NAVIGATING THE UTILITY DIGITAL TRANSFORMATION

The Digitisation of utility operations has been evolving at an accelerating pace over the last decade. Many utilities saw this trend developing, and one by one they began their own digital transformation, each on their own path. While each utility is at its own stage of this journey, every utility seeks to get value out of the investments it has already made and has a view of what's coming, in order to navigate this transformation.

Digitisation is an intriguing but not easy journey. It is an evolution that touches every aspect of the utility. Each step on the path offers new value, but also poses new challenges the likes of which utility companies have never faced. Successful Digitisation requires a fundamental culture shift within organisations, but by achieving such change, utilities can reap the benefits of emerging technologies as well as lay a foundation for potential future developments. There are clear steps utilities can and should be taking to better align themselves with the demands of this new digital era.

Internally, things are changing. Take information technology (IT) and operational technology (OT) which have traditionally been distinct departments. Today, solutions are deployed across boundaries, blurring the line that has conventionally separated the two groups. For example, meter data has traditionally been gathered and used to calculate customer utility bills. Now we're seeing more uses for this information in grid operations, customer energy management applications and other uses beyond the utility. Previously routine processes and data uses now offer a multitude of functions and potential purposes; systems and operations therefore must become far more integrated.

A staggering 72% of utilities still structure OT and IT as separate organisations, each with dedicated senior level managers. An additional 10% structure their OT and IT departments as separate organisations but under the same senior management. This leaves just 18% who structure and manage OT and IT together, according to BRIDGE Energy Group's recent utility industry survey, reaching over 20,000 active utility employees in North America.

The 2018 BRIDGE Index Utility Industry Survey for grid operations, published on 8 January, is built on responses from IOU, municipal and cooperative utility employees across all disciplines, 75% of whom hold executive or management roles. The survey explores real industry perceptions of this important integration between IT and OT, as well as other challenges and opportunities facing utilities today.

The challenge of IT-OT integration for utility companies is exacerbated by difficulties in finding qualified personnel to manage the transition. With Digitisation, everything changes: how employees do things is different, the tools they use are different, how the grid is operated is different, how they interact with the customer is different. What each employee needs to know to do their job has changed, and utility companies face the challenge of recruiting or retraining personnel across their organisation.

48% of respondents in our survey are, or will be, relying on the outsourcing of operations and support functions to make up for the lack of suitable internal resources. This growing trend toward outsourcing, once considered unthinkable for utilities, is now deemed necessary to meet operational performance and cost goals, as well as to help ensure adequate staffing and subject matter expertise is available to support the real-time operations of a modern utility.

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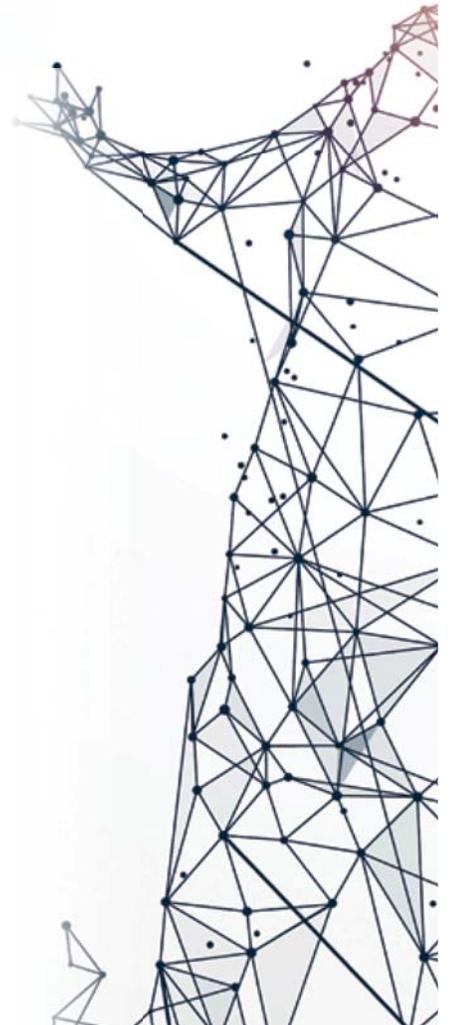
According to the survey, cybersecurity and availability of knowledgeable personnel are the two biggest factors affecting today's utility operations. And 35% of the survey's respondents believed that the changing cybersecurity threat landscape is having the biggest impact on operations. This issue is a direct consequence of Digitisation and is exacerbated further by fragmented IT-OT integration and an understandable lack of familiarity with new systems.

We expect cybersecurity needs to further increase reliance on outsourcing, as utilities try to quickly build expertise in this new environment.

Retiring critical employees and their role in the general shortage of knowledgeable personnel was considered to be the second biggest impact on operations with 17% of survey respondents. Managing the dramatic increase in the number of connected "Internet of Things" devices, the increased demand for information and flexibility from customers, as well as regulatory changes, represent the joint third biggest impacts, with 13% each. Results like these underline the fact that Digitisation is creating challenges within every aspect of the utility value chain.

