



Digital Transformation for Utilities: More Tortoise, Less Hare

Some race for the finish line with huge investments.
Improving existing processes delivers better returns.

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At a Glance

- ▶ Digital transformations are difficult: Bain’s data shows they are significantly harder than conventional change management programs, with only 5% of companies reporting they had achieved or exceeded expectations.
- ▶ Some utilities try to move too quickly through these transformations, adopting an “if you build it, they will come” mentality. They invest in an oversupply of digital capabilities, anticipating demand that doesn’t yet exist.
- ▶ A more measured approach creates significant value by applying digital technology to improve existing processes.

Power and gas utilities have committed to digital—in some cases, more aggressively than they should have.

Over the last five years, some utilities have raced to invest hundreds of millions of dollars, hiring dozens of data scientists and mobile developers. These utilities are treating digital the same way they would invest in a generation plant or other large capital project: a few years of heavy investment to bring the plant into service, followed by decades of steady, low-risk returns.

But digital transformation is anything but low-risk: Bain’s data shows that digital transformations are significantly harder than conventional change management programs. Our research found that only 5% of companies involved in digital transformations say they have achieved or exceeded their expectations. A full 75% settled for dilution of value and mediocre performance.

Given this challenge, no utility executive should be thinking about simply “going digital” by investing in the organization’s ability to adopt new digital tools and, more important, adapt to digital ways of working. A better way to think about this transition is to use digital tools to improve existing processes and operations in ways that deliver value today and build momentum for the future.

In our work with utilities around the world, we have observed the success of this more measured approach. For example, one electric utility in the US employed advanced analytics to increase situational awareness and cut instances of equipment failures, enabling it to reduce outage durations by up to 20% over a couple of years. In another case, a global utility based in Europe deployed digital and automation technologies to improve a wide range of activities, including on-site assembly line at plants, advanced 3-D design and GPS-enabled laying of cable in the field. The utility also borrowed

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best practices from other sectors (automotive, mining and aerospace) to redesign its business model and redefine its core competitive advantage (automation as a way to improve capex efficiency). By hiring more data scientists, it built up its capabilities for predictive maintenance and process optimization. A redesigned governance model allowed them to deploy new technologies to improve their integrated supply chain.

Several other large utilities have taken radically different approaches to capital planning, developing more advanced data models that helped meet long-term strategic goals and improve their system average interruption duration index (SAIDI) by 15%. Others have deployed applications that make it easier for field operators to update the status of jobs and provide more accurate information to supervisors and customers. In all cases they started with an existing business problem and applied a combination of digital, people and processes to improve it.

Drawing lessons from these early breakaway efforts, our research identifies three key principles employed by digital leaders that have helped guide successful transformations, without the collateral damage of overly broad and costly investments.

- Keep the focus on the core processes.
- Place business owners in the driver's seat.
- Build an ecosystem of trusted partners.

As a digital transformation progresses, executive teams will have to address many other decisions, too: whether to buy or build their own digital solutions, how to leverage Agile methods without going overboard, how to monetize their investments in digital technology. But these three key principles address some of the core challenges of implementing digital technologies in a utility environment.

Keep the focus on the core processes

Some utilities begin their digital journeys by deploying new technologies as a substitute for improving traditional processes, under the mistaken impression that this will be easier or generate more benefits. In most cases, however, digital technologies deliver more value as an accelerant, unlocking value in processes and operations that utilities are already deploying. In practice, this should give executive decision makers more confidence in making digital investments: Their priorities are already right, but the pace and scope at which they achieve them can be improved.

Prioritizing the key aspects of the business (operations, customer interactions, back office) helps executives target those with the potential to generate more value through digitalization—whether by reducing costs or improving effectiveness. A full end-to-end review of these processes helps identify pain points and potential solutions, including process redesign, technology upgrades and, of course, digitalization. Taking a coordinated approach across functions and business units helps ensure full realization of benefits.

