SECURE THE FLOW

Building safe, efficient and sustainable water utilities across Europe

Honeywell

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ABSTRACT

Water utilities in Europe are at the intersection of big occupational challenges — and bigger opportunities. Spurred by the quick pace of digital transformation and growing demand, the fast, significant shifts in how they must generate, transmit and distribute water have created a distinct gap between *where utilities truly are* and *where they should be*. Reducing this gap with the right strategies and technologies will help water utilities better secure the flow of our resources today and tomorrow.

Water utilities are designed for better reliability, efficiency and safety, not disruption. But within the last decade, despite utilities' focused efforts, Europe's once-robust network is showing cracks in a foundation that didn't anticipate today's needs and future ones. Water — the lifeblood of our agricultural sector — is leaking and less available than it once was. There are many factors responsible for this current state of utility network strain, which pose risks for future systems too.

Predictable demand, manual metering and minimal digital requirements of the past have been replaced by ageing infrastructure, shrinking workforces, sophisticated cyberthreats and technology that's evolving faster than utilities can modernise their systems. Water pipelines and distribution systems have been in operation for more than half a century.[1] Skilled workers are retiring in droves, their tenured knowledge going with them. And the water sector must adhere to strict regulatory policies.

Honeywell understands that utilities' existing infrastructure and personnel primarily dictate their short-term and long-term operational realities. We're ready to help utilities turn what's complex and challenging into streamlined, future-improved and compliant. By leveraging simplified, data-driven and enduring solutions for enhanced operational efficiency, cybersecurity and energy innovation, utilities can work with Honeywell toward closing the gap and helping to secure the flow of water — for generations.

INTRODUCTION

Our approach to helping water utilities navigate their challenges and changes is tailored and outcome-based. Across each — operational efficiency, cybersecurity and water innovation — we help utilities work to protect their people and assets, reduce downtime, support resilience and deliver water in a resource-scarce world.

The toughest part of utility transformation is knowing when, where and how to start. Existing resources and bottom lines must be considered. Business priorities and compliance must be weighed. Future operational capabilities must be accounted for. Each variable and moving target emphasise the value of an expert partnership throughout the creation, deployment and follow-through of modernisation plans.

We help water utilities focus on what matters by evaluating and understanding first, then integrating intelligent, field-proven and safe systems that fit your operations. Sometimes, smart meters elevate network performance, the last piece in an otherwise complete system. Other times, an entirely new advanced metering infrastructure is what's needed to secure the flow. No matter your plan, we help you control and strengthen actions and processes across the following outcomes:

Water Innovation
Adapt confidently to what the landscape demands with sustainability-driven management systems that provide real-time visibility and a future-ready water capacity for the next generation.

Operational Efficiency
High speed, low costs, always-on performance — all are key determinants of a utility's operational efficiency. We help optimise each by unifying data and decision-making, which can reduce downtime and extend asset life.

Cybersecurity
Trust underpins a reliable network, meaning utilities need strong threat detection and defence. As an industry-recognised leader in cybersecurity, we help secure critical infrastructure by integrating comprehensive technologies directly into operational systems.

RETHINK OPERATIONAL WORKFLOWS FOR GREATER EFFICIENCY

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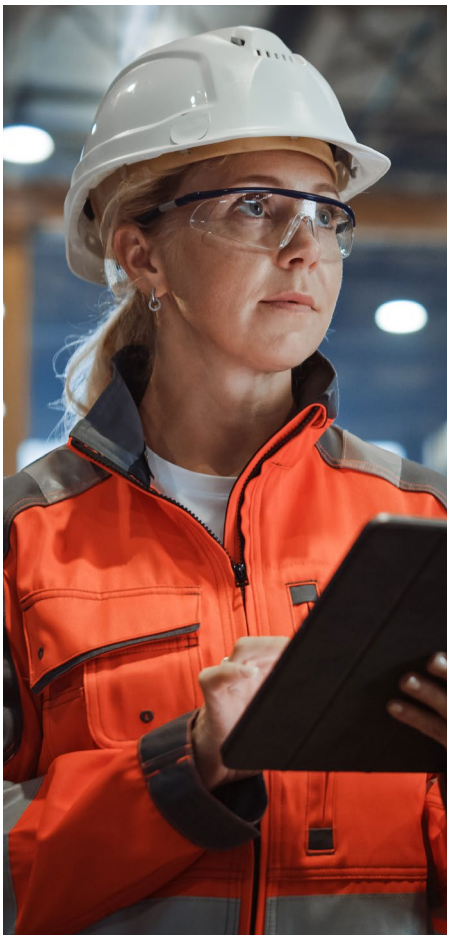
When manual becomes predictive and raw data becomes actionable insights, greater operational efficiency becomes achievable in the forms of reduced costs, fewer losses, minimal downtime and faster decisions. But first, utilities must acknowledge and eliminate what stands in the way of reliable, productive performance. We can help.



