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BLUE PAPER

**EXPLORING TECHNOLOGY
SOLUTIONS FOR THE
WATER SECTOR – INSIGHTS
FROM THE WIF TEAM
CHALLENGE 2026**

SEPTEMBER 2026



Executive Summary

The Young Water Professionals responding to the WIF Team Challenge 2026 were given a broad, but very relevant and timely brief – how could technology be used to help solve a water sector challenge? The definitions of “technology” and “challenge” were left deliberately vague to encourage participants to explore right across our industry. The outcomes leant towards digital solutions but process and engineering technology also stood out. The range of challenges identified was broad - unsurprisingly in the water industry of 2026 – and recognised the fiscal, climate and trust issues that confront us on a daily basis.

The most prevalent theme picked out by the teams was water scarcity and resilience. Their solutions called for better management of resources through water re-use, reducing consumption, and corralling the ever-increasing volume of data available to us. Indeed, the collection, collation and interpretation of data using a mature understanding of AI was seen

as a route to a better water industry. Conversely, the lack of any proposals around Combined Sewer Overflows (CSOs) and sewage spills suggests that teams feel this is a problem that is largely being addressed.

It has long been felt by those organising and supporting this challenge that the ideas presented by teams every year merit further exploration. They are neither impractical nor unaffordable and they offer fresh opportunities to accelerate beneficial change. Using the example of John Snow and the 1800s cholera epidemics, the keynote speech by Dr Piers Clark encouraged young water professionals to challenge the accepted wisdom and to stand up and fight. This paper explores the proposals from the 2026 Challenge and aims to spark discussion and creative uptake of innovation whilst celebrating the power of cross sector and cross generational working.

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The WIF Team Challenge for Young Water Professionals



Each year, the WIF Team Challenge pits teams of young water professionals against each other in a competition to deliver the best pitch on a theme that is unveiled at the launch event. British Water Member companies nominate participants; in 2026, 12 teams were formed of 5 members each. They meet their fellow team members for the first time at the launch and are given 2 hours to start work. Thereafter they are left to manage their projects; working towards delivery of their pitches in a 9-minute slot to a panel of judges, formed from industry experts, and an invited audience, just eight weeks later. The theme for 2026 was “How can technology be used to help solve a water sector challenge?”. Teams were asked to address this in three steps:

- Identify a water sector challenge where technology could be part of the solution.
- Specify what the technology is (including whether it exists or needs to be developed).
- Set out how it would be deployed and what enablers are needed for successful deployment.

As well as looking at the practicality of the solution and its potential impact, the judges consider how well the team has understood the task, the extent to which they can evidence the likelihood of success and their ability to deliver a compelling presentation of their proposal.

Each year the presentations delivered have been of a consistently high standard, with the bar rising with every event. The key themes from the 2026 pitches are discussed in the following pages.

Circular Economy

With such an open brief and with the water industry confronting a plethora of well-publicised problems, it is often hard to isolate a single issue and focus on an imaginative solution. Perhaps the biggest single challenge which is attracting the bulk of AMP8 investment is sewage discharges. Just one team tackled this issue with their “Sewer2Server” proposal to reuse storm water for data centre cooling. This proposal recognised the potentially unsustainable demand for cooling water as a circular economy opportunity to re-purpose storm storage. They also identified the need for geographical proximity and for the provision of suitable treatment processes to deliver water of suitable quality to meet the needs of various cooling methods.

Also proposing a circular economy solution, another team presented a compelling pitch on the use of Pressure Retarded Osmosis, which uses the salinity gradient across a semipermeable membrane to produce electricity from a hydro-turbine. This

solution recognises the imminent construction of several desalination plants around the UK and could make use of the saline waste products. This advanced technology has been proven in Japan and while it suffers from a high capital cost and real environmental challenges in disposing of the final product, the team did evidence a lifetime net financial gain and clear outcome benefits for electricity production.

