The Digital Utility
Operating at the heart of a new energy system

High performance. Delivered.
Many utility executives agree that the current business model for utilities needs to change. Growth prospects in utilities are being undermined by significant shifts in energy demand, coupled with pressures on growth in capital asset spending. These shifts are propelling the need for a new business model, enabled by digital capabilities, that can position utility companies to effectively respond to changes in energy management and consumption.

While most utilities are increasingly investing in digital assets, they are losing significant growth potential by not transforming their core business model. As a result, utilities risk being overtaken by new competitors outside the industry. These new entrants are deploying digital to not only transform the current energy value chain but to create a new energy system.
The big squeeze

Challenges to investment-based funding are mounting

Utilities typically carry heavy legacy infrastructure assets, requiring massive, long-term investments.

Many utilities, focused on the current rate-based capital investment model, believe that there is sufficient growth in the capital required to support replacement, reliability and grid modernization programs. The dominant approach is to invest today so they can transform tomorrow.

Policymakers, regulators, consumer advocates and other market players are becoming unconvinced that this is the appropriate way to transform the energy system and deliver increasingly demanded social returns. The demand for low-carbon outcomes and growing utilization of customer-sited assets is not being met. Others are making the case for diverting capital to other investments that they believe can more effectively achieve the same outcomes. For example, SolarCity recently challenged the need for $4.2 billion of traditional electrical infrastructure proposed by California utilities in favor of an alternative focused on distributed energy resources (DER) technologies. The New York State Public Services Commission has put in place the Reforming the Energy Vision (REV) program which recently directed Consolidated Edison to defer a $1 billion substation project and instead devote $200 million to alternative investments.

Consumers' energy expectations are shifting

Another source of growing pressure comes from consumers who want their utilities to be more innovative.

As more digitally-connected alternatives become available and costs continue to fall, consumers will be even more willing to try new products and services, to change their behaviors or to adopt innovative ways to manage their energy consumption.

Additionally, consumers bring their experience from other sectors, and they have learned that digital means dramatically better ways to accomplish their “tasks” are possible. There is a risk that utilities will not be able to meet the evolving or “liquid” expectations of customers today.
Digital assets alone cannot build a digital business

A recent Accenture study shows that most companies are capable of using digital technologies to create business efficiencies, but few are currently using them to substantially improve their performance for the long run.

Only 6 percent of the 343 companies studied were identified as Digital High Performers (no utilities appeared in this category). Across industries, Digital High Performers are future-proofing their business by achieving higher performance through business model innovation.

Approximately three-quarters of the utilities included in the research have made investments to enhance their current business capabilities, such as digitizing customer-facing channels and leveraging digital tools in asset management and operations. The remaining quarter of utilities in this research, while not yet to the level of the Digital High Performers, have taken more visible steps in digital investments in their customer-facing channels. Many also have an explicit digital agenda to begin harnessing the power of analytics across their organizations to draw out insights that are not possible in the traditional analogue model.

The study also shows that European utilities are, on average, outperforming their North American counterparts in terms of digital adoption. There are likely many reasons for this, including higher energy costs, more markets with customer choice, greater pressures from social policies, and economic incentives to promote adoption of energy technologies.

Regardless of geography, what can utility companies do in their quest to secure a solid position in the new energy system? One possible answer is to start transforming one's business model “by design” and from the inside, leveraging digital assets already in place.
The Accenture Digital Performance Index research, based on an analysis of 343 leading global companies (including more than 40 utilities around the world), was created to quantitatively assess the level of digital investment and progress across four business functions.

These four business functions (Plan, Make, Sell, Manage) are underpinned by 42 business activities and 117 detailed metrics. Utilities’ digital performance (see Figure 1) was assessed across these four business functions, according to the following criteria:

**Plan** looks into how digital trends are reflected in strategic plans and implementation. For utilities, this covers how a company thinks about the impact of digital on its multi-year strategic plan, and how that plan breaks down into areas across the business such as electric load forecasting, asset infrastructure investments and strategic workforce planning.

**Make** assesses the use of digital technology in innovation, production and delivery. For vertically integrated utilities, this considers how the “digital thread” pulls across the entire value chain to enhance the safe, reliable and efficient generation, transmission and distribution of energy. This includes the deployment of smart grid and smart meter technology to effectively optimize the overall value chain and tightly integrate supply, delivery, power demand and customer behavior.

**Sell** evaluates customer experience management across digital channels. For utilities, this looks at how digital and other channels are used throughout the customer management life cycle that spans learning about the utility, selling new products and services, starting new service, usage, billing and payment, and service inquiries.

**Manage** examines the presence of digital technology and mindset in corporate culture and internal operations. It evaluates how companies assess their own digital culture and infrastructure, how they improve their operating efficiency and how they renew their resources with the aid of digital.

Figure 1. Utilities need to prioritize transformation of their organizations in order to execute on the digital agenda.
For inspiration, look to the disruptors

Within the past few years, various disruptive companies have emerged across several markets that have recognized new value pools that could be unlocked using asset-light, and easily scalable business models.

These companies have completely revolutionized every element of their respective industry’s traditional business model: including how they interact with customers, manage assets, schedule, operate and price key services.

What can utilities learn from such disruptive companies? We have identified five activities exhibited by digital disruptors that have helped them redefine the traditional value chains, and how utilities can emulate those practices (see Figure 2).

