

The Work Ahead in Utilities: Powering a Sustainable Future with Digital

Utilities companies are shedding their reputation for slow adoption of digital technologies, according to our study. Using IoT, AI, automation and analytics, they aim to eliminate slow processes, elevate customer experience and deliver measurable results to boost sustainability.

Executive Summary

A sector that has been traditionally recognized for stability, reliability and predictability now faces a once-in-a-decade shift across every aspect of the business, from operations and maintenance to customer engagement, as utilities realize how much more can be achieved with digital.



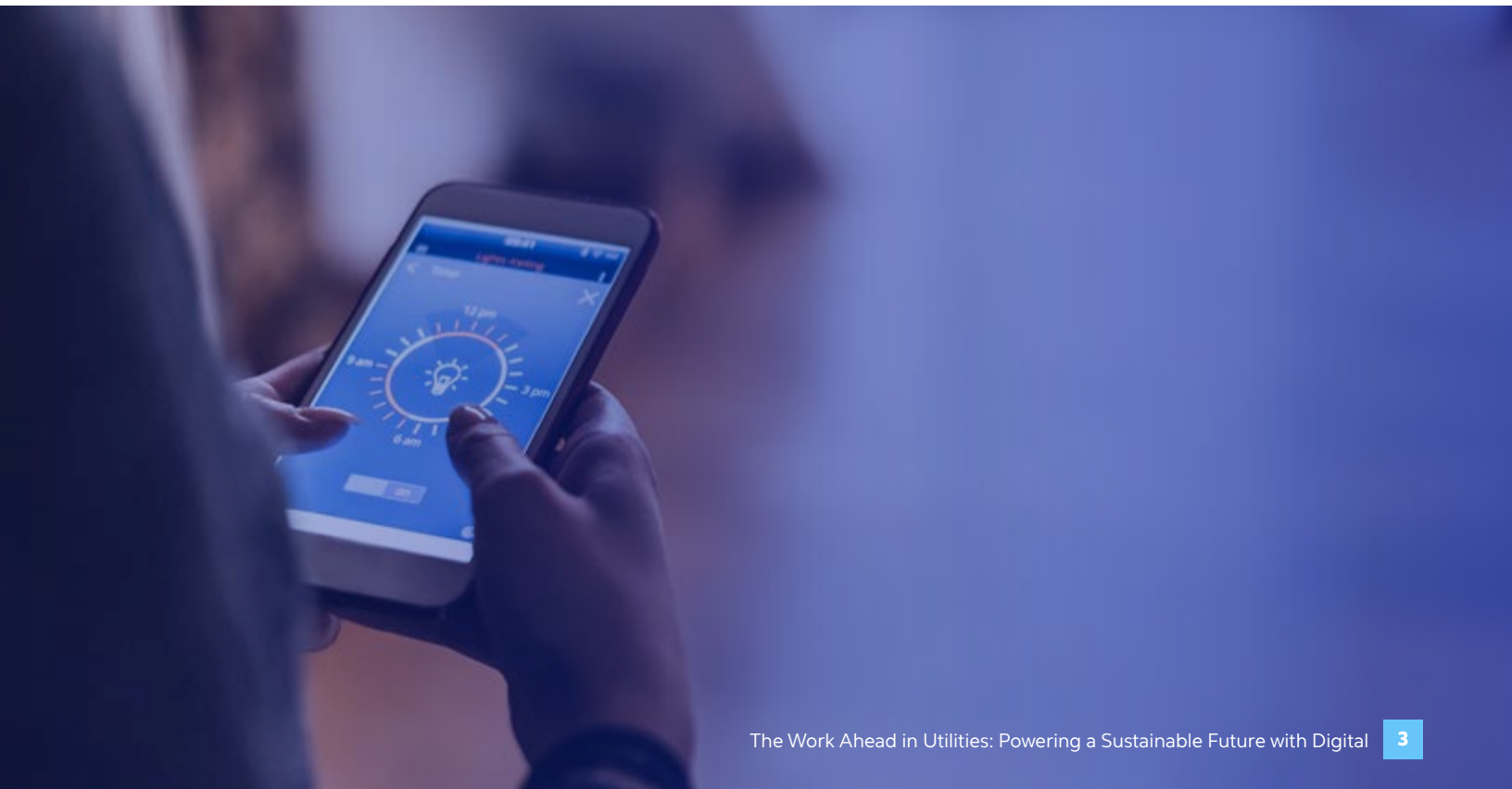
Utilities' business models have remained unchanged for the past 100-plus years. For the most part, these organizations operated in a monopolistic and highly regulated cost-plus environment, only driven by competition where deregulation was allowed. Because the "customer" was the meter itself, there was little incentive to understand the individual or business behind it.

Now, utilities face a new era of disruption, marked by decarbonization and decentralization agendas, changing consumer behaviors, evolving expectations and consumption patterns, and an aging infrastructure and workforce. While digital startups were already taking market share from larger utilities, the pandemic exposed many other vulnerabilities across the utilities value chain, including financial stresses, supply chain challenges and workforce risk. Keeping the lights on is no walk in the park.

The impact of the energy transition and the upheaval resulting from the global pandemic are setting the scene for a new business and operating environment for utilities driven by digital technologies. A sector that has been traditionally recognized for stability, reliability and predictability now faces a once-in-a-decade shift

across every aspect of the business, from operations and maintenance to customer engagement, as utilities realize how much more can be achieved with digital. Utilities have a lot of ground to make up as digital technologies shoot from a strategic priority to an operational and customer imperative.

To understand how utility companies are preparing for the changing world, Cognizant's Center for the Future of Work surveyed 4,000 business leaders globally, including 285 executives from leading utilities (see methodology, page 22). Our research reveals that industry leaders plan to accelerate their digital journey with new technologies, new ways of working and new ways to engage with customers.



Our key insights include:

- 1 **COVID-19 has set the agenda for workforce safety.** The pandemic brought a renewed focus on frontline workers as their health and safety became paramount. Over half of utilities respondents said they will value frontline workers more in the future and pay more attention to workforce safety. While significant investments are expected to take place in workplace redesign as companies reopen offices, utilities will also need to create flexible work policies and capabilities that accommodate remote workers.
 - 2 **A digital utility is in the making.** By blending digital investments with sustainability goals, utilities can deliver measurable outcomes to win the customer of the future. We also expect traditional business models to be disrupted as digital startups begin impacting markets globally. Utilities respondents expect to double the percent of revenue they receive from digital channels between now and 2023, from 3% to 6%.
 - 3 **The mesh of IoT, AI, analytics and automation will provide instrumentation, predictions, personalization and speed.** The top technologies used to augment business processes are sensors/ IoT, AI, analytics and process automation. The need to overhaul operations, maintenance and customer experience will drive the use of these technologies, with the goal of reducing costs and creating new revenue streams.
 - 4 **Efficiency, customer experience and decision-making are top outcomes.** By injecting processes with technology, respondents expect to boost operational efficiency, customer experience and decision making. Utilities need to shift from a static, one-way consumer relationship to one that is dynamic, context-driven and interactive.
 - 5 **Power lies in data, not assets.** The top three tasks that will be performed by machines by 2023 will be execution of complex decisions based on real-time information, sifting large data sets to identify errors or actionable items, and process improvement. In the new normal, frontline workers will be empowered with data insights to manage operations remotely and ensure predictive maintenance of equipment.
 - 6 **Humans are needed to make the best use of machines.** Decision making, strategic thinking and leadership will become the top three most essential skills by 2023. These skills are best performed by humans — not in isolation, though, but supported by the insights generated by AI and data analytics and by the efficiencies of intelligent automation.
- Utility companies that move quickly and capture the moment will shape the future of their work and society while earning the trust and loyalty of consumers and investors alike. Now is the time for these organizations to begin a new chapter in their long history of serving the public and society.

