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achieve | transformation

How can water networks maximise open standard telecoms for the challenges of AMP8?

AMP8: a transformative opportunity for the water industry

The AMP8 period (2025 to 2030) will revolutionise the water industry's efforts to address climate change, improve service delivery and protect the environment.

Extreme weather events (high temperatures, drought and back-to-back storms) will become the new normal, while cost of living and environment incidents have changed customer expectation on water utilities.

Furthermore, the UK's population will continue to grow and a 30% increase in water demand is expected by 2033. To address these challenges, water utilities will need to focus on:

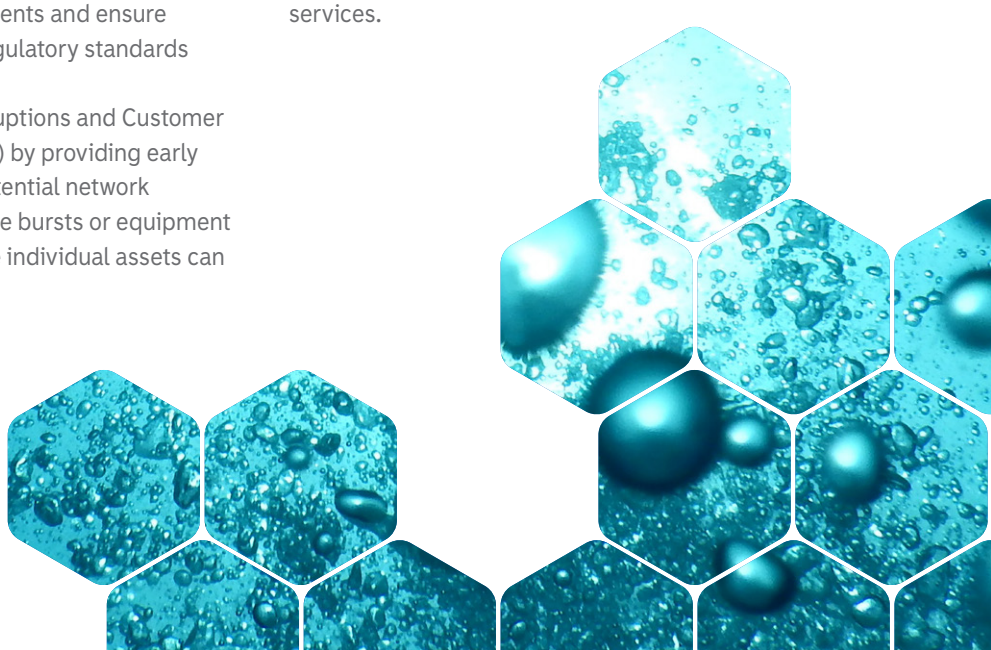
- affordability by leveraging AI, data science, IoT, robotics and automation to drive cost efficiencies
- leakage reduction through proactive maintenance programmes, sophisticated leak detection technologies and infrastructure upgrades
- improved asset resilience, striking a balance between new infrastructure projects to address growing demand and emerging issues, while maintaining current infrastructure
- enhanced customer service to build trust, demonstrate accountability and ensure their plans align with the needs and expectations of the communities they serve
- improved water quality by investing in infrastructure upgrades, monitoring systems and treatment procedures to meet strict quality standards and safeguard public health
- increased resilience to climate change and extreme weather events, through major infrastructure investments, including capital expenditure on supply side capacity building
- maintaining investor confidence. Almost half of the UK's infrastructure is financed and delivered by the private sector and paid for by consumers. Maintaining financial stability and resilience is essential in an industry plagued by over-leveraged businesses.

How can enhanced monitoring capabilities deliver value?

Enhanced monitoring is pivotal in helping water utilities improve operational efficiency, reduce expenses, ensure water quality, improve reliability and elevate customer satisfaction. It can:

- detect leaks by offering more precision and speed compared to traditional methods. This enables utilities to identify and repair leaks promptly, reducing water loss, preserving resources and minimising the need for expensive repairs
- improve asset investment by monitoring the condition and performance of assets in real-time. This data can be leveraged to prioritise maintenance and replacement tasks, prolong asset lifespan and make informed investment decisions
- optimise operations by providing utilities with actionable insights into network performance. This includes fine-tuning pump schedules, managing pressure levels and optimising valve operations to lower energy consumption and operational expenses
- safeguard water quality by monitoring pH, turbidity, chlorine levels and microbiological contaminants in real time. This enables utilities to identify water quality issues promptly, respond swiftly to contamination events and ensure compliance with regulatory standards
- reduce service disruptions and Customer Minutes Lost (CMLs) by providing early alerts regarding potential network failures, such as pipe bursts or equipment malfunctions. While individual assets can be in good condition, the combined system effect of a series of assets working together, along with environmental factors, needs to be monitored
- simulate and prepare for various scenarios by collecting and analysing extensive data and delivering valuable insights into network performance, trends and patterns, in conjunction with data from weather, soil and other external parameters. This will enable water utilities to build digital twins of their network to simulate adverse conditions
- build trust and improve customer satisfaction by proactively addressing issues such as leaks, water quality concerns and service interruptions.

