



Tech Trends 2018 | Deloitte Insights

2018 Tech Trends for the power and utilities industry

Tech Trends 2018: The symphonic enterprise is Deloitte's ninth examination of the forces that are disrupting and redefining information technology (IT), business, and society in general. When advances such as digital reality, cognitive, cloud computing, and blockchain—to name just a few—work in concert with strategy and operations they can fundamentally reshape how work gets done, set the stage for new products and business models, and drive greater organizational value.

Evidence of technology's disruptive impact on the power and utilities industry is clear and growing. This publication explores eight trends that forward-thinking executives should consider as they seek to build or acquire capabilities that can move their organization into the future. ➔

A brief look at the trends

Reengineering technology

Building new IT delivery models from the top down and bottom up



With business strategies inextricably linked to technology, many leading organizations are fundamentally rethinking how they envision, deliver, and evolve technology solutions: transforming IT departments into engines driving business growth, with responsibilities that span back-office systems, operations, and even product and platform offerings. They are taking a combined bottom-up approach to modernizing both infrastructure and the architecture stack and a top-down approach to organizing, operating, and delivering technology capabilities. Used in tandem, these approaches offer the tools, velocity, and empowerment that will likely define the technology organization of tomorrow.

Increased technology use likely will require IT to adopt agile data management and delivery methods that are deployed across the organization. Already, forward-looking public and investor-owned utilities are leveraging cloud computing, automation, and multichannel communication to transform their back office and operations systems. These technology-driven approaches are improving the way that utilities engage with residential, commercial, and industrial customers, moving beyond outage maps and online bills to provide operations updates, energy/resource efficiency programs, and tailored rate structures.

No-collar workforce

Humans and machines in one loop—collaborating in roles and new talent models



With automation, artificial intelligence (AI), and cognitive technologies gaining traction, an opportunity exists to reinvent work roles, assigning some to humans, others to machines, and still others to a hybrid model in which technology augments human performance. Managing both man and machine will require a new kind of human resources (HR) organization—one that simultaneously retrains augmented workers and pioneers new HR processes for managing virtual workers, cognitive agents, bots, and the other AI-driven capabilities comprising the “no-collar” workforce. By redesigning legacy practices, systems, and talent models around the tenets of autonomies, HR groups can begin transforming themselves into nimble, fast-moving, dynamic organizations positioned to support the talent—both mechanized and human—of tomorrow.

The power and utilities industry is staffed by an aging workforce with a significant portion of utility workers that are eligible to retire in the next five years. The potential loss of experienced, knowledgeable employees poses a huge risk to organizational continuity and customer service, but companies that embrace the no-collar workforce have an opportunity to transform how work gets done. This transformation is not a cost reduction/headcount management exercise; the no-collar workforce will need to be integrated across back-office, customer-facing, and operations functions—for example, using robotics and customer engagement tools to complete everyday tasks, freeing call center agents to manage key customer relationships. In addition, shifting employee focus from process and technical skills to “softer” skills, such as empathy, communication, and problem-solving, may require a fundamental rethinking of training approaches and content.

Enterprise data sovereignty

If you love your data, set it free



As data grows exponentially in both volume and strategic importance, there is an increasing demand to manage it better, differently, and more safely—to “free” enterprise data so that it is accessible, understandable, and actionable across business units, departments, and geographies. The enterprise data sovereignty trend provides power and utilities companies with a blueprint for turning themselves into data-driven organizations. But doing so requires modern approaches to data architecture and governance, as well as long-term investments in data integration, cataloging, security, lineage and other areas.

Data from smart meters, in-home devices, and field sensors is enabling a new generation of data scientists to identify and manage information that is of critical interest to individual consumers. Previously, smart meter data analysis allowed utility companies to rapidly and effectively detect revenue leakage and fraud. Today’s data scientists can pinpoint energy/resource inefficiencies and potential future failure of specific appliances and equipment in an individual business or home, and take appropriate mitigation actions.