COVID-19: A catalyst for the future of work

As work shifts from physical to digital, utilities must develop a long-term approach to workplace capabilities by assessing their workforce, operations, processes and technologies, while creating new flexible working policies.



COVID-19 kicked the utility industry’s digital efforts into high gear, from remote work and asset supervision, to virtual customer service and digital payments.

In just a few days, almost every utility company had to adapt to new ways of operating, including a distributed workforce and remote operations, something that would have been almost unimaginable only a year ago.

For instance, Tata Power Delhi Distribution Limited, a power utility supplier in India, received over 90% of its bill payments digitally during the initial lockdown.¹ Post-pandemic, digital tools will continue to offer additional flexibility, elevated customer experiences and emergency contingencies. For instance, Germany’s E.ON built a videoconferencing app that enables its line workers to communicate with customers regarding straightforward problems — such as faults with smart meters — that don’t require customer visits.² In fact, now more than ever, utility executives have a clearer view of how customers are using various digital channels and what they would like them to look like a few years on.

Critical industries such as utilities have always focused on worker safety, but the pandemic added the element of health and well-being, as well. This sentiment was echoed by our industry respondents, with 59% saying they will value and pay essential frontline workers more in the future, and 56%

agreeing they will need to pay more attention to workforce safety (see Figure 1).

The COVID-19 crisis also raised the bar for real-time, anywhere, streamlined access to information, systems and collaboration. A large utility company in India from our study, for example, deployed sensors so that engineers no longer needed to inspect sites physically, according to a senior vice president at the company. “We are learning to manage grids at a remarkably high level with speed,” the SVP said. “I feel the crisis has provided fast enough insights to operators on keeping the grid stable, which will become the new norm post-COVID-19.”

Utilities respondents are also working on redesigning the workplace to accommodate safe distancing, with a focus on smart workplaces and open-plan layouts. (To learn more, see our report “[Safe and Smart Buildings: Five Measurable Actions Business Must Consider to Reopen.](#)”)³

As work shifts from physical to digital, utilities must develop a long-term approach to workplace capabilities by assessing their workforce, operations, processes and technologies, while creating new flexible working policies.

Workforce safety and flexibility will be paramount

Respondents were asked whether they would need to make workplace changes as a result of the pandemic. (Percent of respondents who agree or strongly agree)



Response base: 285 senior utilities executives
 Source: Cognizant Center for the Future of Work
 Figure 1

Digital-first: The key to unlocking future growth

While digital revenue expectations are far below the cross-industry average, they are expected to double between now and 2023, from 3% to 6%. The pandemic has demonstrated utilities' need and capacity for change.



As a result of these new capabilities, utilities respondents expect to double their revenue from digital channels by 2023, from 3% to 6% (see Figure 2).

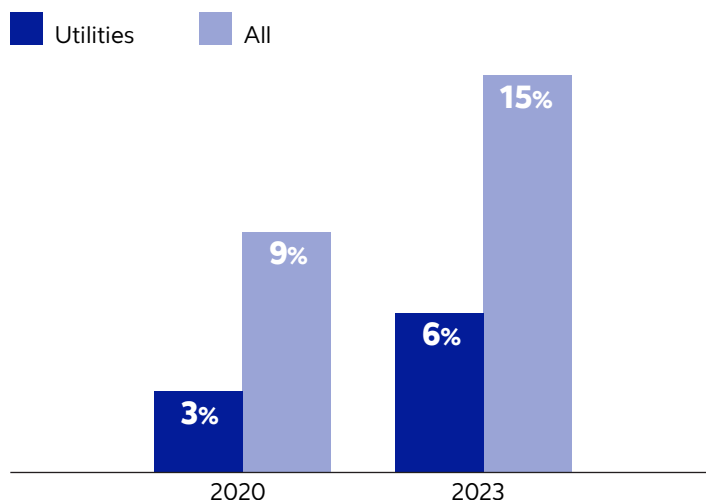
While this is well below the cross-industry average (which is 9% today and expected to increase to 14.6% by 2023), the pandemic has clearly demonstrated both the need and capacity for change in an industry that has traditionally taken a conservative approach to digital innovations, due to regulatory issues and other constraints.

One innovation targeted at boosting digital engagement is voice interfaces. Consumer usage of Alexa shot up 65% globally in the first two months of lockdowns in 2020,⁴ and in our earlier research, we found that utility companies plan to generate 5.2% of their revenue from voice in the next five years. (For more on this topic, see our report “[From Eyes to Ears: Getting Your Brand Heard in the New Age of Voice.](#)”)⁵

Voice will soon become the new customer experience as consumers get more comfortable with their voice assistants performing various activities: “Hey, Alexa, why is my bill so high?” Or, voice interfaces could remind customers that if they lower their thermostat by a few degrees, they can save an estimated 12% on their next bill. Such capabilities would radically change the way utilities communicate with customers.

Digital-first means money

Respondents were asked about the percent of revenues derived from digital channels, now and in 2023. (Percent of revenues)



Response base: 285 senior utilities executives
Source: Cognizant Center for the Future of Work
Figure 2

Driven by the need for decarbonization and regulatory compliance, utility companies will also need to address their aging infrastructures. Most infrastructure assets are near the end of their life and require extensive maintenance and replacement investments. This need will accelerate as decentralization increases asset demand, with the need for real-time interventions at a distribution level becoming the norm. Any new digital investments built on outdated systems will be counterproductive because of the inability to handle and model massive amounts of data.

One way to address this is by leveraging digital twin technology.⁶ This technology allows utilities to create detailed models or replicas without any physical construction. These simulations of real systems can be used from any location, and be connected to projects in the design, construction, operations or maintenance phases of utility activities. A Dutch regional water authority is creating a digital twin of its entire wastewater treatment infrastructure — enabling speed, accuracy and efficiency in decision making, as well as cost and energy optimization.⁷

The increasing convergence of industry boundaries is paving the way for energy democratization, and will put further pressure on utilities to adopt digital-first approaches to remain competitive. Examples include Tesla’s plans to enter the electricity market in the UK,⁸ and Apple’s intention to invest in the construction of two of the world’s largest onshore wind turbines in Denmark.⁹ With energy giants acquiring telcos, microgrids empowering local communities, and homes transforming into power sources, the future of utilities is beginning to unfold.

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 Quick Take

Serving the customer of the future

Traditionally, the utilities industry has been a low-touch, low-engagement commodity. Using digital tools, however, utilities can change their operating models to increase customer engagement in a number of ways:

I Sustainability: COVID-19 reaffirmed the correlation between energy consumption and climate change. News that global emissions fell 8.8% in the first half of 2020 underscored the human-planet connection.¹⁰ In fact, 70% of consumers said they were more aware than before COVID-19 that human activity threatens the climate, and 91% don't want to return to how things were before.¹¹ These changing attitudes present an opportunity to merge a digital-first approach with decarbonization efforts to deliver measurable results against businesses' environmental and corporate social responsibility promises.