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**Figure 2. Using digital technology as an enabler of change could help utilities transform and rotate successfully to the new energy system.**

<table>
<thead>
<tr>
<th>What disruptors are doing</th>
<th>How utilities can emulate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create shared societal value</td>
<td><strong>Smart infrastructure</strong></td>
</tr>
<tr>
<td>Create value that accrues to many stakeholders</td>
<td>Streetlights</td>
</tr>
<tr>
<td>Optimize capacity</td>
<td><strong>Optimizing shared assets</strong></td>
</tr>
<tr>
<td>Optimize network assets (even those not owned) to drive stakeholder value</td>
<td>Roofless solar</td>
</tr>
<tr>
<td>Transform the customer process</td>
<td><strong>Energy solutions</strong></td>
</tr>
<tr>
<td>Help customers achieve a breakthrough in how they accomplish key tasks</td>
<td>Lighting, HVAC, DERs, vehicle, solutions</td>
</tr>
<tr>
<td>Enable optimal pricing</td>
<td><strong>Energy marketplace</strong></td>
</tr>
<tr>
<td>Employ incentives that align dynamics of network and customer interests</td>
<td>Peak savings</td>
</tr>
<tr>
<td>Lower cost-to-serve</td>
<td><strong>Lifestyle services</strong></td>
</tr>
<tr>
<td>Adopt dramatically lower cost interaction models</td>
<td><strong>Device interactions</strong></td>
</tr>
<tr>
<td></td>
<td>Intelligent assistants</td>
</tr>
</tbody>
</table>
Create shared societal value

Create value that accrues to many stakeholders, not only businesses. A disruptor example in this area is BlaBlaCar, a company that connects people who need to travel with drivers who have empty seats. The result: prevention of 700,000 tons of CO₂ emissions. For utilities, this means creating more than just energy efficiency, but finding ways to improve the well-being of their customers and to achieve better social outcomes. For example, Tendril is piloting a program that will provide the capability to integrate customer preferences with more dynamic operation of the grid to help save money for customers and optimize energy and carbon expended on the utility side to meet demand.

The focus on creation of shared value is typical of disruptors. Utilities currently play a limited role, effectively transporting energy from one place to another. By seeing the bigger picture encompassing the totality of inputs and outputs—carbon, cost of energy, assets employed, water use, pollution—utilities could play a key role in delivering the environmental, social and economic outcomes that meet stakeholder expectations.

Transform the customer process

Help customers achieve a breakthrough in how they accomplish key tasks. Media companies are providing a way for customers to enjoy content anytime, anywhere, on any device. Retailers are using virtual reality to assist customers when they shop. For utilities, this means finding ways to help customers achieve better outcomes at home, like helping better manage comfort and cost, or providing simple ways to make the house more convenient to control. For example, Biglsey is a simple device that is helping utilities change how customers can understand their usage in more meaningful ways.

Enable optimal pricing

Employ incentives that align dynamics of network and customer interests. Uber’s surge pricing provides strong incentives for drivers to come out when demand is high, naturally modulating the supply. Other companies take the opposite approach, like Netflix charging a flat price for content and managing the costs and capacity needed with content and bandwidth providers. Many industries like telephony, wireless, broadband and content have evolved from simple to more sophisticated models over time. For utilities, the equivalent of Uber’s surge pricing is essentially peak-time pricing, but this is likely too primitive a mechanism to effectively tie customers to grid economics.

For utilities, optimal pricing is also about price transactions. For instance, TransActive Grid, a community energy market enabled by blockchain, demonstrates how innovative technology can be used to transact with customers in real time. An optimal price framework built into the customer model is a key feature of disruptors. Applied to the energy model, it is feasible to see how consumers could be empowered to dynamically manage their use and production of energy in response to real-time price signals. The growth in distributed energy resources, for example, offers utilities the chance to create economic frameworks that optimize and orchestrate choices and behaviors across the energy system.

Optimize capacity

Optimize network assets (even those not owned) to drive stakeholder value. Airbnb does not own real estate but enables anyone to make better use of the real estate they do own. Likewise, Zipcar, the car rental sharing company, created a dramatically more effective model for using vehicles by placing them closer to where customers live. Utilities need to follow suit and redefine what capacity they manage. That means changing from thinking solely about their owned energy assets, to thinking across all the assets in the value chain, and playing a broader role in the production and use of energy. For example, Dutch company Vandebron has developed an energy-sharing model that enables consumers to trade energy they produce with other consumers and the market.

Lower cost-to-serve

Adopt dramatically lower-cost interaction models. For example, airlines have adopted digital boarding passes, and hotels and rental cars now enable customers to bypass the front desk using mobile apps. Another example is IPSoft, which has created a digital assistant named Amelia. Accenture is using Amelia to help companies accelerate the adoption of artificial intelligence to improve business outcomes and create new growth opportunities. For utilities, most organizations have focused on moving to digital in a few key areas that lower their own costs—like outage notification, bill pay, invoices and notification. Instead, utilities should look to use digital to find easier ways for customers to accomplish their tasks, like understanding exceptions, managing home devices, monitoring the family and making energy-efficiency decisions.

By adopting these disruptor-style practices, utility companies have the opportunity to enhance the way they plan their business model transformation in the digital age, including which services they focus on and how they price, sell and engage with customers. The biggest challenge by far, remains the ability to manage the transformation from within the organization.
Time to rotate to the new: Focus on transforming the core

The digital developments reshaping the future energy system are socially, environmentally and commercially game-changing. Both the disruptors as well as the Digital High Performers remind us that stronger outcomes (i.e., growth) may be possible from a digitally enabled business model. Yet, many utilities believe the lower-risk approach is to manage more effectively in the current context, and pursue changes to the business model at some future point. However, not seizing the current opportunities raises the risk of a low-growth future.

Utilities companies need to create and execute business models that use digital technology both as an enabler and a driver of change in the legacy organization. They need to master the ability to renew and transform their current core business while growing into new businesses. This is the path to a promising future at the heart of a new energy system. It is only by making a truly digital shift in an organization's business model now that utilities can power a new path to growth.
References


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