

Resilience reimagined

Building a
fit-for-future utility



Leading a utility is like competing on an endless obstacle course.

Conditions constantly change, resources run scarce, and acute shocks and chronic stressors impair performance. Each challenge tests the limits of your organization's strength, endurance and agility.

2018 offered many examples of hurdles that thrust utility leaders into the spotlight—extreme weather events, catastrophic infrastructure failures, harmful contaminants and data breaches to name a few. While most of the causes were out of utilities' hands, the acute shocks damaged organizations' reputations, broke customers' trust and, in some cases, led to fatalities.

Chronic stressors can be just as detrimental, yet they are continually left out of the resilience conversation. Issues such as affordability, aging infrastructure and water shortages might not be immediately devastating, but they can lead to or compound headline-drawing events.

Taken together, these shocks and stressors are fueling utilities' desire to reimagine resilience from a more proactive and sustainable stance. To get there, utilities need to adopt a fit-for-future mindset that evaluates resilience from both asset fitness *and* organizational health perspectives.

Doing so improves utilities' abilities to master the obstacles that can diminish the critical role they play in thriving communities. Being resilient makes utilities fit-for-future, even as the definition of what that means evolves.

Embrace a resilient lifestyle

Ask a personal trainer, nutritionist or fitness expert the secret to staying in shape, and you'll probably hear a variation of the same message: *Lasting impact requires a lifestyle change. It's much more about mindset than a regimen or diet.*

Likewise, utilities striving for fit-for-future resilience must adopt a preventive health mindset that goes beyond scheduled assessments and risk mitigation measures. Utilities should adjust their "lifestyles" to establish resilience as a core value, making asset fitness and organizational health improvements an ongoing endeavor.

Think about someone trying to lower their risk of having a heart attack. There's a huge difference between *my doctor is forcing me to diet and exercise* and *my doctor is helping me get in shape, eat healthy and monitor my health.*

Often, acute shocks (heart attacks) and regulatory requirements (doctor's orders)—consequential or not—drive the need for utilities to invest in resilience. But is this approach sustainable, or even working as intended?

Congress' concerns about terrorism post-9/11 spurred a series of vulnerability assessments and emergency response plans for drinking water systems, but a lack of ongoing requirements led to reports collecting dust in storage.¹ The newly enacted America's Water Infrastructure Act requires 5-year resilience assessments and emergency response plan updates, but no mandate for improvement. If this is what's driving utility resilience, where's the incentive to get better?

Utilities should abandon their reactionary stances. It's time to build resilient mindsets that focus on emergency preparedness, which will proactively enhance utilities' abilities to serve customers, streamline operations and lower costs.



Asset fitness is the durability of assets. It incorporates asset management and data optimization capabilities as they relate to common physical fitness attributes: redundancy, resistance, reliability, and having assets to help respond and recover from incidents.



Organizational health are the people-centric processes, products and tools that maximize the performance of physical assets and people. These essential resilience elements fortify organizations the ways proper nutrition and sleep benefit athletes.

Recognize chronic ailments

Acute shocks tend to dominate the resilience spotlight. But overlooking chronic stress contributes to—and exacerbates—shocks.

To a runner, a rolled ankle might not be the end of the world. But if pain and swelling go unchecked, the minor strain could lead to a major injury like a broken bone or torn ligament.

Utilities need to ask themselves: Are we properly tending to our aches and pains? Embracing a resilient mindset means giving ample attention to chronic stress rather than “playing through the pain.”

Some stressors are evident while others are subtler. Whatever the type, they can be found across the entire spectrum of people, assets and digital involved in utilities. For example:

AGING INFRASTRUCTURE

Daily, 14 to 18 percent of treated water in the United States (nearly six billion gallons) is lost due to aging pipes. The average age of dams in the United States in 2017 was 56 years, and 17 percent were rated as “high hazard potential,” meaning a failure would result in a loss of life.²

Addressing aging infrastructure requires asset management plans that incorporate resilience criteria. As stressors like rising sea levels in coastal communities and rapid population shifts put more strain on aging assets, organizations must make proactive improvements before the assets hit the end of their life cycles.





“Utilities that evaluate resilience from asset fitness and organizational health perspectives can master obstacles that diminish the critical role they play in thriving communities.”

WORKFORCE CONCERNS

Some stressors aren't as tangible as decrepit pipes. One is that workers with the skills to maintain and protect increasingly digital utility networks are scarce throughout the industry.

On the cybersecurity front, utilities are struggling to attract top talent, which leaves them more vulnerable to crippling shocks like a hack. Plus, sections of the workforce are hitting retirement, raising concerns about knowledge transfer as organizations move from historically paper-heavy documentation to digital recordkeeping.

If the talent can't be recruited or retained or knowledge transfer issues arise, utilities can pivot to implementing new business models such Software as a Service (SaaS) or Infrastructure as a Service (IaaS). Sometimes new alternatives can have positive ripple effects for an organization; SaaS and IaaS can make your utility more digitally resilient, but also more efficient overall.

CUSTOMER EXPECTATIONS

Customer expectations play a role in the resilience ecosystem as well. Their expectations are on the rise and overlooking customers could lead to them forcing change upon the industry.