Global energy player ENGIE has created a new business model that offers integrated zero-carbon solutions as-a-service to transition into a zero-carbon future. ENGIE's 100,000 field technicians receive insights into which customers need energy solutions to meet sustainability targets, and address these issues accordingly.¹² Oshawa Power, meanwhile, a Canada-based utility company, offers a Peak Power app that uses SMS, push notifications and prompts that provide personalized insights into customers' energy usage. In a pilot program, customers who engaged with the app reduced their electricity consumption by twice as much as the average of all participants within their user groups.¹³

I Consumer savings: Octopus Energy in the UK has launched an Agile Tariff plan that gives customers access to half-hourly energy prices tied to wholesale prices. Customers not only benefit from falling wholesale prices but can also shift daily electricity use outside of peak times to save money.¹⁴

I Consumer education: Powershop, an Australia-based online electricity and gas provider, introduced Pond Party, an interactive digital book that changes depending on the customer's household energy usage. It was created with the intention to help all families make a tangible connection between their actions at home and the impact on the planet. A smart meter that's linked to the tool analyzes the family's sustainability success.¹⁵

I Personalized services: Electronic vehicles present another opportunity for increased engagement. In addition to expecting utilities to provide the power to charge the EV, customers also expect a service that automatically adjusts to their preferences and needs. An example is Israeli startup ElectReon Wireless, which aims to build the first electric city road in the world. The concept includes the ability for EVs to charge while driving, ensuring energy can be fueled on the go. This innovation will be particularly important when electric vehicles become fully autonomous.¹⁶

I Giving back to the community: As of December 2020, residents of the city of Georgetown in Texas can round up their utility bill, with all the proceeds going to the Good Neighbor Fund, which helps needy families pay their utility bills.¹⁷

A mesh of machines brings intelligence

The combined use of IoT, data analytics, automation and cognitive techniques will transform utilities by enabling decentralized work, and changing how companies engage with customers and drive process efficiencies.



Hi!
How can I help you?

Of all the technologies respondents have applied and leveraged in their digital initiatives, the one seeing the most significant attention is IoT, with 58% of industry respondents implementing this technology to some degree (see Figure 3).

Utilities are leveraging IoT with a dual agenda: increasing the efficiency of monitoring plants and the supply chain, and looking for ways to better connect with consumers, using actionable insights to support more proactive communication and service.

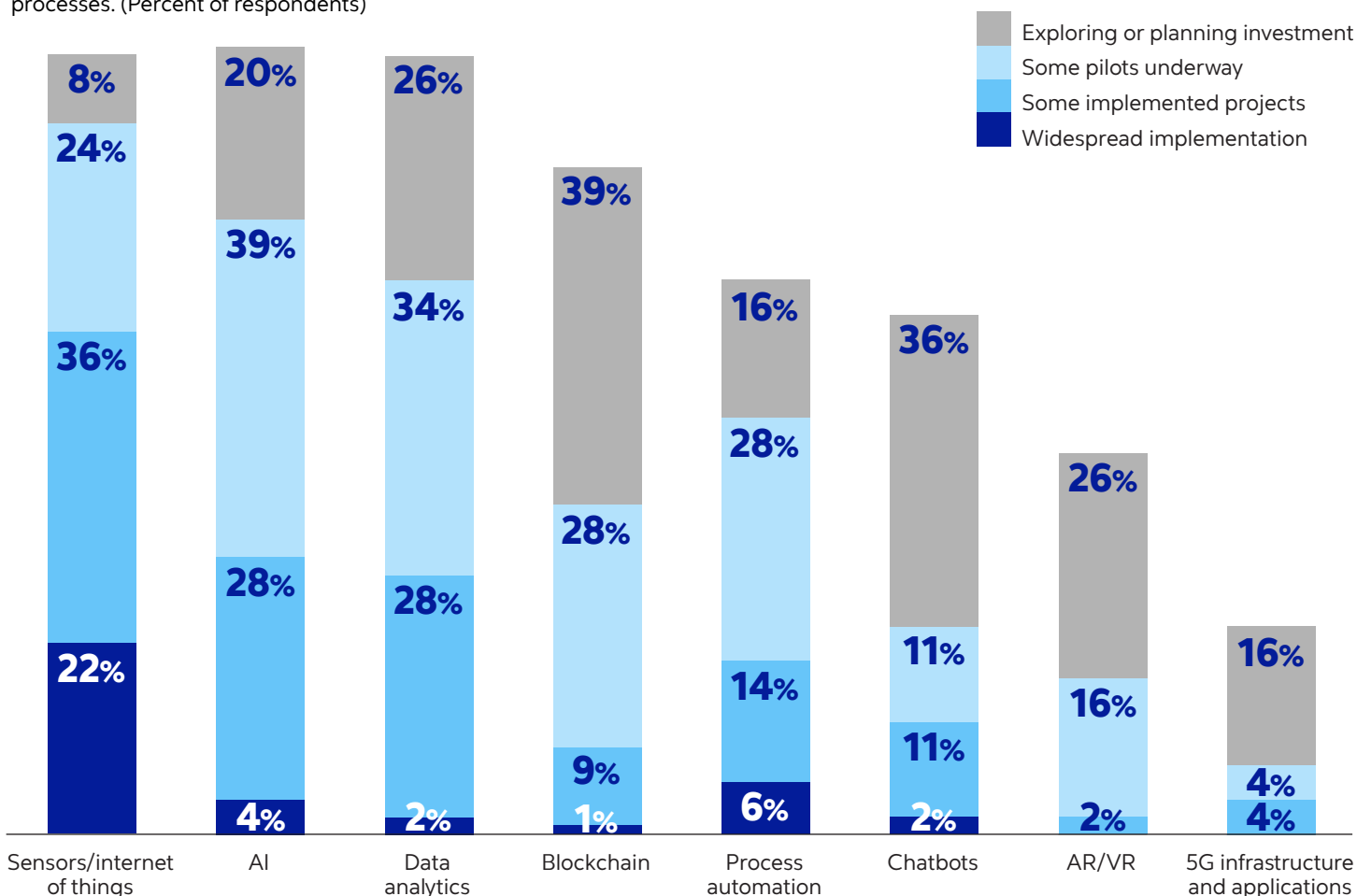
With smart grid and smart meter capabilities ramping up, utilities are better positioned than ever to tap into IoT to drive value, insights and efficiencies across the enterprise. An example is United Utilities in the UK, which aims to build a massive network of water leak detectors, using IoT connectivity.¹⁸

AI is also seeing uptake, with 32% of industry respondents reporting widespread or partial AI implementations. The CIO of an Indian utility said the business was utilizing AI-enabled analytics for predictive maintenance and efficiency optimization, with the intent of moving from a “repair-or-replace” maintenance model to a “predict-and-fix” model.