The combination of automation and data analytics is the answer to many operational inefficiencies...

Shrinking Workforce

As retirements outpace the hiring and upskilling of new talent, asset digitalisation and workforce automation, like remote metering and systems that forecast how to enhance water distribution over time, can reduce manual tasks while closing the skills gap.

Ageing Infrastructure

Operating for decades beyond its intended design life, existing utility infrastructure is showing its age through leaks, failures and high maintenance costs. Smart devices and analytics that pinpoint network losses, plus predictive maintenance technologies, can help utilities build a modernisation plan that focuses on replacing assets with highest benefit-to-cost ratio (instead of replacing every asset at once).

Merging Old and New Systems

While modernised systems produce real-time data, legacy systems often can't share it. And integration complexity creates fragmented operations, which often require slow workarounds and reduced system visibility. Unified data platforms and standardised communication protocols can help consolidate processes, reducing operational stress.

...including non-revenue water (NRW), one of utilities' biggest operational efficiencies throughout Europe.

Average levels of non-revenue water sit at 25% across European countries.[2] That means only 75% of water intended for our homes, towns, cities, businesses and industries is distributed to its final destination. When utilities treat and pump water that doesn't generate revenue, it wastes production expenses. High leakage, the primary reason for loss, also makes it difficult to forecast demand. The net effect? Limited insights, an unreliable supply and higher operating costs. Controlling losses with intelligent technologies can shift this effect to efficiency, transforming many layers of water utilities' operating models.

25%

AVERAGE LEVELS OF NON-REVENUE WATER
across European countries[2]

A PORTFOLIO PRIMED FOR OPERATIONAL EFFICIENCY

SMART METERS AND COMMUNICATION MODULES

Our advanced metering infrastructure digitalises processes and operations with accurate data and remote capabilities across residential, commercial and industrial applications.

IMAGE	PRODUCT
	**M140H** – A hybrid-measuring capsule water meter, this device has a fully electronic counter for accurate remote reads and integrated wMBus, OMS-compliant communication. The robust construction can withstand various operational conditions, keeping this meter fully operational in the long term.
	**S110H** – Single-jet and surface-mounted, the S110H offers secure, remote consumption monitoring and supports higher flow rates for larger buildings or peak demand. It's designed for long-term performance with minimal maintenance.
	**Q600** – This ultrasonic NB-IoT water meter has an estimated 15-year battery life, requires lower deployment costs and accurately captures leak flows for more reliable and profitable utility operations.
	**Merlin NB-IoT Clip-On** – This smart clip-on module for basic water meters is a cost-effective way to boost operational efficiency without major overhauls. It helps utilities identify leaks, measure flow rates and upgrade existing infrastructure to improve water conservation and operational performance.

Honeywell Forge Performance+ for Utilities

With Honeywell Forge Performance+ for Utilities, metrics like consumption, flow rate, pressure, time-of-use data and backflow are captured from meters, stored and monitored to help ensure a consistent, safe supply. Its data-driven recommendation engine helps recognise abnormal trends, which helps utilities identify leak locations across vast networks and secure flows with quick maintenance. This platform can also track a water network's meter health and any outages to help prevent downtime. Changing water utility management changes efficiency for the better.

Analytics improve visibility and understanding, no matter the experience level of your workforce. Automation improves real-time control, no matter the age of infrastructure. Both improve opportunities to remove efficiency disruptions from distribution — and are available from Honeywell.

OT RESILIENCY AND RELIABILITY NOT RISKS

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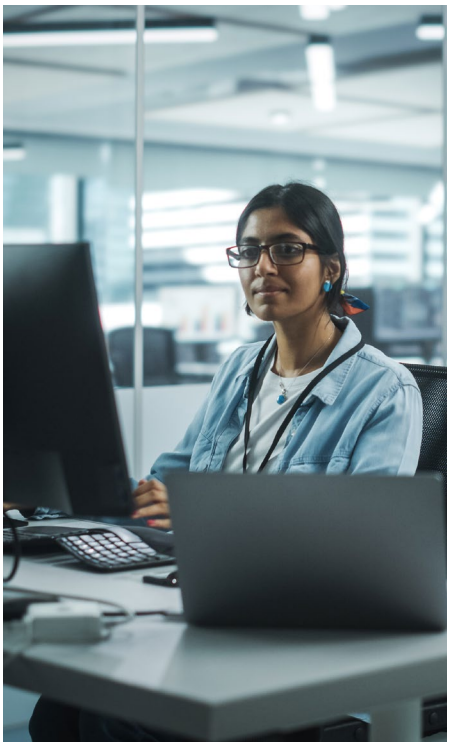
As Europe's utilities adopt connected technologies and smart devices, the risk of cyber threats grows across operational systems. It's imperative that meters, networks and data management platforms uphold cybersecurity because, without encryption, tamper detection and event alarms, utilities' operational efficiency is extremely vulnerable.