For example, companies are introducing in-home sensors that detect lead in water to the retail market. What might happen if customers self-monitoring their water quality discover that it doesn't meet adequate standards? Similarly, some companies are marketing packages for bypassing utilities to help determine water consumption. What if the data doesn't agree with ours?

AFFORDABILITY

Along with greater customer expectations, affordability concerns continue to emerge. In Chicago, the cost of water for the average family of four nearly tripled between 2007 and 2018.³ Exploring ways to incorporate customers into the bigger picture can strengthen a utility's relationship with its community and maybe even uncover savings opportunities that benefit both parties.



Five key steps to reimagine resilience

Change can be difficult—especially with something as complex and nuanced as utility resilience. But the potential benefits outweigh the temporary discomfort, and utilities don't need to start from scratch or go it alone. There are five steps to guide utilities through this process:



● STEP 1: ENVISION

Picture a fit-for-future organization equipped to handle any of your community's needs, both large and small.

● STEP 2: ASSESS

Conduct an honest assessment of your assets and organization.

● STEP 3: TRANSFORM

Foster a culture of innovation and embed digital transformation into your strategic planning.

● STEP 4: IMPROVE

Empower your workforce to be a more adaptive, agile and customer-focused organization.

● STEP 5: MATURE AND ASSURE

Embrace continuous improvement as a standard operating procedure and make decisions supported by data.

STEP 1: ENVISION

Picture a fit-for-future organization equipped to handle any of your community's needs, both large and small. What does your workforce look like in this scenario? How agile would operations need to be? What do your emergency plans look like? How is the customer relationship different than it is now?

This is your aspirational state. Framing resilience around these ideas not only makes resilience goals more tangible, it engenders a consistent resilience-focused mindset among staff and leadership. Plus, it benefits the utility's bottom-line.

STEP 2: ASSESS

An honest assessment of your assets and organization—a “step-on-the-scale” moment, if you will—reveals clearly defined strengths, weaknesses, pain points and value-add opportunities.

To get a comprehensive idea of your starting point, it's important to evaluate your utility from asset fitness and organizational health perspectives. Look at all aspects of your organization and identify your pain points and stressors. Combining cross-organizational strengths can elevate decision-makers' abilities to address systems' physical and digital infrastructure. It will also support a more holistic view of shocks and stressors.

STEP 3: TRANSFORM

After assessing your starting point, it's time to transform. Foster a culture of innovation and embed digital transformation into your strategic planning. Look beyond typical workflows to develop and leverage people-centric processes, products and tools to maximize physical fitness and organizational health.

A physically fit organization:

- Tests its asset fitness against trusted benchmarks such as the J100 standard, which effectively expand the categories that should be considered when you address resilience.
- Looks beyond the obvious. As an example, stress factors like sea level rise might have been historically excluded from traditional asset management approaches.
- Uses decision analytics to monitor systems and map improvements. Analytics can help an organization move from a simple prioritization to an optimized decision.

A healthy organization:

- Establishes a culture around risk, resilience, emergency preparedness, and innovation that engages and empowers the workforce of today and tomorrow.
- Uses strategic planning to maximize operational strength and considers alternative business models as viable paths to a resilient future.
- Embeds resilience into day-to-day business processes and operations, taking it beyond physical asset reinforcements or relocations.
- Leverages business intelligence tools to create lines of sight into strategy and performance, allowing for more sustainable investments and enabling Key Performance Indicators in a more beneficial way.

STEP 4: IMPROVE

Transforming to a “fit-for-future lifestyle” empowers your workforce to be more adaptive, agile and customer-focused. To implement resilience improvements, a utility should:

- Craft a holistic plan that works now and in the future.
- Enhance asset data, risk and resilience assessments, and emergency response plans.
- Optimize solutions for operational resilience, performance and cost efficiency.

STEP 5: MATURE AND ASSURE

Resilience is about continuous improvement. Without the right assurances in place, organizations lose insight into what's working and what isn't.

Just like fitness trackers help athletes monitor vitals and exercise throughout the day, utilities can implement tools to capture data and track progress. Leveraging emerging business intelligence tools allows you to demonstrate the effectiveness of your decisions to internal and external stakeholders.

There's a venerable buffet of digital solutions to choose from. Select solutions that support ongoing testing and learning; it will allow teams to discover optimal resilience options, evaluate progress over time, and refine your utility's aspirational state.

Remember, there's no finish line or completion date. As the resilience landscape evolves, organizations that remain engaged in the cycle will be more adept at handling emerging shocks and stressors.



Create lasting impact

A fit-for-future mindset can help utilities realize more efficient operations, a stable and capable workforce, a transparent and defensible spending program, and a heightened ability to deliver outstanding customer service. More importantly, it can create change that lasts.

There will always be another race to run, hurdle to clear, or barrier to topple. If your organization prioritizes staying in shape, it will be fit to overcome resilience challenges of any kind.

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2 American Society of Civil Engineers 2017 Infrastructure Report Card. Retrieved on February 21, 2019 from <https://www.infrastructurereportcard.org/>

3 Zamudio, Maria and Will Craft. *A Water Crisis Is Growing In A Place You'd Least Expect It*. (February 8, 2019). Retrieved on February 21, 2019 from <https://www.npr.org/2019/02/08/691409795/a-water-crisis-is-growing-in-a-place-you-d-least-expect-it>