



# Digital Transformation in Energy and Utility Companies

A point of view prepared by IBM and SAP

# Contents

<b>Digital Storm</b>	<b>5</b>	<b>Heightened Customer Expectations</b>	<b>17</b>
<b>Four Key Trends</b>	<b>7</b>	<b>Industry Disruption</b>	<b>21</b>
<b>New Digital Core</b>	<b>9</b>	<b>Increasing Efficiency</b>	<b>25</b>
<b>Smart Utility Operations</b>	<b>13</b>	<b>Next Steps</b>	<b>29</b>

# Digital Storm

## Changing the energy and utility landscape

Today's energy and utility companies are facing unprecedented levels of disruption across the energy value chain as a result of the digital era.

### Disruptive technologies

Maturing energy technologies, like solar generation, battery storage, and electric vehicles, are challenging the ways in which businesses engage with customers, giving rise to the “prosumer” acting as both microsupplier and consumer. In parallel, new, disruptive technologies – particularly the Internet of Things and enterprise mobility – are driving changes in consumer behavior, with smart devices enabling greater consumer control over energy consumption.



### Changing customer expectations

As a result of their experiences with born-digital companies, customers now expect a digital relationship with their energy providers. They have more choice in energy supply and use, exhibit less patience with traditional forms of engagement, and are more willing to change relationships based on their experience.



### Evolving markets

These changes are creating entirely new marketplaces, new ecosystems, and new opportunities for nimble, innovative businesses with very different business models from the traditional utility.



### IBM and SAP

To help energy and utility companies meet these challenges head on, SAP and IBM have brought together their robust and secure infrastructure, industry-leading software, and best practices captured through decades of experience working together.



The partnership offers technologies that deliver advances in:

- Cognitive process reengineering
- Cloud delivery and migration
- Integrated services
- Work and asset management
- Customer experience and engagement

This e-book outlines four trends that energy and utility companies must address in the future, highlights five areas of investment, and shows how the IBM and SAP digital partnership can help organizations become high-performing digital companies of the future.

# Four Key Trends

Shaping the energy and utility company of the future

In response to the disruptive forces facing their industry, energy and utility companies need to define their strategic priorities in four areas.

## Enable new revenue streams

The very energy technologies that are disrupting the industry also offer the opportunity for new business models and revenue streams. Utilities must address how they react to a rapid influx of solar, wind, battery storage, and other maturing energy technologies – at both the utility and consumer scale – and develop new partnerships and offerings beyond the regulated business units.

## Improve customer engagement

Utilities must keep pace with the changing relationships with and expectations of their customers. Digitalization offers the opportunity to embrace new technologies that enable energy and utility companies to engage with customers proactively to influence behavior and drive better outcomes throughout all phases of the customer lifecycle – marketing, sales, and service.



## Increase B2B value

New Internet-of-Things (IoT) technologies allow business customers to monitor and control usage beyond the meter with more granularity and more precision. Utility companies have an opportunity to put in place services that enable these customers to manage their energy usage more effectively. At the same time, new self-service tools can be provided to help customers manage their relationship with the energy or utility company more closely.



## Innovate to manage costs

Despite this dramatically changing environment, utilities must continue to provide safe, reliable, cost-effective, and sustainable service. They need to apply innovative approaches and technologies more actively to transform processes and reduce costs in their core business areas.



To take advantage of the disruptive forces facing their industry, energy and utility companies need to address the challenges of the four trends shaping their future.

On the following pages, we outline the five key areas of investment that will help energy and utility companies take advantage of these trends.



## New Digital Core

Harnessing the power of cognitive computing

To make cognitive computing a reality, a new digital core is required, one that is surrounded by “thinking” software that can learn, grow, adapt, and churn through massive amounts of structured and unstructured data to keep pace with the digital economy.

At the core of digital transformation is SAP S/4HANA®, the next-generation business suite designed to help organizations run live. This suite of solutions is built on the SAP HANA® platform and offers a personalized user experience (UX) based on the design principles of the SAP Fiori® UX.

SAP S/4HANA delivers massive simplification and innovation. Available in the cloud, on premise, or in a hybrid model, it offers organizations deployment choices for reducing total cost of ownership and flexibly executing business and IT strategies.