For resources to be continuously available, they must be continuously protected from threats at the meter level, across network layers and beyond. It's not a recommendation — it's regulation. Overarchingly, the European Union's Cyber Resilience Act states that manufacturers must "ensure cybersecurity throughout the lifecycle of their products."[3] For utilities, this means every asset in the value chain requires timely security updates to help manage evolving risks, especially those that threaten operational technology (OT).

OT Risks

OT cybersecurity efforts better protect the physical continuity of operations by mitigating unauthorised actions at the infrastructure level.

- Tampering
- Meter bypassing
- Forced valve manipulation
- Unauthorised property access

- Water contamination
- Pressure spikes
- Physical equipment damage and disruption

A single cyber incident immediately risks compliance with safety regulations, safe operating thresholds and costly downtime.

UTILITY ASSETS MUST ALSO COMPLY WITH THE NIS2 DIRECTIVE

This directive mandates the implementation of risk-management measures, incident reporting and compliance with minimum cybersecurity standards across public and private utilities.[4] These stricter requirements, mandatory protocols and penalties for non-compliance come at an important time; within the last two years, cyberattacks on utilities have increased by more than 200%.[5]

With deep expertise in utilities' environments, we embed protection directly into every part of utilities' operations.

Our infrastructure is specially designed and engineered to better protect data, limit tampering, comply with risk-management directives and deploy the latest software and hardware upgrades so utilities can operate with greater cybersecurity. Here's how:

Smart Meters

In the field, our smart meters are hardened against cyberattacks with encrypted data storage, technologies and event alarms.

Our **Q600 NB-IoT ultrasonic water meter** comes with an advanced AES-128 encryption to help protect utility and customer data as it's collected, as well as help prevent unauthorised personnel from obstructing metering operations.

Software

Honeywell Forge for Utilities AMI Operations Hub (AOH) is our head-end system for water utilities that can add an extra layer of cybersecurity to networks. Adhering to GDPR, security and privacy directives, this software platform allows water utilities to extract the maximum value from metering infrastructure while helping uphold access, authentication and encryption controls.

Meter Data Management

The performance management and visualisation of utility assets and analytics can help reveal risks before they cause catastrophic events.

Honeywell Forge Performance+ for Utilities includes predictive maintenance to increase threat-readiness of field assets, alarms for physical manipulation and monitoring of other metrics that signal intrusion.

When assets' individual strengths, defences and compliance converge, entire networks are best positioned to maintain reliability, public trust and secured flows in an increasingly connected system.

WATER INNOVATION IN EUROPE

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The network's needs for future readiness and greater flexibility coincide with mandated goals. So, while water isn't going anywhere, changes are taking place to accommodate additional processes and sustainability initiatives as the environment becomes more dynamic.

Optimal operational efficiency and cyber resilience outcomes are big drivers of transformation. The European Union's climate framework is too. Because the EU aims to be climate-neutral with net-zero emissions by 2050, utilities are obligated to modernise distribution pathways and comply with environment-first initiatives. As the 2030 check-in date for this sustainability target approaches, taking action is vital.

ENERGY INNOVATION ACROSS WATER UTILITIES

- Non-revenue water is an operational efficiency problem *and* an environmental challenge for water utilities, especially as water stress mounts in southern and eastern Europe. When leaks occur (the primary cause of non-revenue water), many utilities dispatch service trucks to patch or replace the affected infrastructure. Truck rolls emit a significant amount of greenhouse gases, which multiply if utility networks are comprised of manual components that prevent quick fixes and remediations.
- **Honeywell smart meters** and **Honeywell Forge Performance+ for Utilities** arm water utilities with the right information at the right time, pinpointing the area location of inaccurate reads and suspected leaks in near real time. Smart water management with advanced metering infrastructure results in fewer truck rolls, higher water efficiency and progress toward measurable targets.

CONCLUSION

The next generation of water management will be led by those who prepare for them now.

With the right partner, transformation becomes far less overwhelming and essential outcomes become far more achievable. We don't just understand your challenges; we anticipate your needs, putting the right expertise and technologies behind your operations, one meter, one platform and one network at a time. There's no guesswork, just a guided path forward that creates stronger systems, reinforces resilience at every level, readies you for tomorrow's demands and secures every flow.

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