Innovative AI use cases in utilities will pave the way for the future of the industry. Software-as-a-service platform provider AMS uses AI in versatile battery storage systems to enable electricity purchases from the grid when prices are low, and then sell back

Sensor-enabled and intelligence-driven

Respondents were asked about the progress they’d made in implementing the following technologies to augment business processes. (Percent of respondents)



Response base: 285 senior utilities executives
 Source: Cognizant Center for the Future of Work
 Figure 3

to the market when prices are high.¹⁹ Another case is Australia's Hornsdale battery, with 150MW, which operates an autobidder AI algorithm developed by Tesla.²⁰

Utilities can also use AI and advanced analytics to identify customers at risk of missing payments, and proactively roll out programs to communicate with these customers. According to estimates, residential and small business customers currently owe \$35 billion to \$40 billion to their utilities as a result of COVID-19-induced hardship.²¹ Using AI insights, utilities could offer new payment plans and tariff adjustments, or work with financial institutions to offer flexible payment plans.

AI will also be a key weapon in mitigating cyber risk, which is likely to increase as digital processes and transactions become more mainstream. As the industry witnesses an exponential increase in the number of devices connected to critical infrastructure, and more employees working remotely, it is paramount that utilities boost their security profile to avoid cyberattacks. As witnessed by the recent attack on the Colonial Pipeline in the U.S. or the 2016 Ukraine Grid collapse, disruptions to the energy infrastructure can be economically devastating.²²

Fighting back requires intelligent machines that can detect threats proactively, identify malware, reconfigure network traffic to avoid attacks, inform automated software to close vulnerabilities before they are exploited, and mitigate large-scale cyberattacks with precision. Utility companies must blend their IoT strategy with AI, as any cybersecurity strategy without AI will be more prone to cyberattacks.

Turning to analytics and automation

The utilities sector is still a largely data-rich and information-poor industry. While 30% of respondents have implemented data analytics to some degree, only 2% have done so at scale. Generally, utilities face a wide array of data management challenges: information overload, slow data collection from siloed systems and lengthy data analysis processes.

This is changing, however, as exemplified by AES Corp., a global energy company that uses AI to make more informed decisions and consistently deliver greater business value. Its cloud-based solution crunches data to spot new efficiencies, predict prices and optimize energy generation.²³

Process automation is also finding its space in the utility industry, with 20% of respondents implementing the technology. Even before the pandemic, utilities were interested in enabling predictive maintenance, but COVID intensified the need for maintaining assets without having to physically touch and monitor them. Moreover, many utilities are bogged down with highly repetitive, multi-step processes, impacting both quality and efficiency. While not every process can be automated, many can and should be. DTE, for example, automated 35 processes over the course of nine months and gave 250,000 annualized hours back to the business.²⁴

The combined use of IoT, data analytics, automation and cognitive techniques will transform utilities by enabling decentralized work, and change how companies engage with customers and drive process efficiencies. For instance, a machine-learning algorithm behind a company's mobile app could allow customers to access their electricity usage history, recognize variations and receive informed alerts when something is amiss.

Utility companies must blend their IoT strategy with AI, as any cybersecurity strategy without AI will be more prone to cyberattacks.

Digital targets: customers, frontline workers

Respondents expect efficiency improvements to grow from 17% today to 27% by 2023. More strategic outcomes, like elevated customer experience and better decision-making, are on the horizon.

Of all their business processes, utilities expect to make the greatest technology-augmentation progress in customer management (53%) and field management (43%) (see Figure 4).

While utilities currently invest a lot of time serving customers, much of these efforts are limited to addressing billing issues, outages and collections.

But as consumers' lives move increasingly online, utilities have an opportunity to move beyond transactional relationships with customers. By fusing internal customer data with data from external third-party sources, utilities can predict a customer's ability to pay, changing preferences and likelihood to default, and proactively motivate customers to reduce their bills.

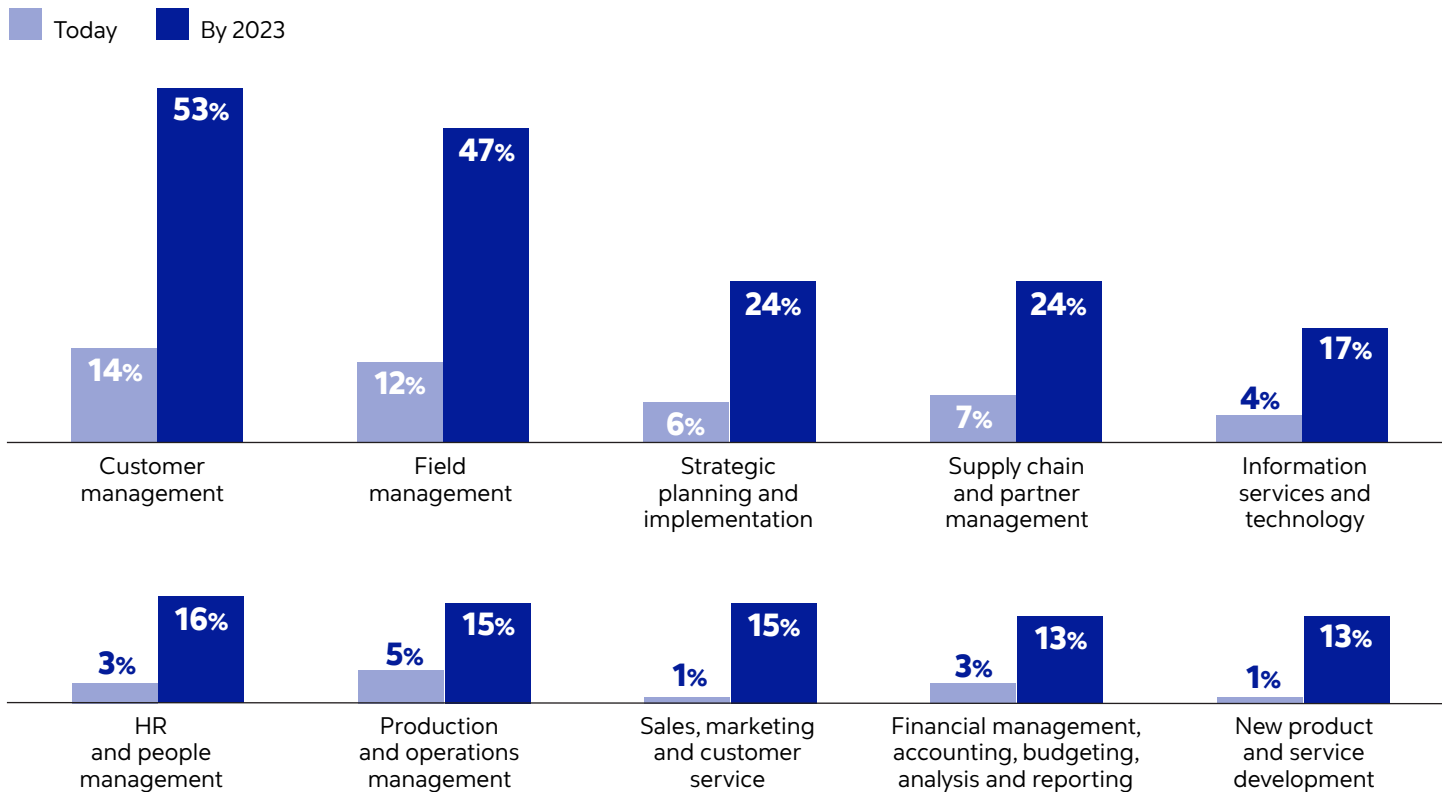
Doing so will help utilities shift into more forward-looking, lifestyle-enabling customer engagements. Powerley, an AI-powered home energy management provider, provides a virtual

coach that integrates weather patterns into consumers' energy management systems, suggesting opportunities to "weatherize" one's home. The app also researches the consumer's best option for saving money through heating and cooling system upgrades.²⁵

Business users also have heightened expectations from their utility providers. What if you could provide an outage alert to restaurant owners to help them save their refrigerated perishables based on monitoring the power draw from their refrigeration units? This will not only elevate trust in the utility company but also boost brand reputation. Targeted alerts and campaigns through apps can preempt customer queries.