Telecommunications infrastructure is indispensable to the monitoring, controlling and optimising of assets in water utilities. Over the page we summarise how it facilitates proactive maintenance, enhances operational efficiency, improves asset investment decisions and ensures the dependable delivery of water services.



The role of telecommunications infrastructure

The exponential increase in data points expected in the water industry (10 to 15 times the current volumetrics) cannot be connected through current traditional telecommunications infrastructure, given the constraints of cost, time and availability of solutions. Hence the adoption of IoT-based solutions and IoT telecommunications infrastructure is the only option for water utilities.

When it comes to providing connectivity in the water industry, there isn't a one-size-fits-all model. Connectivity is required for a range of subterranean and remote locations, so providing coverage using a technology suited to the applications is key. This is why we've focused on LoRaWAN®. Enzen's approach of harmonising water utility data with a connectivity guarantee through LoRaWAN® makes the subsequent measurement capabilities available to water utilities a game-changing strategic differentiator.

Advantages of LoRaWAN®

Long-range, low power consumption and availability of IoT devices/sensors
At present IoT telecommunication options are LoRaWAN®, NB-IoT, private radio and others. Amongst them LoRaWAN® is increasingly becoming the most popular, given its long-range, lower power consumption and the availability of IoT devices/sensors. LoRaWAN® also has a better track record of connecting to underground assets.

Spectrum of monitoring needs
In addition to water meters, the LoRaWAN® telecommunication network empowers water utilities to remotely monitor various assets including pumps, valves, tanks and treatment facilities. Equipped with sensors, these assets collect data on crucial parameters like flow rates, pressure, temperature and chemical levels. This data is then transmitted over the LoRa telecommunications networks to a central monitoring system, enabling real-time visibility into asset performance. Consequently, relevant stakeholders gain access to timely and precise information regarding asset status, regardless of their location.

Large data transfers
LoRa telecommunications infrastructure facilitates the seamless transfer of large data volumes to centralised data analytics platforms. These platforms utilise advanced analytics techniques such as machine learning and predictive modelling to optimise asset performance, enhance operational efficiency and guide strategic decision-making.

Lower power needs and cost of ownership:
LoRaWAN® provides many other advantages too, including lower cost of ownership, longer device battery life and lower device cost, plus an extensive and growing ecosystem of available support technologies.

How Enzen can provide assured digital connectivity

Through our 100% connectivity guarantee, Enzen can achieve harmonised data sets across multiple asset types at far greater volumes. The outcome is the application of vastly more data, allowing for a much deeper understanding of water utility assets and performance.

Through our high-quality, low-cost sensing technology, water utilities will be able to sense more than ever before, which enables them to unlock the potential of coming AI capabilities. The more granular the data, the more precise the AI will be. We are able to offer water networks:

Knowledge of smart water metering's impact

As we approach AMP8, it is imperative to highlight the implementation and impact of smart meters, with a focus on leveraging data and enhancing water network management.

Strategic partnerships with electricity DNOs

Ensuring robust digital connectivity is a fundamental requirement for accessing the data collected by smart water meters. Enzen brings in a distinctive approach by collaborating with electricity Distribution Network Operators (DNOs) across the UK to establish a LoRaWAN® network nationwide. This network involves mounting LoRa gateways on DNO assets such as poles and substations.

Unique LoRa network design

With a high density of gateways, it's tailored to meet the demands of the network, enhancing the resilience and redundancy of LoRa connectivity to underground assets. This proven approach, successfully employed in Australia, significantly improves coverage for underground assets such as water meters. Enzen envisions its wider adoption not only in the UK but in other countries where water and electricity utilities often coexist.

Strategic planning for the massive growth in smart water metering

The global smart water metering market is poised to experience a Compound Annual Growth Rate (CAGR) of approximately 10% over the next five years. As water availability becomes more critical, it's anticipated that the usage of smart water meters data will surpass that of smart gas and electric meters in the near future.

To learn more about how we can prepare your utility for AMP 8, contact:

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