The SAP S/4HANA Utilities solution is designed to enable energy and utility companies to drive instant value across lines of business, master end-to-end process complexity, and create opportunities to reinvent business models and drive new revenue channels. It also creates opportunities to dramatically simplify the technology landscape. Energy and utility companies can now significantly reduce their data footprint and work with larger data sets in one system.

Innovation is made simpler with an open platform that drives the advanced analysis of any data – including text, social, and geospatial data – while protecting existing IT investments. Business users can leverage a simple, role-based user experience rooted in modern design principles, minimizing training while increasing productivity and adoption.

### Extending core processes to customers

SAP® Hybris® solutions help energy and utility companies engage customers on any device and at any time. They also help analyze data quickly to create a clear picture of consumers. As a result, customer-service agents are transformed into trusted advisors.

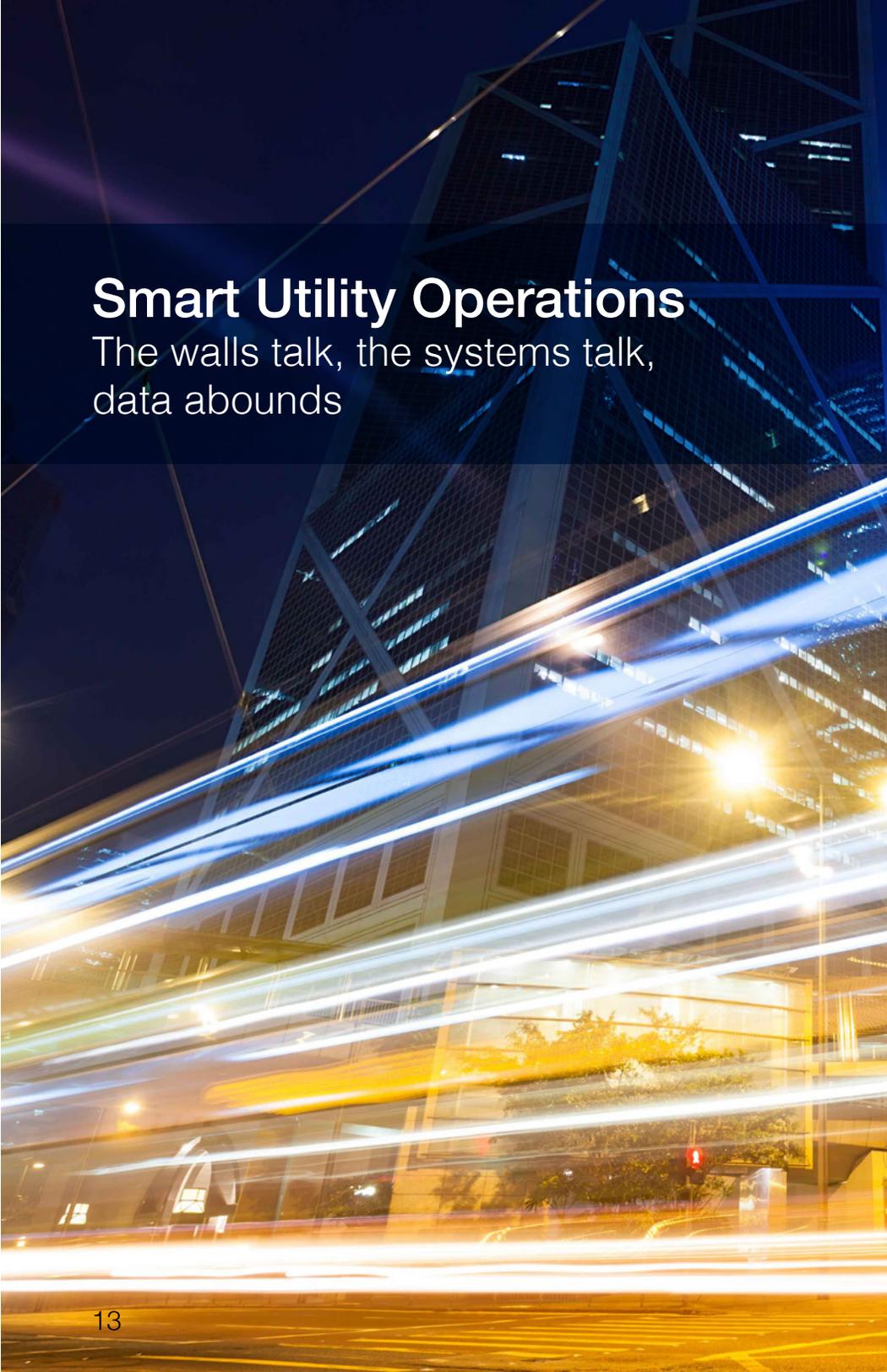
At the same time, SAP Hybris solutions also help service reps complete customer profiles that include situational data, prior purchase information, interaction histories, and best offers.