Focus is also key. While it may be tempting to target many processes at the same time, each process will involve multiple cases and process changes, as well as significant change management. Focusing on a few specific areas of the business to generate value is critical to winning support for further investment. For example, some utilities start by focusing on digital technology's potential to improve the outage restoration process. More advanced and detailed analytics can shed light on crew performance and improve models for predicting failures. Digital systems and devices also allow for more effective sharing of information among the field forces. Other utilities might start with the back office, zero-basing and redesigning end-to-end processes (procure to pay, plan to forecast), and then deploying new planning tools or proven technologies such as robotic process automation or optical character recognition.

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Place business owners in the driver's seat

Digital transformations led exclusively from IT frequently stall out. When digital initiatives are not strongly endorsed by business unit leaders, the front line may decide not to embrace new technologies or implement changes to their core operations. Putting the business owners at the heart of the process from the beginning is critical to achieving meaningful progress.

Most of these executives are already familiar with Agile processes and design thinking, but many are still not embracing them in project and product management. Agile teams, with their cross-functional makeup, are an effective way to break down silos and ensure true collaboration in the development process. In a utility environment, Agile has unique implications.

First, utilities should think carefully about which projects are best suited to new ways of working. For example, Agile methodology could be effective for developing an automated time-keeping application, because rapid development of quick, basic applications that solve users' needs can create momentum and improve adoption of new tools. On the other hand, advanced distribution management systems (ADMS) are better suited to a more structured, waterfall approach due to the interdependencies and requirements for accuracy.

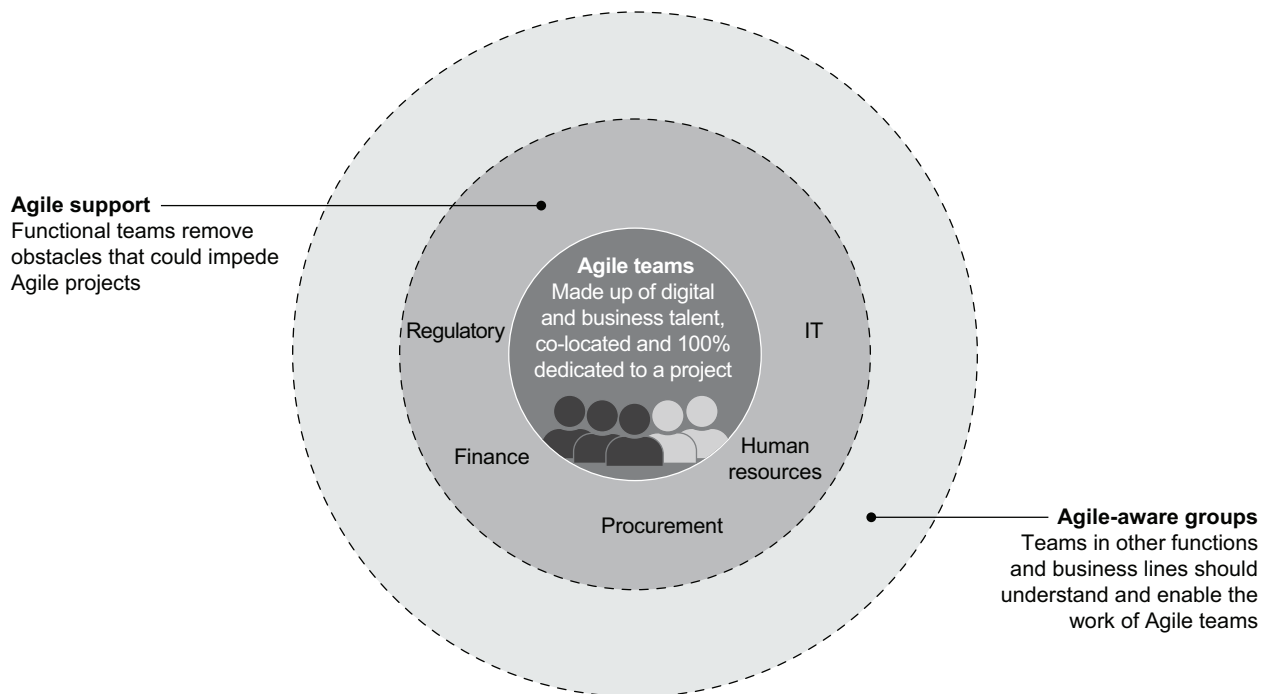
Agile also relies on the whole team working in one place and being fully dedicated to the project. This is countercultural for most utilities leaders, who typically assign their top talent to scores of critical initiatives, each garnering a minority of their time and attention. For any digital initiative to succeed, however, leaders will need to commit to having the entire team work in one location, and taking other projects off their plates. They'll also have to get used to products rolling out to users while still in development, and taking crews out of the field several days a month to gather their feedback on applications in development.