Aiming process augmentation at customers and employees

Respondents were asked to what degree they'd augmented the following processes with advanced technologies. (Percent of respondents citing "widespread augmentation" and "implementing projects/good augmentation")



Response base: 285 senior utilities executives
 Source: Cognizant Center for the Future of Work
 Figure 4

Augmented and virtual reality (AR/VR) technologies can also be used to elevate customer service levels. For example, a regulated utility in the U.S. is using an AR visualization field app to support its undergrounding efforts. The app allows specialists to place 3-D digital objects in real physical spaces, which helps drive meaningful customer conversations. When customers can visualize the utility company's plan to place equipment on their property, they are more likely to provide approval in a timely manner.²⁶

Employee experience is another top area of focus. Traditionally, field workers have relied on old methods such as clipboards and checklists to execute their work. During the pandemic, however, field workers were the first to be empowered with digital tools — devices, software or training — to streamline their physical work. These changes won't be rolled back even after the pandemic. Respondents are prioritizing field management as highly as customers as a key business outcome.



It's time to reap benefits: From efficiency to customer experience

When it comes to the benefits realized by augmenting processes with technology, most respondents appear to have focused on achieving operational efficiencies, with respondents reporting an average 17% improvement in efficiency so far, and expecting that to grow to 27% by 2023 (see Figure 5). Augmented processes can deliver the required level of operational efficiency the industry needs to shape the future of their work.

More strategic outcomes, like elevated customer experience and better decision-making, are on the horizon. British Gas in the UK developed an app that has significantly impacted customer journeys across the enterprise, with more than 55%

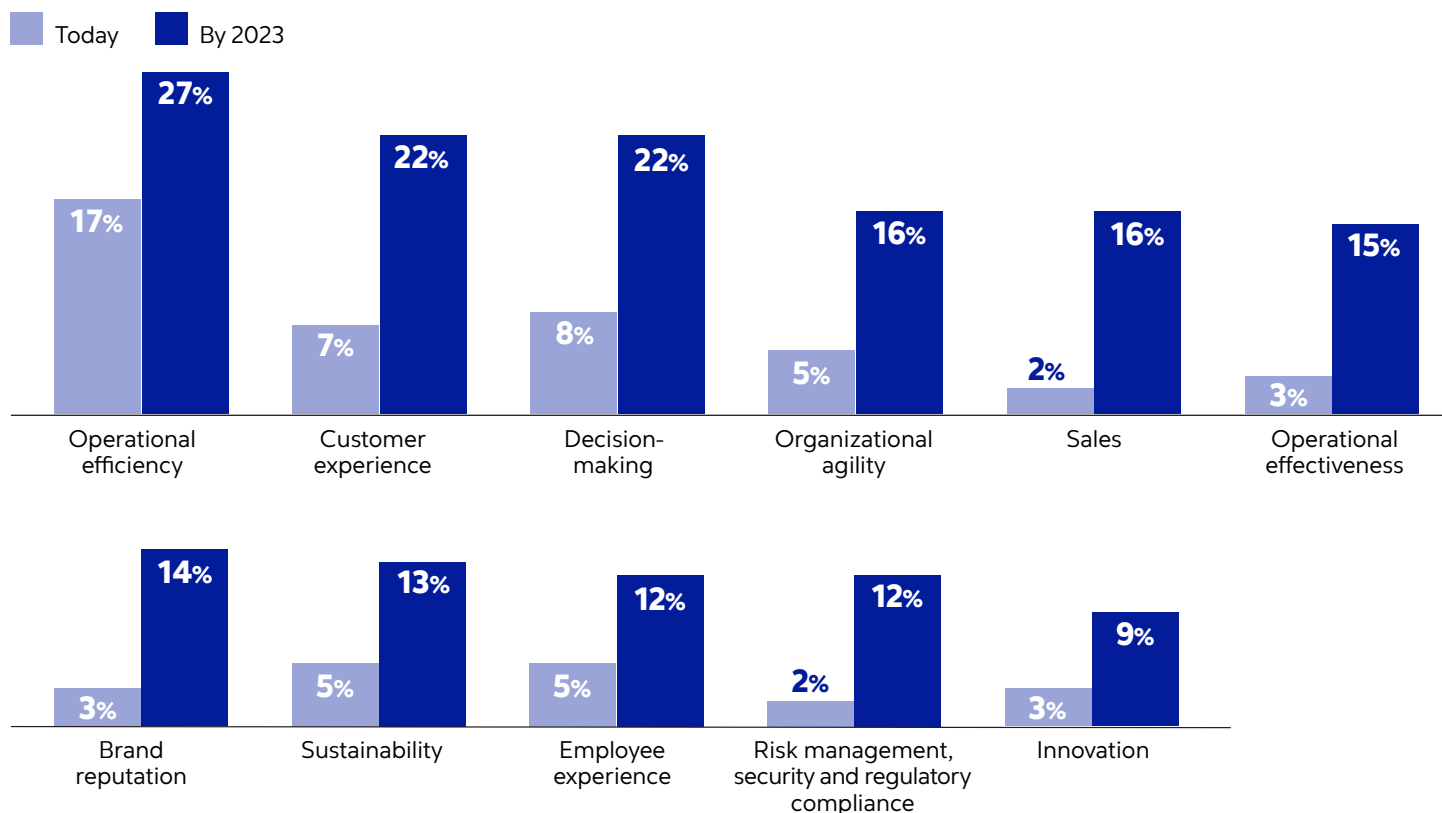
of all customer interactions now made through digital channels, and call volumes dropping by 4.3 million, or 15%.²⁷

Once the hard work of instrumenting, automating, tracking and analyzing the business's core operations is completed, the application of machine learning will consistently deliver greater insights to improve organization-wide decision-making. To stay ahead of the curve, businesses should set a target for the next 12 months to match their decision-making speed to the anticipated growth in data volumes.

For instance, if you expect a 30% annual growth in data over the next 12 months, your speed for making insights and applying data intelligence should accelerate by 30% in the same period. "Winning with data-driven decision-making" has become the number-one competitive game in nearly every industry.

Top outcomes: operational efficiency, customer experience, decision-making

Respondents were asked about the outcomes expected as a result of process augmentation. (Percent improvement in each outcome)



Response base: 285 senior utilities executives
 Source: Cognizant Center for the Future of Work
 Figure 5

Human + machine: mastering the new rulebook of modern work

The top-valued workforce skills will be increasingly tilted toward very human capabilities that validate the need for human-machine collaboration: decision-making, strategic thinking and leadership.



Utility companies in our study seem to be embracing the idea of modern work supported by machines and driven by human workers.