SAP Hybris solutions also simplify billing processes and enable multisided business models with convergent billing. This makes it easier to sell add-on services or products and creates less complicated customer statements.

SAP Multichannel Foundation for Utilities and Public Sector software offers a cost-effective way for companies to digitalize their customer interactions through self-service channels like the Web, mobile apps, and social media. It does so by abstracting the features of SAP software into open-standard services that can be consumed easily by consumer-facing applications on any channel, built using any technology.

In the digital economy, outthinking the competition requires integrated digital processes, data, and networks to predict outcomes. IBM and SAP help companies succeed in this new reality – allowing them to outthink the industry's most-perplexing challenges of today and tomorrow by combining SAP solutions with cognitive computing solutions from IBM.





# Smart Utility Operations

The walls talk, the systems talk,  
data abounds

The numerous assets and control devices spread out over energy and utility companies' operating territories are creating large volumes of data, such as usage patterns and anomalies, device status information and events, and the general status of the network.

With the advent of smart metering, the information available has become more detailed and more easily attributed to specific customers. Ubiquitous smart appliances in customers' homes are producing data that can be used to optimize responses to demand and improve energy efficiency.

Solutions from IBM and SAP support the convergence of operational technology (OT) and information technology (IT).

A company's OT solutions, such as SCADA systems and sensors, constantly chatter to each other, collecting and sending data. Separately, IT solutions, such as work scheduling systems, also talk among themselves. However, traditionally these solutions did not talk to each other and share information.

With SAP S/4HANA Utilities and cloud technology, both OT and IT systems can share a common database. Having all the data in one place, combined with near-real-time cognitive computing and data utilization, provides a better understanding of what is happening and what is likely to happen. Moreover, simulation and predictive tools can help every employee gain new insights to make better-informed decisions, improving productivity and increasing profitability.

### Practical examples

**Asset responsiveness:** Sensors on equipment (OT) can trigger a high-temperature alarm, which, in turn, sends a work order (IT) to a technician's mobile device. Coordination from a supervisor is no longer needed, enabling a faster response.

**Service order data aggregation:** Cognitive computing can increase the efficiency of field operators by bringing together all the data about customers, work orders, and equipment so technicians can be sure they have the necessary tools and expertise, reducing repeat site visits. Additionally, when in the field, technicians can quickly find relevant policies, procedures, and product details to further increase efficiency.

**Predictive maintenance:** By analyzing data from IoT sensors combined with trade-off analytics, software solutions can predict when assets are likely to fail and recommend maintenance schedules to optimize asset performance, improving the overall reliability of critical assets. In addition, advanced hyperlocal forecasting techniques can be used to predict bad weather and the damage it will cause, enabling the optimum positioning of restoration resources and supply chain inventory before the weather event occurs.



# 93%

Utilities will experience 93% data growth by 2017, with 84% of it being unstructured.

Source: "Rethinking the Industry: The Unexplored Capabilities of Artificial Intelligence," IBM, 2015.

[Learn more](#)



Learn how IBM and SAP can predict when assets will need maintenance.

[Watch the video](#) ▶

# Heightened Customer Expectations

Delivering a retail-like experience

Due to increases in energy efficiency and an increasing ability for customers to generate electricity themselves, it is becoming harder for energy and utility companies to create the same revenue per customer as they have done in the past.

