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How utilities can speed their digital transformations

Utilities have found it hard to scale their digital pilots up to full digital-transformation programs. Adopting digital ways of working, adding talent, and modernizing IT will speed their efforts to reinvent themselves as digital enterprises.

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For utility companies, transforming operations and systems with digital technologies and ways of working can create substantial value: a reduction in operating expenses of up to 25 percent, which can translate into lower revenue requirements or higher profits. These prospects have led utilities to launch all sorts of digital-transformation efforts, such as scheduling maintenance with predictive models and optimizing customer experiences.[1] Yet few of the digital projects we've observed at utilities have created momentum for comprehensive reinventions.

That's understandable. In our experience, digital transformations at utilities are often inhibited by these three issues:

- The typical utility has built its working methods around safeguarding large, long-lived assets and minimizing operational risks. This mind-set makes utilities cautious about embracing digital ways of working that involve constant experimentation.

- The popular perception of utilities as analog-era companies makes it hard for them to attract talent to fill digital-economy roles, such as data scientists.

- Utilities often have complex legacy IT environments that slow down innovation.

These conditions aren't easy to overcome, but some utilities are showing that it can be done. Here's how leading utilities are accelerating their digital transformations (exhibit).

1. Adopting digital ways of working

The conventional wisdom in the sector is that utilities need to be stable, reliable, and secure above all. We agree that these are important virtues. However, utilities face fresh threats as challengers learn to operate and innovate at high speed. To keep up, utilities need to increase their agility—their capacity for sensing challenges and opportunities and for quickly mobilizing the organization in response. Greater agility can make assets safer and more reliable by enabling utilities to anticipate, detect, and resolve problems faster. Making that happen, though, requires support from senior leaders and, ultimately, the entire company.

Utilities may face challenges when it comes to persuading senior leaders, many of whom have spent almost all of their careers in the sector's traditional environment, to adopt digital ways of working and prioritize a digital transformation. Executives who are unsure about the need to digitize would do well to spend time at digital-native companies and digitally transformed incumbents. Observing their operations firsthand can assuage concerns that digitization will derail fine-tuned processes and systems. And learning from fellow executives about the pressure they face from digital competitors should remove doubts about whether utilities ought to go digital.

1 For more, see Adrian Booth, Niko Mohr, and Peter Peters, "The digital utility: New opportunities and challenges," May 2016, McKinsey.com.

Utilities can accelerate digital transformation by focusing on changes in three main areas.

Focus area	Adopting digital ways of working	Attracting and retaining digital talent	Modernizing the IT architecture and environment
Key tasks	• Gain the support of senior leaders so a digital transformation has high priority • Build a digital factory to produce new applications and insights using digital-native methods	• Highlight the intellectual challenge and social value of the utility's work • Tap into a broad pool of digital specialists who value the balance and stability that a utility offers	• Simplify the utility's product portfolio and business processes • Shift from all-in-one, monolithic IT systems to modular IT architectures

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Even in the best situations, with executives who fully support digitization, it can take years for an entire utility to embrace the methods of digital-native businesses. To refresh their working styles, some utilities have acquired or partnered with smaller digital businesses or start-ups, but this rarely catalyzes enterprise-wide change. A more effective approach is to set up an in-house digital factory devoted to producing digital applications by using the latest technologies and ways of working.

While such a digital factory can be modest in size at the outset—20 to 50 people—it should have a strong, well-positioned leader and a diverse staff of product owners, designers, software architects, scrum masters, data scientists, and developers. It also needs to be as autonomous and self-contained as possible so it can operate at a faster speed. Achieving a high level of autonomy might mean liberating a digital factory from dependencies on enterprise-level processes like hiring, planning, and budgeting.

2. Attracting and retaining digital talent

As a digital factory proves that it can deliver new products, it should continue to add staff and tackle more assignments, with the aim of working on all the value pools the utility wishes to address. Because most utilities have a major digital-talent gap to close, it is not uncommon to triple a digital factory's headcount within a year (or add more factories) while gradually replacing external contractors with internally trained colleagues or new hires.

This type of scale-up requires utilities to enter the competitive market for digital talent with a sense of urgency, especially because they are seldom seen as innovative, cutting-edge businesses. We've seen some utilities vie successfully for digital hires by playing up the intellectual challenge and reward of the utility's digital agenda. Utilities can highlight their socially valuable mission of providing a community with reliable energy, and show that their digital jobs have more meaning than jobs at a lot of other companies. For instance, one European utility presents its approach to digital technology as an important part of its efforts to lower its environmental impact—and it has success stories and a generation portfolio to back up its claims.

Another digital-recruiting tactic that utilities have used successfully is to go after a broad, diverse talent pool. While there's some truth to the stereotype of the young, single-minded software developer who thrives on energy drinks, 16-hour workdays, and a high-pressure start-up environment, plenty of digital specialists value a shorter workday and the stability of a large, established company. Utilities can typically provide both.

Finally, some utilities have chosen to partner with nearby universities as a way of sourcing digital talent and fresh ideas. To attract graduates in digital fields, one European utility has taken practical measures such as sponsoring sector-relevant courses and research, providing students with internships, and allowing managers to take sabbaticals from their utility jobs to teach.

3. Modernizing the IT architecture and environment

Most utilities have managed their IT architectures and environments much as they have their physical assets. Utilities were early adopters of large-scale software packages that offer maximum stability and performance, which they customized as their requirements outgrew the systems' standard features. Many of those systems have now been in place for decades, becoming bigger, more cumbersome, and harder to maintain.

This state of affairs severely limits the ability of utilities to adopt the modern technologies and flexible IT-management practices of digital businesses. Since complex, monolithic IT systems can take five or more years and hundreds of millions of dollars to replace, utilities should modernize their IT architectures and environments progressively.

A necessary first step is to simplify the utility's product portfolio and business processes. As regulations and customer needs have evolved, many utilities have seen their offerings (and the corresponding operational requirements) proliferate. Winnowing down a bloated portfolio makes it easier for utilities to modernize their IT architecture by reducing the number of functions that software must undertake. One European utility's portfolio comprised thousands of products and services, each of which put unique demands on the IT architecture. After the company decided to allow only offerings that can be supported by one of four variants of back-office processes, it reduced its portfolio to 150 offerings that still met 95 percent of its customers' needs.

A core tenet of efforts to modernize IT is the need to shift from all-in-one, monolithic systems to a modular IT architecture. In such an architecture, currently used or off-the-shelf software packages provide a backbone for functions with standardized requirements, such as billing and customer-relationship management. Companies should select software packages that meet their essential needs rather than opting for best-of-breed solutions. With a stable backbone in place, utilities can develop custom applications for functions such as product development or mobile-enabled field operations, where unique capabilities can provide competitive advantages.

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Even in the most optimistic scenario, it takes years to transform a utility with digital technologies and methods—but we believe the ultimate outcome is worthwhile. Companies that make the changes described in this article can accelerate their digital transformations, and should stand a better chance of securing market share against digital attackers and transformed incumbents.

Read an extended version of this article on McKinsey.com: *Accelerating digital transformations: A playbook for utilities*.