Perceptions and Behaviours

The water industry is under the microscope from the media and customers like never before. It is perhaps surprising that only one team directly addressed perception of the water industry as a challenge with their Water Portal, aimed at providing information about the water industry that would be real-time, helpful and informative for customers – without spin. Their concept, supported by a comprehensive website created by the team, seeks to inform about all aspects of the industry, not just performance data. They recognised that demystification is a quick route to understanding. The concept even highlights the wide range of careers available in the industry. Recognising that all data can be misinterpreted (or at least perceived differently by different viewers), as well as there being some questions about how willingly companies would make their data available, they acknowledged there is some work to do before this solution makes a difference.

On the same lines but looking to change attitudes and value water as a scarce resource, several teams opted for behavioural change tools. Perhaps most innovative was the “Water Raffle”, giving customers the opportunity to win prizes through practising water-saving techniques. The chances to win are increased for every litre of water saved. The team envisaged community as well as household prizes, a wise use of the herd factor. Another team echoed the 2025 Challenge theme around education, and investigated the use of a digital model for schools to use their assets for water storage and reuse. This had the benefit of being both an educational tool to help students access digital modelling as well as a realistic design tool for the implementation of water-saving techniques.

Team 4, who were runners-up in the 2026 Challenge, developed “Mind the Tap”, looking for a “smarter” smart meter which would change customers’ perceptions of how much water they actually use. They had identified a key consumption issue as “We don’t waste water because we don’t care. We waste it because we don’t see it.” Developing tools that reflect advances in how smart meters have transformed domestic energy consumption, this idea seems eminently deployable for a relatively modest budget and significant return.

Water Quality

Contaminants in raw water, and the condition of water bodies across the country were identified by two teams as key issues meriting attention. Making the podium in third, Team 7 presented “Aquabloom”, an early warning system for harmful algal blooms. This proposal brings together a number of elements that are only recently available, including satellite data and AI combined with in-situ sensors, weather data and historical records to enable algal bloom warnings days in advance, rather than identifying them once they have happened. This would create just enough window to enable mitigation of the problem.

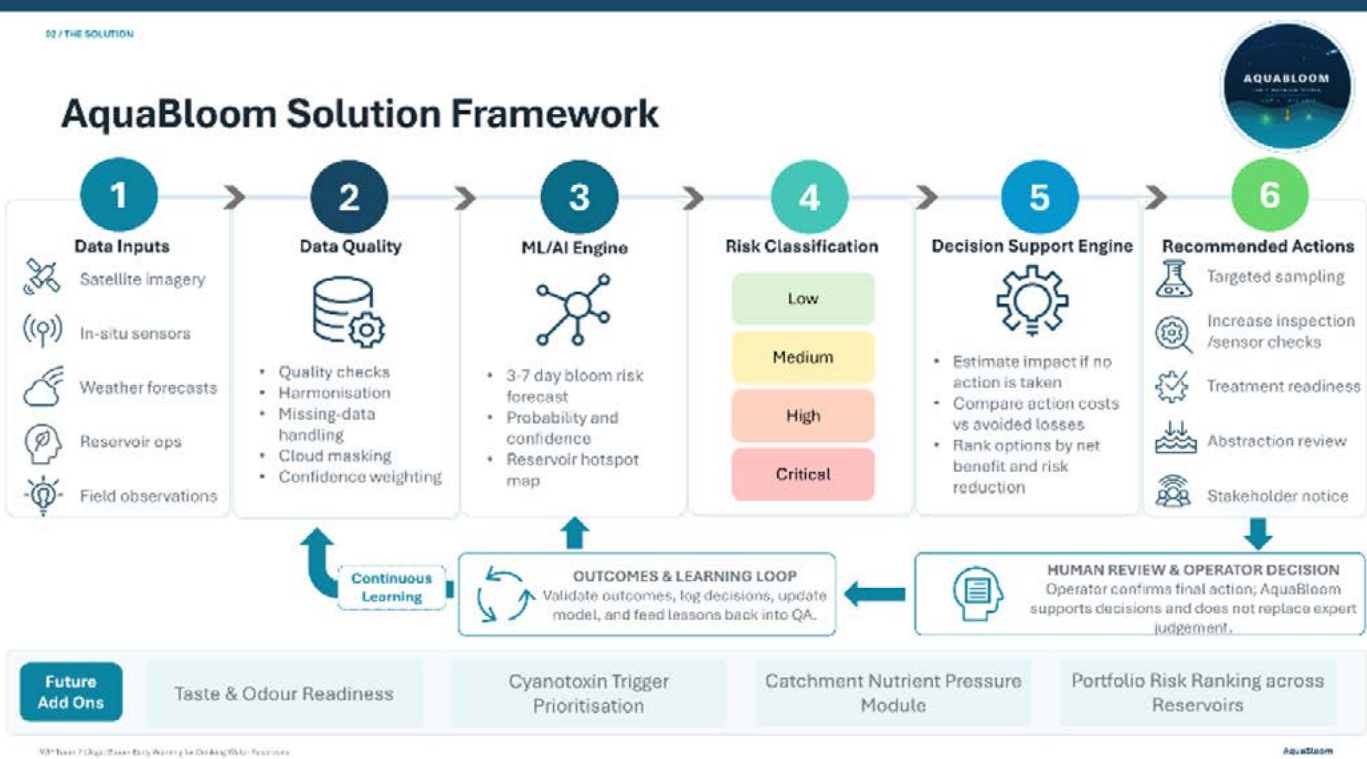
Another team envisaged the use of “PFAS smoke detectors”, a real-time sampling system to detect PFAS in water bodies prior to abstraction, potentially enabling treatment works to use alternative sources when PFAS is present.