At the same time, customers have changed and now have higher expectations than ever. They expect each experience to be as good as their most-recent best experience. They expect to transact in the digital self-service channels faster than they can on a phone call. And they expect relevance and personalization, abandoning companies that do not provide it.

This trend is continuing to blur the boundaries of traditional market players, creating significant risk. To maintain revenue, energy and utility companies must deliver a more retail-like customer experience. This includes taking steps to personalize experiences across multiple channels while optimizing call center processes, providing unique offerings such as connected home products, and creating superior engagement models.

### Practical examples

**360-degree view of customer:** SAP and IBM cognitive solutions empower call center agents by aggregating structured and unstructured customer data from many different silos across the organization to deliver a full 360-degree view of the customer. As a result, agents have better insight into customer problems and can address them faster, reducing overall handling time.



**Cross-channel experience:** Leveraging SAP Multichannel Foundation for Utilities and Public Sector, paired with IBM's Interactive Design and Digital Strategy Services, helps companies define a road map for delivering customer experiences across all channels to increase customer engagement and satisfaction, while driving down the overall cost of service through self-service capabilities.



**Customer responsiveness:** Processing data in near-real time in the cloud allows energy and utility companies to provide customers with the information they want quickly and on demand, whether it be from an app, interactive voice response (IVR), a Web site, or a call center representative. For example, customers can track energy usage and pay online or through an app.



**Predictive customer service:** Predictive analytics can identify why consumers are calling the contact center – for example, when they need help with a reconnect or an outage – making customers feel understood and cared for. After deploying IBM and SAP solutions, CenterPoint Energy (Houston, Texas) had record customer satisfaction scores despite handling 20% more calls with fewer agents.



### Learn more



Watch how IBM transformed the customer experience at CenterPoint Energy, helping the utility rank second in customer satisfaction for southern utilities in 2015 and earn the title of “2015 Utility Customer Champion.”

[View the video](#) ▶

See how the Heads up Weather app informs and keeps customers up-to-date about potential outages from bad weather using phone calls, text messages, or e-mails to help increase customer awareness (and satisfaction) and deflect calls into the call center.

[Watch now](#) ▶



# Industry Disruption

## Accelerating innovation

Converging industries and disruptive technologies are redefining the industry and creating new business models seemingly by the day. This phenomenon is being driven by technologies such as smart appliances, net metering, cognitive applications, the cloud, the Internet of Things, and mobile technology, as well as regulatory shifts. An IBM survey found that CxOs expect competition from outside industries, such as renewables companies, solar installers, and equipment manufacturers.<sup>1</sup>

1. "Redefining Boundaries: Insights from the Global C-Suite Study: Energy and Utilities Industry," IBM Institute for Business Value, 2016.

Energy and utility companies must adapt to these changes quickly to succeed. Integrated services from IBM and SAP help energy and utility companies achieve speed to value by deploying end-to-end solutions rather than having to string together individual components. The SAP Activate methodology enhances this speed. It is a set of business processes, optimized for SAP S/4HANA, that expedites the planning and delivery of an implementation.

Cloud solutions from IBM and SAP accelerate time to value for utilities because they can buy into an existing service rather than set up a new infrastructure. Instead of paying a fixed infrastructure cost, utilities can easily scale up or down, and learn and adjust as they go. Given that it may not be possible to know exactly how much computing power and memory will be needed for a project, this is very useful.

### Practical examples

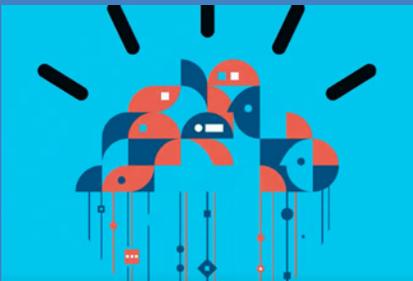
*Accelerated program lifecycle:* Integrated solutions from IBM and SAP increase speed to market when a company offers a new program by reducing the time needed for innovation and implementation. SAP tools offer better market segmentation capabilities so organizations can customize their energy offerings.



*Market agility:* Cloud technologies from IBM and SAP provide the agility to rapidly enter new markets, acquire and onboard new companies, and deploy organizational change in a fraction of the time it takes with today's systems. This speed is thanks to cloud-based processes that allow companies to skip steps required in a legacy system, thus enacting change faster.