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Agile teams from IT and the business units are critical ingredients at the center of the product development process. But they cannot succeed without a network of support from the rest of the organization. Many utilities get so focused on creating an Agile “fast lane” in IT, or on training scrum masters in the business units, that they forget about these enablers. If human resources is not ready to support a differentiated compensation model for digital talent, the transformation will fail. If contracting is not able to flex requirements for new digital partners, the transformation will fail. The list goes on. Building these rings of support from the core product team is an essential part of a successful digital operating model. (See Figure 1.)

When done effectively, results and engagement from the business show quickly. For example, one major utility recently deployed a field application that allows foremen to quickly update restoration times. The project had started using traditional ways of working and was moving slowly. When project teams switched to new ways of working with greater engagement by the field force, it was able to deliver a prototype to foremen within a few weeks. A couple of months later, the first minimally viable product was being piloted. While the workforce had mixed experiences with technology projects in the past, they embraced the new approach and the new product.

Figure 1: The Agile product team is at the core of a broader ecosystem of sponsors, experts and users who support their work



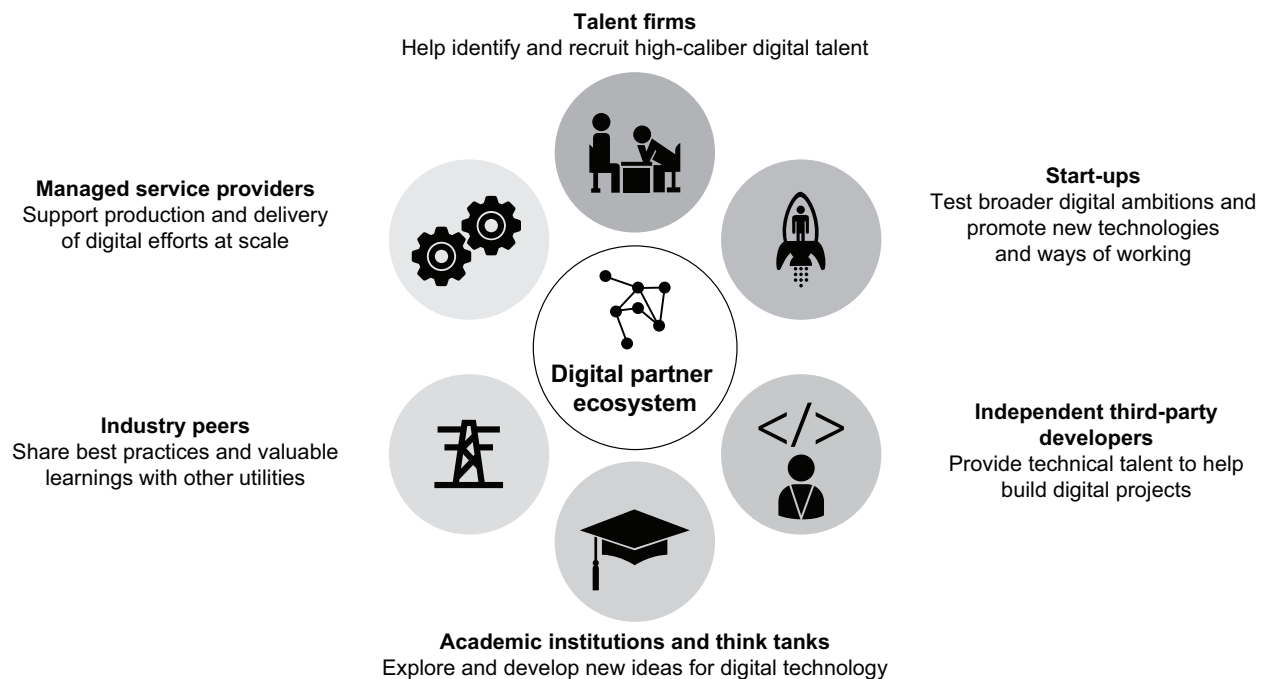
Source: Bain & Company

Build an ecosystem of trusted partners

Utilities shouldn't embark on this journey alone. The good news is they don't have to, given the robust network of third parties available to them (see Figure 2). New talent firms can complement efforts by the HR staff, using targeted recruiting through LinkedIn and other platforms. Start-ups can offer more specialized knowledge and capabilities in artificial intelligence and advanced analytics. Third-party developers are available to support and complement internal efforts, and legacy IT partners can take ownership of the maintenance of many new technologies. Finally, at a broader level, industry peers and academic institutions are working in the same direction to reduce the scale challenges that utilities are facing—for example, through data aggregation to improve model performance.

Leveraging external talent is a new skill for utilities that run up against challenges as they try to integrate their rapidly developed products into the mainstream of the organization. They may get lost in the bureaucracy of IT functions when trying to deploy simple technology solutions from outside vendors and partners. For example, some utilities trying to deploy robotics process automation have faced issues with log-in for robots. Similarly, many vendors sometimes need to go through long onboarding and data security processes in order to get access to the most basic data—leading to idle resources for months.