The new core

Unleashing the digital potential in “heart-of-the-business” operations



Individual technology trends are rarely found in isolation. In fact, their controlled collision within specific, bounded business problems is where exciting prospects lie. Customer engagement and marketing have dominated much of the first “digital” wave, but attention is turning to the heart of the business: back- and mid-office processes that offer opportunities to reinvent how daily work gets done. Already, finance and supply chain are seeing the confluence of next-generation enterprise resource planning (ERP), core modernization, blockchain, machine intelligence, the Internet of Things (IoT), and other technologies that fundamentally reimagine mission-critical functions. By looking at how these capabilities could and should be realized in the digital era, organizations can avoid being anchored by historical precedent, instead harnessing emerging technologies to define a “new core:” symbiotic building blocks in a larger enterprise ecosystem that work in concert to reshape business.

For example, by combining cloud and mobility solutions the next generation of core systems is simplifying and automating everyday work tasks. Using new computing platforms allows a statutory and regulatory “touchless close” without human intervention. Looking ahead, next-generation real language robotics may be able to write an initial analysis of trends and messages in a company’s financial metrics to include in management and annual reports.

Digital reality

The focus shifts from technology to opportunity

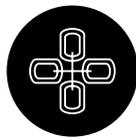


The AR/VR revolution has reached a tipping point, with enterprise adoption outpacing the consumer world. Driven by a historic transformation in the way we interact with technology and data, market leaders are shifting their focus from pilots and niche offerings to strategies anchored in innovative use cases and prototypes designed for industrialization. Companies are laying the groundwork for broader deployment by tackling issues such as integration experiences with the core, cloud deployment, connectivity, and access. Some have even begun developing new design patterns and nurturing nontraditional skill sets, heralding a new era of engagement. These early adopters recognize a shift in the AR/VR winds: The time to embrace digital reality is now.

Early adopters in the power and utilities industry are challenging the way that everyday field tasks are executed, using augmented reality glasses to improve/accelerate picking in warehouses, providing real-time feedback and support for maintenance technicians in generation facilities, and integrating with global information systems (GIS) to allow field operatives to visualize the location of underground assets before they dig. Coupled with digital twins for the installed asset base to predict and identify failures, the new digital reality is transforming the way that utilities install and maintain assets.

Blockchain to blockchains

Broad adoption and integration enter the realm of the possible



Blockchain technologies are on a clear path toward broad adoption and are causing disruption across all major industries. Now is the time for power and utilities organizations to begin standardizing on the technology, talent, and platforms that will help drive future blockchain initiatives and opportunities; among them, integrating and coordinating multiple blockchains within a single value chain.

As the electricity grid moves from being a unidirectional flow of energy—from source to consumer—to being a true multidirectional grid with many microgrids, storage devices, and small-scale generators, a tremendous number of transactions and events will need to be monitored and validated. Early prototypes using blockchain technologies to validate and keep these transactions secure reveal that it is a viable technology to manage the volume and complexity of the next-generation grid.

API imperative

From IT concern to business mandate



Reusing data, transactions, and experiences found across the enterprise can be challenging because many systems were not built with this model in mind. The situation is changing, though, as companies increasingly architect, design, and build technology assets as a discrete set of digital building blocks they expect to be reused. In doing so, they are embracing the “API imperative:” the strategic deployment of services and platforms that are propagated and consumed within and beyond the enterprise. Doing so at scale requires a new set of capabilities to expose, control, and manage APIs as products, complementing traditional approaches to middleware and integration.

The API imperative offers a forward-thinking approach to help utility companies achieve the scale and agility they need to share customer and back-office data and events more rapidly, using API proxies to provide secure interactions between operations systems, remote devices, and cloud-based services.

Exponential technology watch list

Innovation opportunities on the horizon



Many of the potential opportunities—and challenges—emanating from AR/VR, blockchain, AI, cognitive technologies, robotics, and exponential technologies such as quantum computing are yet to be explored and defined. However, many leading organizations are developing the disciplined innovation responses and capabilities they will need to sense, experiment with, incubate, and scale exponential opportunities.

Some utilities are taking steps to lay the groundwork for emerging innovations. . For example, the use of drones to augment facility security and inspection tasks is increasing as drones become more autonomous and capable of returning to a base for recharging and repair without a human pilot. Moving beyond flying, the next generation of submersible and surface drones is already being prototyped to augment or replace human inspection of utility infrastructure. These drones will perform simple maintenance tasks such as water main leak detection and repair that a human could not perform without causing disruption to life on the surface.

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