Resilience

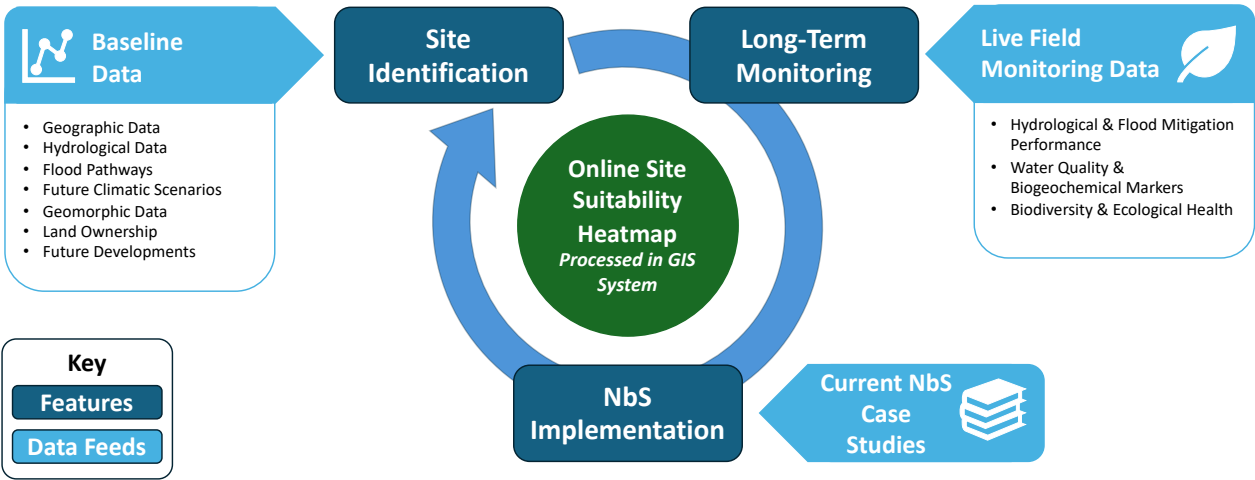
The most popular challenge, addressed in a variety of ways by five teams, was water resource resilience. In the only instance of overlapping ideas, two teams looked at rethinking assumption-based supply and demand forecasting, one using a Digital Planning Twin, the other using pipe-mounted sensors and LoRaWAN (Long Range Wide-area Network). The argument for both was that resource planning is done over a long timescale, which doesn't allow for the increasingly rapid and dramatic changes that we are seeing. The Digital Planning Twin concept identified the availability of real-time data that can readily be adopted by a digital twin, giving more agile forecasts and responses. The LoRaWAN concept involved pipe-mounted sensors being deployed to more directly access data about pipe performance (i.e. leakage) to better enable fix-before-fail.