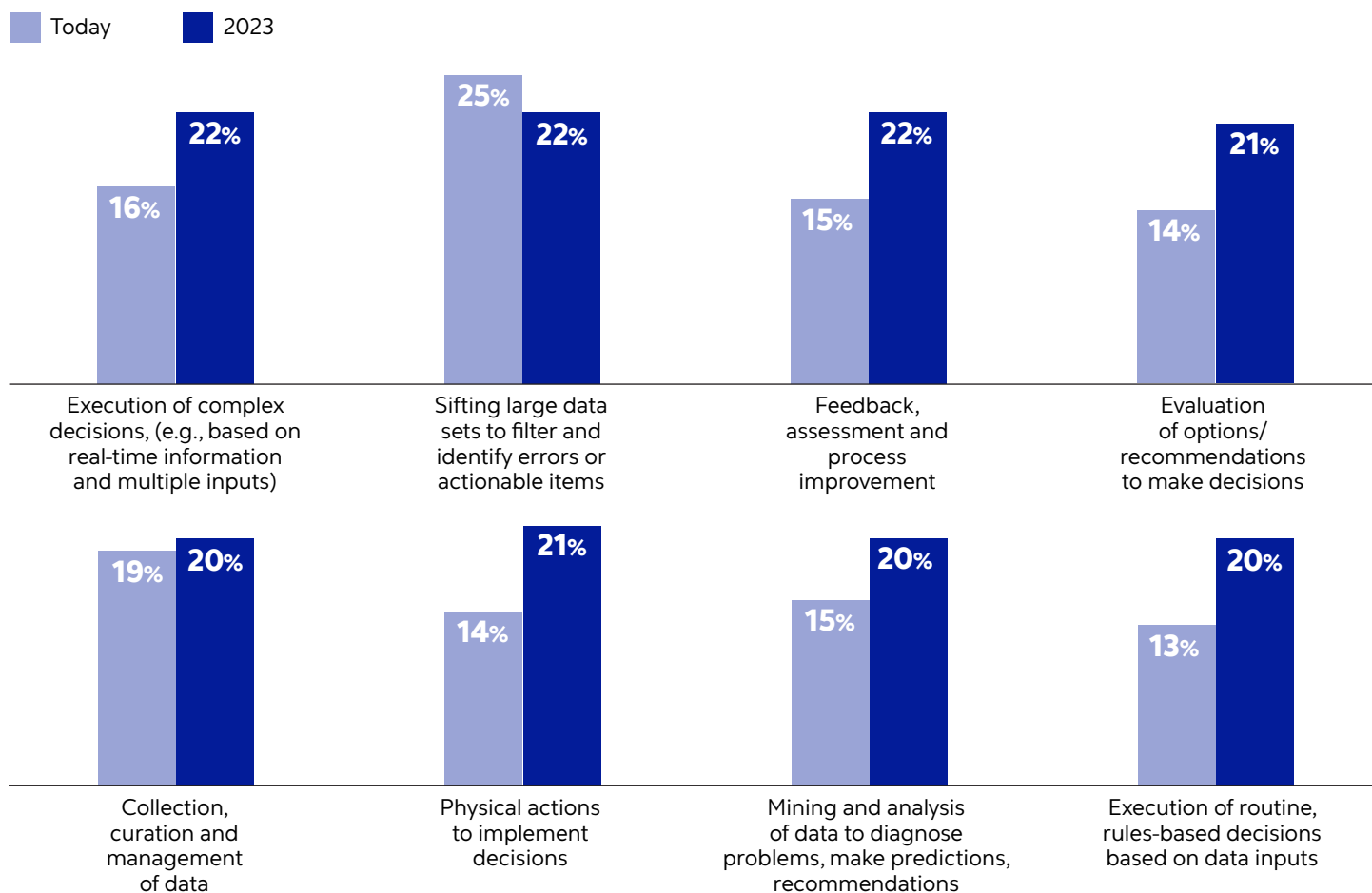
Respondents predict that intelligent machines will take on a greater portion of the labor involved in executing various data-oriented tasks, from about 16% of this work today to 21% by 2023 (see Figure 6). Such work ranges from executing complex decisions to analyzing areas for improvement.

As the head of IT at a large utility company in Europe said, “By making sense of data, we could improve productivity by more than 18% over a six-month period. For another project related to operations and maintenance, we were able to reduce manual hours of the production team by 15%.”

Using predictive maintenance technologies, utilities can detect overloading assets and monitor critical operations, freeing field staff from having to make regular visits. Intelligent machines can also ensure the health and safety of the workforce. For example, with real-time access to information about the risk environment, a machine can alert workers to issues such as power-generating station leakages or other technical issues that could lead to a catastrophic incident.

Intelligent machines move from the routine to the complex

Respondents were asked to what extent the following processes were executed by machines vs. human workers. (Percent of work done by machines)



Response base: 285 senior utilities executives
 Source: Cognizant Center for the Future of Work
 Figure 6

Needed skills shift when machines are employed

Respondents were asked to rate which skills had become more important than previously and which would become more important by 2023.

2020	IMPORTANCE	2023
Innovation	1	Decision-making
Decision-making	2	Strategic thinking
Analytical	3	Leadership
Leadership	4	Analytical
Strategic thinking	5	Learning
Selling	6	Innovation
Communication	7	Communication
Interpersonal	8	Customer care
Customer care	9	Interpersonal
Learning	10	Selling

Response base: 285 senior utilities executives
Source: Cognizant Center for the Future of Work
Figure 7

At the same time, respondents are also starting to develop a more realistic view of humans' role in the age of AI. As Figure 7 shows, the top valued workforce skills will be increasingly tilted toward the very human capabilities that validate the need for human-machine collaboration: decision-making, strategic thinking and leadership.

Both decision making and strategic thinking jumped up in respondents' assessment of their importance today vs. 2023 (decision making from second to first place, and strategic thinking from fifth to second). These skills are best performed when workers are supported by the insights generated by AI and data analytics, and freed by intelligent automation from performing rote and repetitive work. Increasingly, the human role will become more focused on what gets done with data-driven insights, which requires a renewed focus on decision making and strategic thinking.

Because they lack the emotional capabilities of human workers, machines can be less effective in sensitive customer service instances. One utility company is leveraging machines to boost agent call success in debt collection. The company is using an automated call-routing solution that uses sentiment analysis and voice data to match the customer to the best-suited agent to handle the specific call. As a result of this match, the company could improve its collection rate, while making human workers more efficient and productive.²⁸

A senior executive from a utility company in Australia said the company will always have a mixed proportion of machines and humans. "Humans are still needed to monitor intelligent machines. We have both humans and machines working together across the business value chain." (To learn more, read our report "[Humans + Machines: Mastering the Future of Work Economy](#)."²⁹)

Leave the past behind: power the utility of tomorrow

To meet their ambitious plans to move ahead, utility companies must prioritize digital-first investments, reimagine the utility-consumer relationship and restructure operations.



While the fundamental physics of electricity, gas and water are unlikely to change, the dynamics of the systems that power them will be unrecognizable in the future.