Figure 2: Utilities should rely on a robust ecosystem of third parties to support their digitalization efforts



Source: Bain & Company

No amount of planning can prevent these challenges, but utilities can prepare ways to manage through them. This could include dedicated cybersecurity or production resources to develop quick fixes as issues are identified. These fixes can then be codified and implemented more broadly.

Procurement processes will also need to evolve to enable a new set of vendors. Currently, most utility procurement organizations are set up to handle large legacy vendors with long track records. Requests for proposals (RFPs) are run for multiple months and contracts awarded for tens of millions. To work with start-ups, the rules of the game will need to change. Business owners will need to be able to procure resources and onboard them quickly to run pilots in the field. Start-ups may not have the same level of historical data as some of the legacy vendors, and some of the contracting requirements will need to evolve.

Of course, the list does not stop with IT and procurement. For example, digital teams will also need to approach funding and business cases in different ways and think about their resource strategy.

Sustain the momentum

Finally, it's crucial to think about digital transformation as a new muscle that utilities will need to build and exercise continuously. It is easy for executive teams to get excited about the potential for digital after a trek to Silicon Valley or a few start-up demos—but without being completely honest about their organization's current state of (un)preparedness.

As their attention drifts away, very few have committed to the long journey that's required, and the transformation is often left to the technology teams. Without the active involvement of the entire senior management team, organizations retreat to old ways of working, relegating digital to a sideshow.

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Soon, warning signs of a stall-out begin to appear:

- lots of Agile teams, but few demonstrated business results;
- artificial, standalone targets for digital investments, independent of existing goals;
- digital teams looking for opportunities to deploy mobile apps instead of fixing the problems that operations is asking them to fix; and
- high spending on external contractors and vendors with little to show for it.

No utility executive should be thinking about measuring the success of digital transformation by the number of mobile developers hired, scrum masters trained or dollars invested. Long-term success comes from a more focused approach, harnessing digital capabilities to meet the challenges that utilities face today.

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