When you start digitizing operations you also create an environment for a host of new solutions. We have begun to see the emergence of wearables, smart glasses, and other technologies that translate live data feeds into the centralized systems. This brings a whole other level of integration and significantly upgrades the accuracy of our data. BRIDGE has built a library of accelerators to manage these new information sources, integrating them

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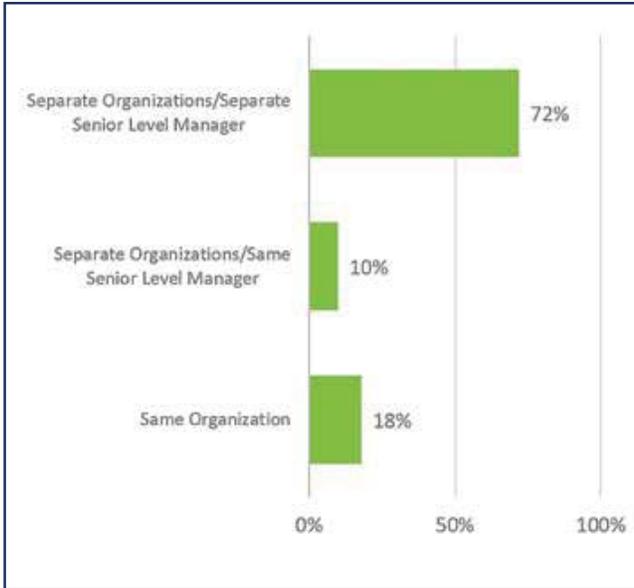
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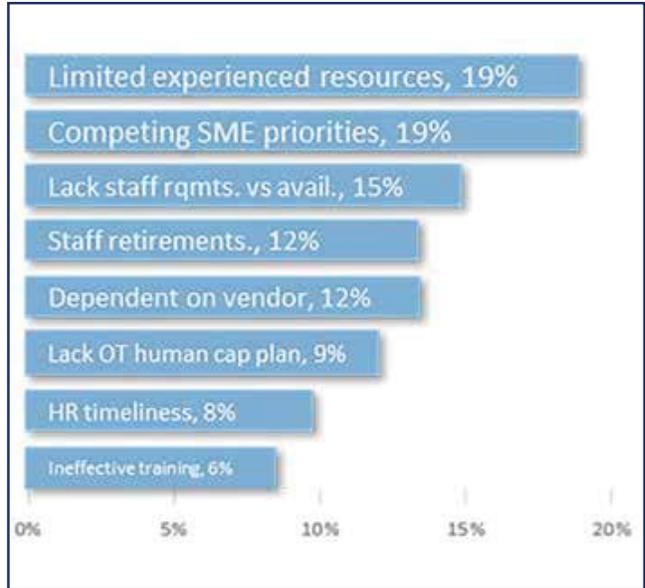
Source: BRIDGE Energy Group

into operational systems for running and managing the grid. Solutions like these support and optimize today's utility operations and create the foundation for exploiting grid transformation, as

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well as providing the path to operational excellence in the more integrated and distributed utility of the future.

Tight alignment and integration of utility operations with IT will be required to achieve such operational excellence in this technologically advanced energy delivery system. However, more than 70% of utilities do not have a defined data architecture or governance process for operational data, according to our survey. Without a well thought-out and consistently applied approach to data and analytics, the full value of grid modernization cannot be achieved.

This evolution is not just about new technology. When you start deploying these technologies there is a significant managerial component to data, analytics and organisational change. A Digitisation process that integrates operations and IT in a fundamental and sustainable way positions firms to take full advantage of a wealth of data driven solutions for increasing efficiency of the workforce and productivity of the entire organisation.

While Digitisation may create some of the challenges utility companies are experiencing today, it also provides the

tools to enable the change needed to face those issues. Intelligent systems will optimize operations, automated security procedures will enable continuous real-time security, and the technological environment itself will attract the much-needed next generation of utility employees.

To bring about this fundamental change, utility companies will need to step back and take a more holistic view of their technology and operations. They will need to understand and embrace the use of technology to enhance the efficiency and effectiveness of their workforce. To achieve the greatest benefit, they will need to truly understand how sharing data across the utility value chain provides real-time situational awareness for significantly enhanced decision-making capabilities.

Embarking on such cultural shifts in a utility will completely redefine IT-OT convergence. Success will enable employees to understand both elements and determine what is in the best interest of the organisation as a whole. A well planned and implemented transition can generate unprecedented value for the utility today and create a platform for the new technologies and solutions that will define the power sector of the future. **MI**

ABOUT THE AUTHOR

Sandy Simon, Vice President, BRIDGE Energy Group leads the Transmission and Distribution Operations Center of Excellence where she drives the T&D operations solutions, including strategic advisory and planning initiatives for utilities developing grid modernization and transformation programs across North America. Sandy has 20 years of experience with utilities as a results-oriented leader with extensive experience defining and leading transformation through improvement and technology optimization.