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DRIP DRIP: the drive for real value

Water companies are now often DRIP (Data Rich, Information Poor). They are drowning in data (excuse the pun) and often only utilise data and its analysis after an event. There is a need to move to more autonomous systems that highlight areas that require immediate engineering intervention based on network telemetry data.



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Data is a building block of information: however it is only useful when ...



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... it has been processed, analysed and given context

There is now a huge amount of data that is being collected on water networks in terms of pressure and flow to help operate networks more efficiently and combat water loss. The current issue with many water companies is identifying the value in this data.

Water companies are facing unprecedented challenges delivering high quality water to customers when they want it. There has been a shift in regulation to outcome delivery incentives (ODIs) that have been created with customers at the heart of the consultation. The water industry in England and Wales is set to invest £44 billion over this AMP period (2015-2020) to maintain and improve its service to customers. There is also £402 million at risk on leakage and £345 million at risk on Interruptions to supply through this new ODI penalty or reward mechanism.

So why is this important in relation to remote telemetry systems? The real question is about how telemetry systems provide value to water companies. They have been installed as part of data networks to make the operation of networks easier and more efficient. The reduction in cost of technology and the demand for data has led to the rise of smarter networks and the use of further technology to manage operational costs. Telemetry and loggers can be considered unexciting, yet they are the foundation of smart networks, enabling the use of glitzy, eye-catching software solutions.

Metering

The level of remote wireless telemetry installed at water companies can vary widely. Most water companies now have installed GSM/GPRS loggers on the distribution network, collecting flow data for their DMAs (district metered

areas). This forms the backbone of the water network in the UK and is vital for regulatory reporting of leakage, as well as for tracking and detection of leakage and bursts in these discrete zones.

Smart meters will be installed in an estimated 61 per cent of UK homes by 2020 according to Water UK. These will offer yet another telemetry network, providing data on customer use for billing, though they also provide wider benefits. Thames Water has identified it as a way to ensure that they can keep demand within their ability to supply water, with customers that have a smart meter using an estimated 10-20 per cent less water than their peers. The data, combined with customer information, can mean tailored insights and provide meaningful support to reduce water use in homes, helping deliver tangible demand savings, detect customer side leaks and balance supply with demand.

Trunk mains leakage

In the UK, water companies follow a desk-based approach to the assessment of leakage on trunk mains. Any actual change in leakage is not captured through the leakage calculations, thus it creates little regulatory incentive to drive down real water loss. However there is growing recognition that leakage on trunk mains is a real problem and should be tackled. Data via telemetry on large upstream meters, which have traditionally been of low priority in leakage terms, offers a solution and can drive down real losses through water balance methodologies, comparing inputs and outputs. Such an approach can also add benefit by helping to understand meter uncertainty, especially in relation to district inputs. A one to two per cent uncertainty on large meters can equate to millions of litres a day in reading error.

Pressure regulation

Pressure is used to control the water network, so this needs to be logged and made available remotely to enable decisions on network operation to be made. Loggers with controlling capabilities at PRVs (pressure regulating valves) are already used for advanced use of pressure management. This drives out excess pressure from the network, reducing leakage and can have a significant reduction on burst rates in areas prone to break-outs (up to 40 per cent).



The above picture and this caption have similar data, but only the sentence provides information

The breadth of telemetry is rapidly expanding and the days of only fixed telemetry associated with large treatment assets and black holes of visibility within the water network are disappearing. There is now technology that will record data for water quality, vibration, pump performance and energy. There are loggers that have been specifically designed for the wastewater networks, logging wet-wells, pumps and sewerage overflows as well. There are other sources of data, too, such as weather data, customer contacts, work jobs, asset information and failure rates. By combining data sets there is a chance to really understand how key factors interlink. For example, how temperature drives customer behaviour and therefore water use and how this consumption can be differentiated from leakage.

The data challenge

For me, the current challenge is not around data capture – the technology exists. Across the industry, there are many talented and capable engineers and technicians who could generate real value from the huge amount of data

already being collected and drive real improvement within water companies. The issue is one of time and commercial appetite to reach a point where telemetry systems and associated data interpretation save time and money.

Currently, most systems provide a window onto collected data that needs manual interpretation. WRC and other experts are well placed to help companies realise the value of the data being collected. We can work with you to develop systems that output actionable intelligence; ie systems that tell you there is an issue, where that issue is, how critical it is and even what the issue might be.

I think telemetry networks generating real value by collecting the right data, in the right place, at the right time, and undergoing the right analysis and prioritisation, could be the answer to many operational challenges facing water companies. Ultimately, this can help water companies deliver great service for less money.

Contact

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