The turn of the decade has brought about a digital transformation in society. For the Smart Water Networks Forum (SWAN), marking its 10th anniversary in 2020, I asked industry experts—all SWAN members—from around the world about how this evolution will shape the water sector in the next decade. Based in the United Kingdom (UK), SWAN is the leading global hub for the smart water sector, which promotes the use of data-driven solutions in water and wastewater networks worldwide.

Need to digitize
Staying at home during the current global pandemic has sharpened the need for connectivity, proving that digital solutions are not only a nice-to-have but a must-have. Organizations must proactively secure their operations, manage communications, and use tools to stay ahead of uncertainty and remain competitive.

“We are likely to see increased interest and deployment of AI (artificial intelligence)-based agents, allowing live agents to handle more complicated transactions,” DC Water (Washington DC, United States) Vice President of Information Technology Thomas Kuczynski said. “As utilities get more comfortable with the technology, greater levels of automation will occur in the back office. Robotic process automation will allow utilities to automate previously manual and mundane tasks generating even greater efficiencies and a lower cost to serve.”

Building for resilience
Evolving climate events have demonstrated the urgency of building for resilience, and the risk is higher for areas that already experience water stress. To build a sustainable water future, the infrastructure will only be as strong as the components needed to address other challenges, such as rapid urbanization, customers, information technology, and operations.

“Science tells us that our weather and climate are changing. With a projected increase in extreme weather events, such as prolonged droughts and intense rainfall, the water sector will experience new, unforeseen challenges,” the UK’s Head of Scientific Consultancy Tom Butcher in the Meteorological Office said. Using the latest climate science and datasets, with expertise from scientific consultants and risk assessments of future climate scenarios, water companies can identify the potential impacts on water resources and infrastructure to develop robust adaptation plans.”

Customer focus
As entire supply chains are delayed, operators work from home, and the use of digital media changes, the voice of the customer will become front and center. Even in the early product development stages, building the user experience should rely on current data and require a renewed dedication for understanding customers’ needs to feed businesses more effectively for their users.

In France, Veolia’s Chief Digital Officer Aude Giard explained that when referring to the “voice of the customer, we are talking about collaboratively building an end-to-end experience that integrates product design and development, business development, and customer support. The value needs to be fully customer-centric because it enriches our offerings and establishes a long-term relationship for co-creation based on trust—which can only be a win-win situation.”

Demand for equity and affordability
The need for equitable distribution and access to clean water and wastewater services is top priority for many SWAN members and industry partners who are actively working to address gaps in water availability and deepness. A big challenge for achieving equity and affordability is when the efforts and their benefits are not received or perceived by users. To address this, decision making should transparently demonstrate how operations will impact the users’ ability to secure quality drinking water and sanitation services.

First & Suffolk’s Vice President of Sustainability and Circular Economy and SWAN Council Member Fred Roven in the UK emphasized the need for the global water industry to use innovative solutions, services, and more importantly business models to address the necessary water-related decision, which is essential for efficient planning and management of water systems. This type of modeling is at the core of all decision-support tools, but comes in various guises, ranging from classical simulation modeling (based on physics of the problem being analyzed) to artificial intelligence methods (including machine learning and natural language processing). However, I see the biggest advancements possible when these two approaches are combined, Roven noted. Growing interest in digital twins will lead to new and unique implementations of the technology worldwide. SWAN’s Digital Twin-H2O Work Group gathers industry leaders to discuss the architectural approach and their benefits, including return on investment. Operating an ‘digital twin opens the door for more remote work and improves the customer experience. Digital twins are a powerful tool to gather various sources of information to perform scenario simulations, making it possible to anticipate problems and the measures to avoid or minimize their consequences, according to CEO Jim Siriano. We are a Spanish smart water company. I explain that this is vital in situations such as these, in which traveling and fieldwork are restricted—causing breakdowns or service interruptions.

Moving beyond data to value creation
Many water sector experts see the potential in the belief that digitization is the way forward. Understanding the challenges in the implementation of digital technologies in the current environment from perspectives of the community around the world is vital to developing effective solutions and actionable plans.

SWAN Forum Executive Director Anne Cohn offers his own final note: “Digital solutions are key. We believe there must be a more digital business model, digital, and financial value for utilities, customers, and other key stakeholders. Soon we will see how implementing digital technologies will be adapted to the decade’s new realities.”

Swan 10th Annual Conference
The theme for this year’s conference is to address the theme of “value creation” in a virtual format from July 22-24, 2020. For more information, visit www.swan-10.com. SWAN 10th Annual Conference
The theme for this year’s conference is to address the theme of “value creation” in a virtual format from July 22-24, 2020. For more information, visit www.swan-10.com. The Utility of the Future Today (UOTF) program, which honors water resource recovery facilities that are focused on resilience, environmental stewardship, community engagement, and recovery of resources such as water, energy, and nutrients, invites public and private water sector utilities that can demonstrate achievement of these activities for application by July 17. The UOTF concept is being promoted as water systems transform operations through innovation and technology. The UOTF program is a model for utilities of all sizes to achieve more efficient operations, enhanced productivity, and long-term sustainability. The program has recognized 118 utilities with the honor since its 2016 launch. Every day utilities find new ways to embrace technology and innovation while improving the way they serve their communities, said Water Environment Federation (WEF) President Jackie Jarrell. “These kinds of forward-thinking approaches have ripple effects throughout the water sector, and we are proud to recognize and celebrate these efforts.” WEF is a not-for-profit technical and educational organization of water quality professionals from around the world, and is based in Alexandria, Virginia, United States. UOTF initiative is based on the key building blocks of this transformation:

• Recovery and new uses of a range of resources
• Engagement as a leader in the full water cycle and broader social, economic, and environmental sustainability of the community
• Engagement in the community and formation of partnerships necessary for success when operating outside of the traditional span of the utility
• Transformation of the internal utility culture in support of these innovations.

Honorees will be notified during the summer and formally recognized during an awards ceremony at WEFTEC 2020—the Water Environment Foundation’s 93rd annual technical exhibition and conference—to be held this October.

Since the UOTF concept was introduced in 2013, many utilities have successfully implemented innovative and transformational programs to address local wastewater technical and community challenges. The recognition program was launched in 2016 by the National Association of Clean Water Agencies (NACWA), the Water Environment Federation (WEF), The Water Research Foundation (WRF), and the WaterReuse Association— with input from the United States Environmental Protection Agency.

Visit the website for more information: https://www.wef.org/utility-of-the-future.