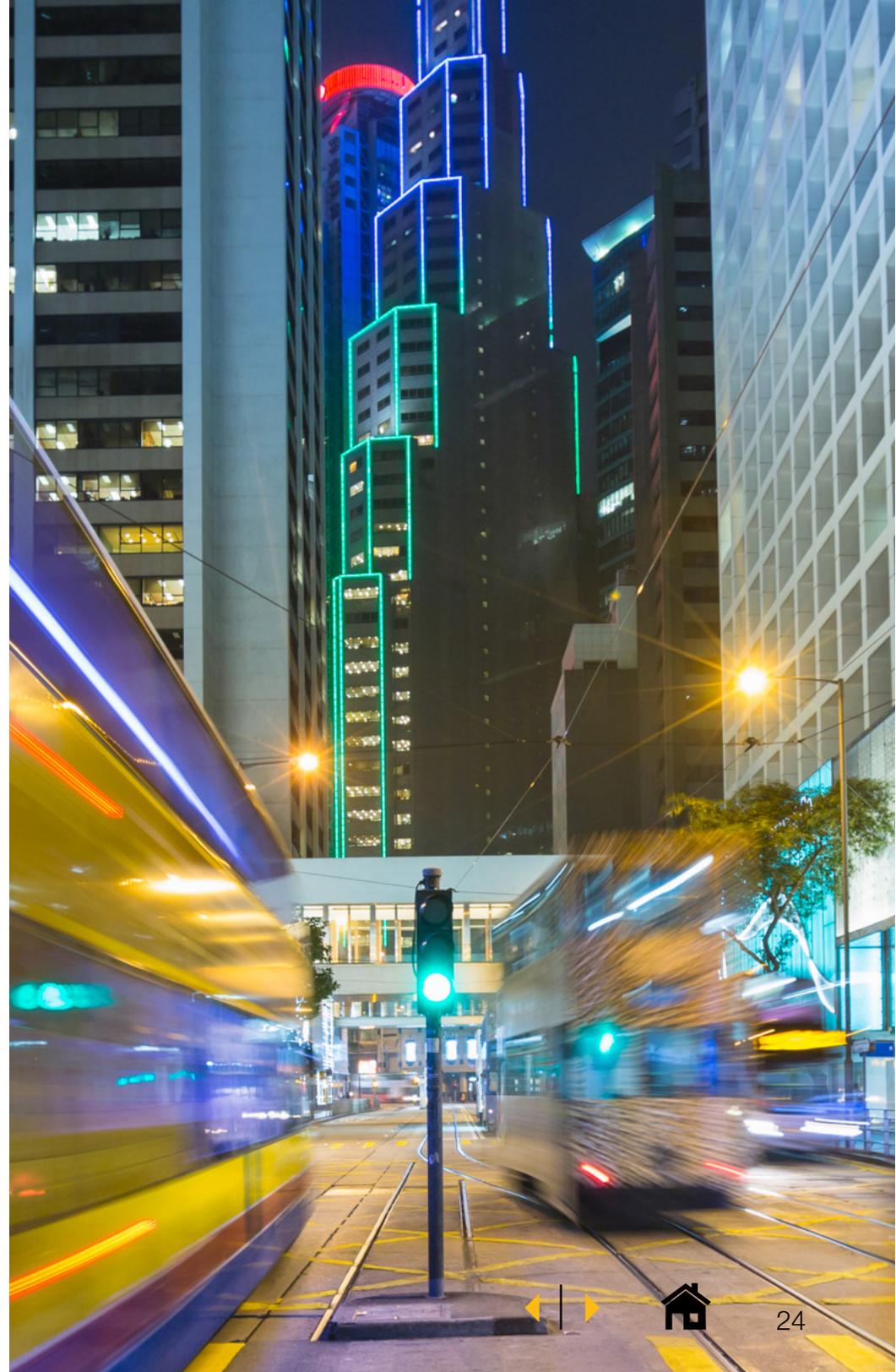


### Learn more



Learn how cloud services can accelerate time to value.

