In partnership with

baseform

WATER NETWORKS: LARGE WATER UTILITY, TEXAS, USA

Avoid pipe breaks with pipeline failure prediction app

THE TOP 1% OF THE PIPES PRIORITISED BY DATA ANALYTICS SOFTWARE CONTAINED 24% OF THE PIPE BREAKS THAT TOOK PLACE

The publicly owned water utility in Texas, USA, was looking to proactively prioritise finding the pipes in the water distribution network most likely to fail, with the potential of substantial benefits for both Operation & Maintenance (O&M) risk management and Capital Improvement Plan (CIP) planning. A blind test using data analytics software was proposed. Using the utility's pipe break records from 2005 onwards and GIS asset data inventory as a starting point, a blind test was proposed to predict which pipes would have been responsible for the breaks recorded in the two most recent years, having hidden that part of the dataset. The software failure prediction app can clean the data gaps and inconsistent information, then apply statistical models, algorithms, and water utility dedicated software tools to display and utilise the results for Infrastructure Asset Management (IAM) planning. A few days' work was all that was required to home in on outstanding results.

Had the utility replaced the top x% of the pipes prioritised by the software, the following % of the failures would have been prevented:

Prioritised pipes replaced	Top 1%	Top 5%	Top 50%
Pipe failures prevented	24%	49%	92%

Select the right data analytics software

Accurate failure prediction can enhance management of urban water and wastewater network infrastructure. Traditional condition assessment methods for water and wastewater pipes are commonly associated with time and resource-consuming tasks that are either expensive, inaccurate, or both. An accurate assessment of the deterioration of urban networks is essential for optimal investment and rehabilitation planning. But how do you evaluate which software offers the highest failure prediction accuracy? Water utilities are often confronted with software solutions claiming high prediction accuracy. The water utility in Texas selected our solution ahead of other competitors based on the outstanding and provable prediction results they were presented with.

The software's portfolio from monitoring and operations to diagnosis and long-term planning means that this type of analytics naturally integrates, for example, with the operational event detection and proactive NRW management, leading to added validation of work orders and pipe break records, enhanced maintenance predictability and prioritised guidance to active leak detection.

GRUNDFOS

PRECISE
NETWORK FAILURE PREDICTION

REDUCED
TOTEX

IMPROVED
PLANNING & RISK MANAGEMENT

OUTCOME
- Ability to calculate the relationship between share of pipes replaced and failures prevented on year-to-year basis
- Auditable criteria for establishing a long-tern pipe replacement plan (or improved prioritisation in asset management)
- Quantified Likelihood of Failure (probable failure, predicted break rate or number of breaks per pipe for any target year)

Grundfos Utility Analytics

Grundfos has entered into a strategic partnership with Baseform to bring powerful digital services to water utilities.

The Grundfos global value proposition is being up-scaled to serve the water digital market with Grundfos Utility Analytics, a state-of-the-art Artificial Intelligence (AI), machine-learning asset management technology provided by Baseform.

Available in France, Germany, Italy, United Kingdom, Poland, Sweden, Norway, Denmark and Texas

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