To meet their ambitious plans to move ahead, utility companies must prioritize digital-first investments, reimagine the utility-consumer relationship and restructure operations. Here are some actions for organizations to take:

- I **Become your own best competitor.** Some utilities are establishing a new subsidiary that is unfettered by legacy technology. One example is Meridian Energy in New Zealand, which established its subsidiary Powershop as its own competitor. Powershop offers its platforms to other utilities and operates across New Zealand, Australia and UK.³⁰ In the UK, Octopus Energy's cloud-based platform Kraken uses data to interact between consumers and the industry via web, mobile and smart meters and helps customers with strategies to lower their energy bills. Octopus' platform has been licensed by both E.ON UK and Origin Energy in Australia.³¹
- I **Aim technology at asset operations.** Decarbonization and decentralization will require utilities to invest billions of dollars into upgrading their networks. Much of this investment could be optimized through the use of technologies such as IoT and data analytics. This presents utilities with a great opportunity to modernize their platforms and automate their operations.
- I **Move toward a business model that goes beyond utilities.** Today, it's become common for utilities to partner with technology and home electronics companies. An example is smart thermostats, which are deployed by utilities but developed by software and hardware companies.

With more data flowing from different sources, utilities can go beyond these partnerships to create a connected customer experience. For example, they can develop joint offerings with automotive companies or after-sales services in conjunction with car dealerships, as well as home insurance companies and fitness apps, etc. In the future,

Now is the time for industry leaders to put their digital-first, human-centric efforts into top gear to create the future of work.

utilities could become home-management companies by providing bundled offerings that include broadband, insurance, security etc. alongside energy by building a broad partner ecosystem.

- I **Turn the human-planet connection into a competitive advantage.** In the race to address the climate crisis, opportunities go beyond compliance to delivering a competitive advantage that resonates with customers. Consumers now expect utilities to anchor their sustainability promises in metrics, not promises.
- I **Reimagine what it takes to lead.** The need for change is urgent, and time is running out for leaders who are holding on to old ways of working and leading. The goal of building a community of leaders relies on four components: enhancing customer value, serving a higher purpose, strengthening connectivity, and fostering creativity and continuous innovation. (To learn more, read our report "[The New Leadership Playbook for the Digital Age: Reimagining What It Takes to Lead](#)".)³²

More change in the next five years than over the last 50

The more than 100-year-old linear model of utility companies is being challenged and reimaged as consumer behaviors and consumption patterns are changing. Technology and society are evolving faster than utilities have traditionally adapted to change. This sets the scene for a new generation of business models and a new era of leadership, as digital is reinventing the generation and delivery of energy.

When the COVID-19 pandemic hit, the industry was in the midst of moving away from centralized conventional generation toward a more distributed and digital approach. Regardless of how quickly the world recovers from the pandemic, the crisis will only accelerate this trend.

Utility companies that adopt data-driven insights, prioritize employee wellness, deliver measurable results in decarbonizing the world, and integrate smoothly into customers' lives will be in a better position to create new business value. Now is the time for industry leaders to put their digital-first, human-centric efforts into top gear to create the future of work.

Methodology

Cognizant commissioned Oxford Economics to design and conduct a study of 4,000 C-suite and senior executives, including 285 from the utilities industry. The survey was conducted between June 2020 and August 2020 via computer-assisted telephone interviewing (CATI). Approximately one-third of the questions were identical to those included in the 2016 Work Ahead study, allowing us to compare responses and track shifting attitudes toward technology and the future of work.

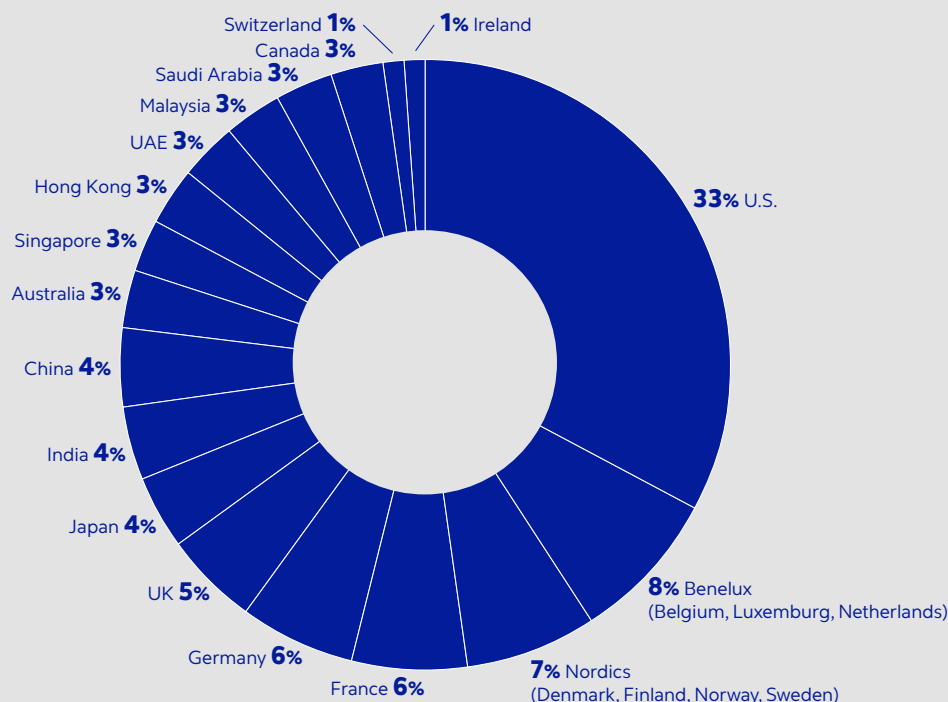
Respondents were from the U.S., Canada, UK, Ireland, France, Germany, Switzerland, Benelux (Belgium, Luxemburg, Netherlands), Nordics (Denmark, Finland, Norway, Sweden), Singapore, Australia, Malaysia, Japan, China, Hong Kong, India, Saudi Arabia and UAE. They represent 14 industries, evenly distributed across banking, consumer goods, education, healthcare (including both payers and providers), information services, insurance, life sciences, manufacturing, media and entertainment, oil and gas, retail, transportation and logistics, travel and hospitality, and utilities. All respondents come from organizations with over \$250 million in revenue; one-third are

from organizations with between \$250 million and \$499 million in revenue, one-third from organizations with between \$500 million and \$999 million in revenue, and one-third with \$1 billion or more in revenue.

In addition to the quantitative survey, Oxford Economics conducted 30 in-depth interviews with executives across the countries and industries surveyed. Interviewees who responded to the survey have a track record of using emerging technology to augment business processes. The conversations covered the major themes in this report, providing real-life case studies on the challenges faced by businesses and the actions they are taking, at a time when the coronavirus pandemic was spreading around the world and companies were formulating their strategic responses. The resulting insights offer a variety of perspectives on the changing future of work.

The following figures represent the demographics of the 4,000 respondents from the full global study.

Respondents by geography



(Percentages may not equal 100% due to rounding)

Respondents by role

- 13%** Vice President
- 13%** Chief Operating Officer
- 13%** Director reporting to senior executive
- 13%** Senior Vice President
- 12%** President
- 12%** Chief Executive Officer
- 12%** Chief Financial Officer
- 12%** Other C-suite Officer

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Arvind Pal Singh leads Cognizant's Utilities Consulting Practice in Europe. He has over 23 years of advising utilities and a track record of delivering digital-led business transformation for large enterprises. Arvind has been involved in Europe-wide initiatives of setting up marketplaces for flexible resources, intelligent asset management programs, virtual power plants and electric vehicles. He holds a master's in international business from Indian Institute of Foreign Trade and an engineering degree from Punjab Engineering College.

