

# Final Word

## “A TOTEX APPROACH IN WASTEWATER

*Accurate information is useful in asset management, says Aidan Mercer, industry marketing director, Utilities and Government, Bentley Systems*

Engineering firms and owner-operators in water and wastewater utilities are constantly looking for better ways to reduce the total cost of infrastructure projects. To meet this end, many are taking a TOTEX (total expenditure) approach to managing and operating their water and wastewater infrastructure assets. As the demand for new infrastructure grows, owner-operators are looking to improve how they manage and mitigate the risk in large capital projects. To do this, water and wastewater utilities need to converge the right technology, the right policies and a new, creative method of interaction in order to extend and enhance the life of an asset with asset management at the fore of this strategic process. Connecting IT, OT (operational technology), and ET (engineering technology) is now offering a potential way of reaching this goal.

A key driver enforcing a TOTEX approach in water and wastewater utilities is the lack of complete and accurate engineering information captured during CAPEX that serves as feed for the OPEX cycle. This is important as owner-operators require information from all phases of the project lifecycle to be useful in the asset management or maintenance management systems when the asset reaches handover. In order to improve data quality and accuracy, an emergence of disruptive technologies is helping to deliver the right information to the right teams, at the right time.

The advent of digital engineering models used during the capital phase of projects have allowed for greater leverage of asset performance modelling, which has provided ways to reduce costs, improve collaboration, and enable asset optimisation for operations. These digital engineering models typically have not had a prominent role in operations as of yet. There is a huge amount of information related to assets that can be leveraged at different phases of a project, such as asset specifications, precise geo-coordination, configuration management, cost information, detailed component information, and recommended maintenance and repair information.

Engineering data is not the only potential for reduc-

ing TOTEX. As OT leverages the Industrial Internet of Things (IIoT) with operating systems and sensors to produce huge quantities of data, the need to make this data usable and secure is fast becoming mainstream in its outreach and adoption. So far, OT data has initiated a convergence with IT systems, which has yet to yield significant gains. At Bentley, we see the critical importance of leveraging the engineering data in order to yield significant gains.

Asset management systems that allow a convergence of IT, OT, and ET data will help to bridge the gap between data formats to make infrastructure assets more powerful, efficient, and reliable by exploiting the Big Data potential. Enhanced by the power of the cloud, digital engineering models are evolving toward an upgrade to the IIoT: digital engineering tools that go beyond observing and monitoring the asset's performance to modelling its desired behaviour to produce better outcomes.

Water and wastewater utilities have been a step ahead of other industries in exploiting the potential for ET and OT data to be better utilised. IIoT and supervisory control and data acquisition (SCADA) software have had a harmonic convergence of their own in enriching the oversight value of data analytics for treatment, distribution, and collection facilities. Engineering departments and the operational control rooms have more reason to interact than ever before, as the common goal of reducing cost and optimising their networks can be realised - in real time. Hydraulic modelling generally has been used for long-term planning, while data from the SCADA systems are used heavily in daily operational decisions. Linking these two technologies has ensured barriers are removed, collaboration has improved, and data is shared for mutually beneficial reasons.

Water and wastewater infrastructure professionals are well-placed to deliver against CAPEX, OPEX, and TOTEX, by keeping continuity and enhancing collaboration through better work processes and an ultimate convergence of IT, OT, and ET. By leveraging digital engineering models, water infrastructure professionals will act as beacons of light for other industries to follow. **Utilities**



# Utilities Middle East

PO Box 500024, Dubai, UAE  
Tel: 00 971 4 444 3000  
Web: www.itp.com  
Offices in Abu Dhabi, Dubai, London & Mumbai

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**Executive Director** Matthew Southwell  
**Group Editorial Director** Greg Wilson  
**Group Publishing Director** Ian Stokes

## Editorial

**Editorial Director** Robert Willock  
Tel: +971 4 444 3357 email: robert.willock@itp.com  
**Editor** Baset Asaba  
Tel: +971 4 444 3159 email: baset.asaba@itp.com

## Advertising

**Sales Manager** Andrew Gathercole  
Tel: +971 4 444 3392 email: andrew.gathercole@itp.com

## ITP Digital

**Advertising Director** Riad Raad  
Tel: +971 4444 3319 email: riad.raad@itp.com

## ITP Live

**General Manager** Ahmad Bashour  
Tel: +971 4444 3549 email: ahmad.bashour@itp.com

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