Watch the video ▶



# Increasing Efficiency

## Streamlining processes

While there is a strong demand for energy and utility companies to transform their customer engagement strategies, companies are also grappling with reduced revenues from traditional rate cases. In addition, back-office processes related to meter to cash, the backbone of the utility revenue stream, are often manual and inefficient, particularly those related to bad debt, resulting in millions of dollars in write-offs each year.

Despite this financial strain, energy and utility companies must continue to provide safe, reliable, affordable, and sustainable energy to their customers. To do this, they must utilize assets fully and replace manual or inefficient business processes with faster, technology-driven ones.

Solutions from IBM and SAP enable energy and utility companies to bring siloed data into a single, Big Data platform, allowing upstream and downstream partners to operate a single business process rather than using separate disjointed processes that impede business operations. Coupled with cognitive process reengineering and a cloud platform built for cognitive workloads, energy and utility companies are able to increase process optimization across the enterprise and help generate revenue assurance.

### Practical examples

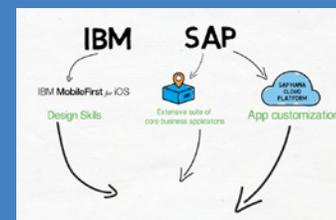
**Workforce management:** Cloud solutions unite all vendor and partner data, enabling convergence around a single, faster business process. For example, if a company wants to use a vendor to install solar panels at a customer's home, the company can enter customer details, view vendor rates, and hire a professional, all within a single system.



**Bad debt reduction:** By applying cognitive solutions, energy and utility companies can predict in advance which customers are most likely not to pay and move them into specialized collection processes. These might include proactive communications with recommendations for low-income plans or product and rate alternatives, which are sent at the right time, across the right channel, for maximum effectiveness.



### Learn more



Learn how IBM and SAP create mobile apps that help businesses run more efficiently.

See now ▶

See how energy and utility companies can address customer needs faster.

View the video ▶

**Mobile solutions:** The ability to integrate mobile technologies with data and other systems helps energy and utility companies improve operating efficiency, workforce effectiveness, worker safety, and service delivery. For example, a technician can be notified of a work order on a mobile device and receive directions, step-by-step task lists, the shipment status of equipment, safety checklists, and 3D tools that help visualize the asset.



### Work and asset management

IBM and SAP have jointly configured an integrated service and work mobile solution that includes best-practice processes for work and asset management, scheduling, and enterprise mobility. It predicts which assets are likely to fail and sends work orders to the engineer's mobile device so that the asset can be fixed before a costly emergency occurs.

The mobile solution reduces project implementation effort because it:

- Stops requirements being written that are already met by the standard solution
- Acts as a sandbox for configuration and development before deploying in the client's environment
- Identifies the differences between the "as-is" and "to-be" solutions quickly
- Accelerates stakeholder buy-in because everyone can see the solution from day one
- Improves user acceptance because employees can try out the mobile solution on the organization's mobile devices

## Find and fix

See how technicians can use mobile devices to select jobs by priority and proximity and easily find the resources they need to complete them.

Watch the video ▶

## End-to-end process

On mobile devices, the integrated service and work mobile solution allows technicians to:

1. Identify a failing asset
2. Create a work order
3. Receive the work order
4. View the job location on a map
5. Start the work order
6. Obtain step-by-step fix instructions
7. Order parts
8. Measure temperature when required
9. Close the work order
10. Report on job



## Next Steps

How can your company begin its digital cognitive journey? Here are seven steps you can take to unleash the power of IBM and SAP solutions.

1. Assess your organization's current digital readiness.
2. Reimagine business models and processes and develop a digital transformation strategy.
3. Assess and prioritize opportunities based on value by creating business cases and calculating benefits, ROI, and total cost of ownership.
4. Develop a solution road map that addresses how the strategy will be met, while considering which technologies and services to use, including cloud and cognitive solutions, user experience, and integrated services.
5. Use design thinking to refine selected opportunities, ensuring they meet customers' needs, and then explore, prototype, evaluate the results, and continue to refine them.
6. Implement the solution on time and within budget.
7. Maximize investments and accelerate value creation with governance based on executive engagement, value delivery, and continuous innovation.

## Contact Us

For further information about how we can help you, please visit:

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