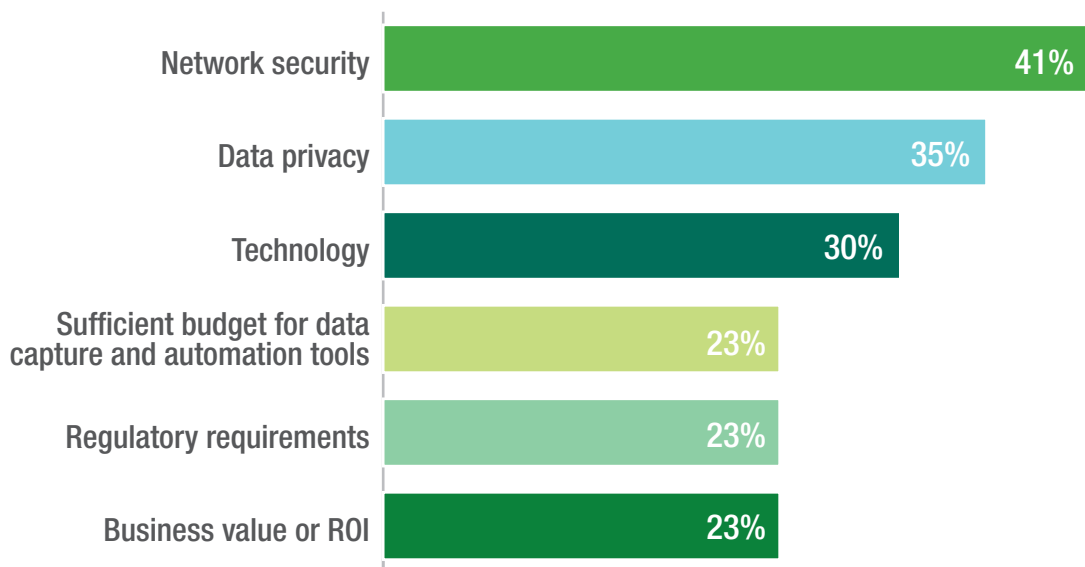
### 3. MOBILE WORKFORCE PREPAREDNESS FOR IoT AND SMART CITIES (CONTINUED)

#### CHALLENGES

Now that we've addressed both infrastructure and mobile workforce preparedness, we can look at some of the challenges organizations face in being truly prepared.

Integrating new technologies for real-time data and analytics into the mobile workforce can certainly create challenges. Most importantly, it creates the issue of network security because of the importance and confidentiality of consumer data, and the distributed nature of devices and communication networks. Approximately 41% of utilities say network security is the top challenge they face, followed by data privacy (35%) and technology maturity (30%). (Figure 14) Most challenges utilities face have equal importance to resolve in order to fully capitalize on the benefits of new technology opportunities.

**FIGURE 14: TOP THREE CHALLENGES OF INTEGRATING REAL-TIME DATA AND ANALYTICS**



## 4. RECOMMENDATIONS

The shift toward a real-time, incredibly connected environment is eminent for today's utility mobile workforce—and utilities are preparing for this immense change. The growth of the mobile workforce, along with expected retirement adds to the complexity of preparing for these changes.

The utility mobile workforce faces many changes in the era of digitalization, and developing an ecosystem of reliable mobile devices and communications networks can provide a strong foundation to successfully thrive in this changing environment. Ways that utilities can prepare include:

- **Utilities need to ensure that their mobile devices provide security, efficiency and reliability to handle the increasing demands placed on mobile workforces. Select rugged solutions with the lowest failure rates to maintain the highest levels of productivity in the field.**
- **Network security and data privacy are top challenges for utilities in the digitalization era. Opting for enterprise-grade devices over consumer-grade devices can help utilities alleviate these concerns. These rugged mobility solutions are designed specifically to securely integrate real-time data and analytics into the increasingly connected environment of mobile workforces.**
- **Mobile devices should operate with a reliable sustainable digital infrastructure and communications networks that integrate new technologies, like IoT and Smart Cities, with existing processes.**
- **Utilities should ensure that mobile devices are connected to a reliable wireless network, such as LTE, to strengthen all communication efforts within each utility and with customers.**
- **Lastly, simplicity is the key when building a digital interface because it allows maximum use across the widest range of employees. The more employees can connect with customers and each other, the more beneficial a digital infrastructure becomes.**



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