Proactively Support Utility Modernization with Data Management

The utilities industry is under increasing cost pressures, even regulated return utilities in the water, wastewater, and energy transmission and distribution sectors. With the advancement of renewables, decentralized energy resources and other technologies, utilities are occupied with modernization and digitalization efforts to secure their businesses and change processes to become the utilities of the future. As a key part of their business model, they need to execute capital projects to expand their services, improve resiliency and reliability, upgrade systems, and meet maintenance requirements.

In recent years, the utility industry has begun to embrace BIM technology and standards, formed public-private partnerships to fund updates to aging infrastructure, and increased focus on infrastructure resilience. To excel in this new industry environment and realize operational efficiencies, many utilities are focusing on improved project information management. These utilities have realized that digital transformation brings data management challenges but also provides corresponding gains in data management technology.

In this executive brief, we will cover industry trends in more detail, then highlight technological advancements that help utility organizations adapt and excel in the information age.
The Industry is Changing

Digital Transformation
Similar to Industry 4.0 and the Industrial Internet of Things (IIoT), utilities are leveraging sensors, radio-frequency identifications (RFIDs), smart phones, and cloud services to address their customers’ needs. With ubiquitous connectivity, artificial intelligence, and distributed computing, there is an opportunity to drive digital advancement to minimize silos and create information mobility, as well as leverage big data, artificial intelligence, computer vision, and machine learning to better manage their infrastructure assets.

This advancement has led to a significant expansion in data capture and documentation. New digital technologies and increasing project complexity are creating unprecedented amounts of project data for owner-operators. Data has the power to transform the way that governments and operators manage infrastructure, which can lead to a dramatically improved user experience. The digital movement represents an opportunity for utilities to change how they work by leveraging data more effectively for operations and capital projects.

Standards are now reflecting this need for digital transformation, such as ISO 19650, which was published in January 2019. It is based on previous standards that have proven to reduce capital project delivery costs by up to 22%. The development of these ISO standards highlights the international recognition that BIM is a key enabler of project delivery efficiency.
Contracting Model Innovations
Today, there is a shift in the utility industry to engage in public-private partnerships, as utility organizations seek additional funding sources to update aging infrastructure. Private capital is becoming more critical, and owner-operators need to continuously demonstrate that they are implementing proven strategies to increase the efficiency of design, construction, and operations. Owners and consultants are now aligning all stakeholders to establish outcome-focused measures of progress. Working together, they are also implementing more collaborative design practices that engage owners sooner, improving design quality and asset performance while potentially saving on construction, material, and redesign efforts.

Increased Focus on Infrastructure Resilience
Accurate and accessible engineering records are essential to assessing and mitigating risks, as well as responding efficiently to events. The risks, hazards, and threats to owner-operators’ assets are complex and always evolving, requiring the agility to adapt. Some of these risks include extreme weather events and natural disasters because of global climate change, according to the World Economic Forum’s 2017 Global Risks report. Resilience strategies should include ways to access the data necessary to support preparation, to minimize or avoid service interruption, and to enable quick and effective disaster recovery.

Utility Project Information Management in the Information Age
Utilities can proactively face these industry trends by embracing a connected data environment, and that starts with data management technology. Information management systems provide improved visibility into project performance and improved access to project information, enabling utility organizations to implement and enforce engineering and BIM standards; national, regional, and local requirements; and other workflow and business rules.

As the established application for design coordination based on organizational and project workflows, as well as industry standards like BS1192, ProjectWise empowers collaboration throughout the entire project delivery lifecycle. It is critical to have all data in a single collaborative environment so that stakeholders can trust the quality and completeness of the data. Teams are more confident that assets are compliant and safe, and all project stakeholders share information and updates more efficiently. ProjectWise is uniquely suited to meet the needs of utility organizations, helping to make data accessible to more effectively and efficiently solve key challenges facing the utility industry.

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Purpose-built for Complex Capital Projects
Utility projects can be quite complex – from larger plant projects to transmission and distribution – each project brings a unique set of requirements and often multiple disciplines. It is critical for each discipline to understand how work in one area affects another. ProjectWise provides scalability to petabytes of data and thousands of users, ensuring support for any size project. Product functionality – including delta file transfer, caching servers, and reference file management – enable efficient and secure sharing of large design files between offices, with external project participants, and across globally distributed project teams.

Data Integrity Across Multi-Discipline Workflows
With ProjectWise, owner-operators can improve data integrity and reliability with access and version control, as well as through the enforcement of project standards. Multi-vendor integration enables designers to work in any major design application using their current workflows, saving work-in-progress files to Bentley's Connected Data Environment based on ProjectWise. These capabilities reduce the risk of lost data while promoting greater data quality, ensuring the sharing of up-to-date and high-quality information.

BIM Automation and Enforcement
With ProjectWise, users can automate and standardize BIM workflows and incorporate best practices, making them repeatable and scalable. Automated, configurable workflows enable closed-loop reviews that accelerate collaboration and keep projects moving. Automated enforcement of standards, including ISO 19650, enables standardization on industry best practices.

ProjectWise is a project information management technology solution that enables effective collaboration between engineering, operations, and external contractors throughout the entire project delivery lifecycle. Furthermore, ProjectWise improves data hand-over. All engineering information and required documentation for each project can be maintained according to retention requirements and accessed. To learn more visit www.bentley.com/en/products/brands/projectwise

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