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Endnotes

- 1 Rakesh Ranjan, "Tata Power Delhi Distribution Records Over 90% Digital Payments Amid COVID-19 Lockdown," Mercom, June 24, 2020, <https://mercomindia.com/tata-power-delhi-distribution-digital-payments/>.
- 2 Rakesh Sharma, "COVID-19 Is Accelerating the Shift Toward Digital at Utilities," Energy Central, Aug. 11, 2020, <https://energycentral.com/c/ii/covid-19-accelerating-shift-towards-digital-utilities>.
- 3 "Safe and Smart Buildings: Five Measurable Actions Businesses Must Consider Now to Reopen," Cognizant, May 13, 2020, www.cognizant.com/perspectives/safe-and-smart-buildings-five-measurable-actions-businesses-must-consider-now-to-reopen.
- 4 Taylor Soper, "Amazon Alexa Leader: COVID-19 Has Sparked 'A Huge Increase in the Use of Voice in the Home,'" GeekWire, June 25, 2020, www.geekwire.com/2020/amazon-alexa-leader-covid-19-sparked-huge-increase-usevoice-home/.
- 5 "From Eyes to Ears: Getting Your Brand Heard in the New Age of Voice," Cognizant Center for the Future of Work, October 2020, www.cognizant.com/whitepapers/from-eyes-to-ears-getting-your-brand-heard-in-the-new-age-of-voice-codex5987.pdf.
- 6 Rick Rys, "Digital Twin Technologies in the Electric Utilities Industry," ARC, www.arcweb.com/industry-best-practices/digital-twin-technologies-electric-utilities-industry.
- 7 "Dutch Consultants Help Create Digital Twin of Water Utility Infrastructure," Consultancy.eu, April 15, 2021, www.consultancy.eu/news/6025/dutch-consultants-help-create-digital-twin-of-water-utility-infrastructure.
- 8 "Tesla Applies to Generate Electricity in UK Market," BBC, May 4, 2020, www.bbc.com/news/technology-52533224.
- 9 "Apple Expands Renewable Energy Footprint in Europe," Apple, Sept. 3, 2020, www.apple.com/in/newsroom/2020/09/apple-expands-renewable-energy-footprint-in-europe/.
- 10 Nina Chestney, "Global CO2 Emissions Show Biggest Ever Drop in First Half of 2020," Reuters, Oct. 14, 2020, www.reuters.com/article/carbon-emissions/global-co2-emissions-show-biggest-ever-drop-in-first-half-of-2020-idINL8N2H52YB.
- 11 Nicolas Kachaner, Jesper Nielsen, Adrien Portafaix and Florent Rodzko, "The Pandemic Is Heightening Environmental Awareness," BCG, July 14, 2020, www.bcg.com/en-gb/publications/2020/pandemic-is-heightening-environmental-awareness and "Brits See Cleaner Air, Stronger Social Bonds and Changing Food Habits Amid Lockdown," RSA, April 16, 2020, www.thersa.org/press/releases/2019/brits-see-cleaner-air-stronger-social-bonds-and-changing-food-habits-amid-lockdown.
- 12 "ENGIE Sees a Greener Future with Salesforce," Salesforce, www.salesforce.com/customer-success-stories/engie/.
- 13 "How the Ontario Energy Board Generated Responsible Energy Use," Publicis Sapient, www.publicissapient.com/work/ontario-energy-board.
- 14 Octopus website: <https://octopus.energy/agile/>.
- 15 Powershop website: www.powershop.com.au/#/.
- 16 "Electreon Wireless's Electric Roads in Tel Aviv to Charge Cars on the Go," Design Boom, Oct. 9, 2020, www.designboom.com/technology/israeli-startup-electreon-electrify-roads-tel-aviv-06-03-2020/.
- 17 "Round Up Your Utility Bill to Help Neighbors in Need," City of Georgetown, Dec. 4, 2020, <http://georgetown.org/2020/12/04/round-up-your-utility-bill-to-help-neighbors-in-need/>.
- 18 "United Utilities to Install 'World's Largest' Network of IoT Water Leak Detectors," WWT, Oct. 14, 2020, <https://wtonline.co.uk/news/united-utilities-to-install-world-s-largest-network-of-iot-water-leak-detectors>.

- ¹⁹ AMS website: www.advancedmicrogridsolutions.com/.
- ²⁰ Igor Sadimenko, "Is Australia Set to Become a Green Energy Superpower?" LinkedIn, Nov. 27, 2020, www.linkedin.com/pulse/australia-set-become-green-energy-superpower-igor-sadimenko/.
- ²¹ "Utility Customers Owe Up to \$40B in COVID-19 Debt, But Who Will Pay It?" Utility Dive, Dec. 3, 2020, www.utilitydive.com/news/customers-owe-billions-in-covid-debt-to-their-utilities-and-somebody-has-to/589525/.
- ²² Lynn Doan, "Colonial Is Just the Latest Energy Asset Hit by Cyber Attack," Bloomberg, May 8, 2021, www.bloomberg.com/news/articles/2021-05-08/colonial-is-just-the-latest-energy-asset-hit-by-cyberattacks.
- ²³ Sanjeev Addala, "You Need to Move As Fast As Your Data. Here's How We're Doing It At AES," *CIO*, Nov. 6, 2020, www.cio.com/article/3588318/you-need-to-move-as-fast-as-your-data-here-s-how-we-re-doing-it-at-aes.html.
- ²⁴ Joe Nagy, "What Does the Future Operating Model for Utilities Look Like?" Blue Prism, March 12, 2021, www.blueprism.com/resources/blog/what-does-the-future-operating-model-for-utilities-look-like/.
- ²⁵ "Powerley Unveils Energy-Driven Smart Home Experience," BusinessWire, Jan. 31, 2017, www.businesswire.com/news/home/20170131006068/en/Powerley-Unveils-Energy-Driven-Smart-Home-Experience.
- ²⁶ "Augmented Reality App Empowers Utility Customers," CapTech Consulting, www.capttechconsulting.com/client-stories/augmented-reality-app-empowers-utility-customers.
- ²⁷ "How British Gas Accelerated Its Digital Transformation," Publicis Sapient, www.publicissapient.com/work/british-gas.
- ²⁸ "Boosting Agent Call Success in Utilities Debt Collection," Behavioral Signals, <https://behavioralsignals.com/ai-mediated-conversations-case-study-for-utilities-debt-collection/>.
- ²⁹ "Humans + Intelligent Machines: Mastering the Future of Work Economy in Asia Pacific," Cognizant Center for the Future of Work, March 2019, www.cognizant.com/whitepapers/humans-plus-intelligent-machines-mastering-the-future-of-work-economy-in-asia-pacific-codex3873.pdf.
- ³⁰ Meridian Energy website: www.meridianenergy.co.nz/who-we-are.
- ³¹ Ilaria Grasso Macola, "Origin Energy Acquires 20% Stake in Octopus Energy," Power Technology, May 4, 2020, www.power-technology.com/news/origin-energy-acquires-20-stake-in-octopus-energy/.
- ³² "The New Leadership Playbook for the Digital Age," Cognizant, 2020, www.cognizant.com/whitepapers/the-new-leadership-playbook-for-the-digital-age-codex5350.pdf.

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