Recognising the industry-wide frustration at the difficulty of implementing Nature-based Solutions others saw the advantages of using AI to collate a range of data to identify where a number of parameters overlap favourably so that NbS could firstly be confidently deployed, and then provide meaningful operational data to support growth in NbS deployment.



Data Flow

From initial site identification, the implementation of Nature-based Solutions and integration of live field data into the site identification model





Team member Lola Ilekeya from Affinity Water, was sadly unable to attend the final presentation but was an integral part of the team.

Zoe Fryer, WSP | Javeria Munawar, University of Bath | Carlos Franx Martinez, MWH Treatment | Daniel Carr, Gleeds.

And the winner is...

The overall winners of the 2026 Team Challenge, team 2, developed “PipeIQ”, a digital tool that uses several existing data sources to predict the risk of bursts and enable targeted repairs “before failure, not after disruption”. Delivering multiple benefits, not least more efficient operations and improved customer experience, PipeIQ envisages a centralised database storing asset data, burst histories and live data from existing platforms alongside a client-bespoke GIS dashboard giving a risk heatmap. The

team used a strong case study that the audience could identify with, and they were clear on the savings the proposal could deliver. They pinpointed a very specific issue that is challenging for the sector and explained it well. And whilst the challenge is about the solutions the teams develop, it is also about the quality of the presentation and Team 2 prepared visually appealing slides, effective use of concise content, and delivered a clear presentation.

TEAM 2 • 2026 WIF CHALLENGE

PipeIQ

Preventing Pipe Bursts: Proactive not Reactive

Challenge: How can technology be used to help solve a water sector challenge?



What are the next generation of the water industry telling us?



This competition does not just offer an opportunity to the participants, it is an opportunity for all of us to open our minds and our businesses to some new ways of thinking. In his keynote speech to the teams, Piers noted that "It is in your hands that the water industry now resides. My generation and the generation before me ***** it up. Okay? Your job is to make it better!" Sixty of our finest from the generation of water professionals who will guide, grow, maintain and sustain our industry gave us some clear messages through their work:

- We don't have enough water and the situation won't improve by itself. We need to deal with the problem now.
- We have plentiful data but we're using it in the same ways we have always done. Data must be shared, openly and in real time, to be meaningful. AI is the tool that, wisely used, can help us do that.
- Nobody can fix this on their own. Every proposal that the teams put forward relies on multiple contributors and stakeholders.
- Behaviours need to change, both within the water industry and across all water consumers.
- Recognising the existence of circular economies enhances sustainability whilst providing quicker returns on investment.
- The strong message from the winning proposal, PipelQ, is that fixing things that have already broken is no longer acceptable. PipelQ was about preventing leakage, but perhaps this message applies equally well to the water industry of 2026.

A further message from the teams is one that came from discussions at the presentation and judging day, from feedback, from subsequent chats and from a British Water video interview held with the winning team. One of the fundamental purposes of the competition is to help young water professionals to begin building networks that will last through their careers. The mix of people in each team is deliberately selected to be as wide as possible, throwing together teammates with different disciplines, different roles and backgrounds, and from every corner of the industry. The winning team comprised a QS, an Academic, a Mechanical Engineer, a member of a Hydrogeology team, and a Project Manager, variously employed by a water company, consultancies, a contractor and a university. The feedback is universal that this broad range of skills, backgrounds and employers is hugely appreciated and makes a real difference to how each individual works within a team. This early awakening to the benefits of collaboration and diversity has obvious benefits, and the realisation that there are

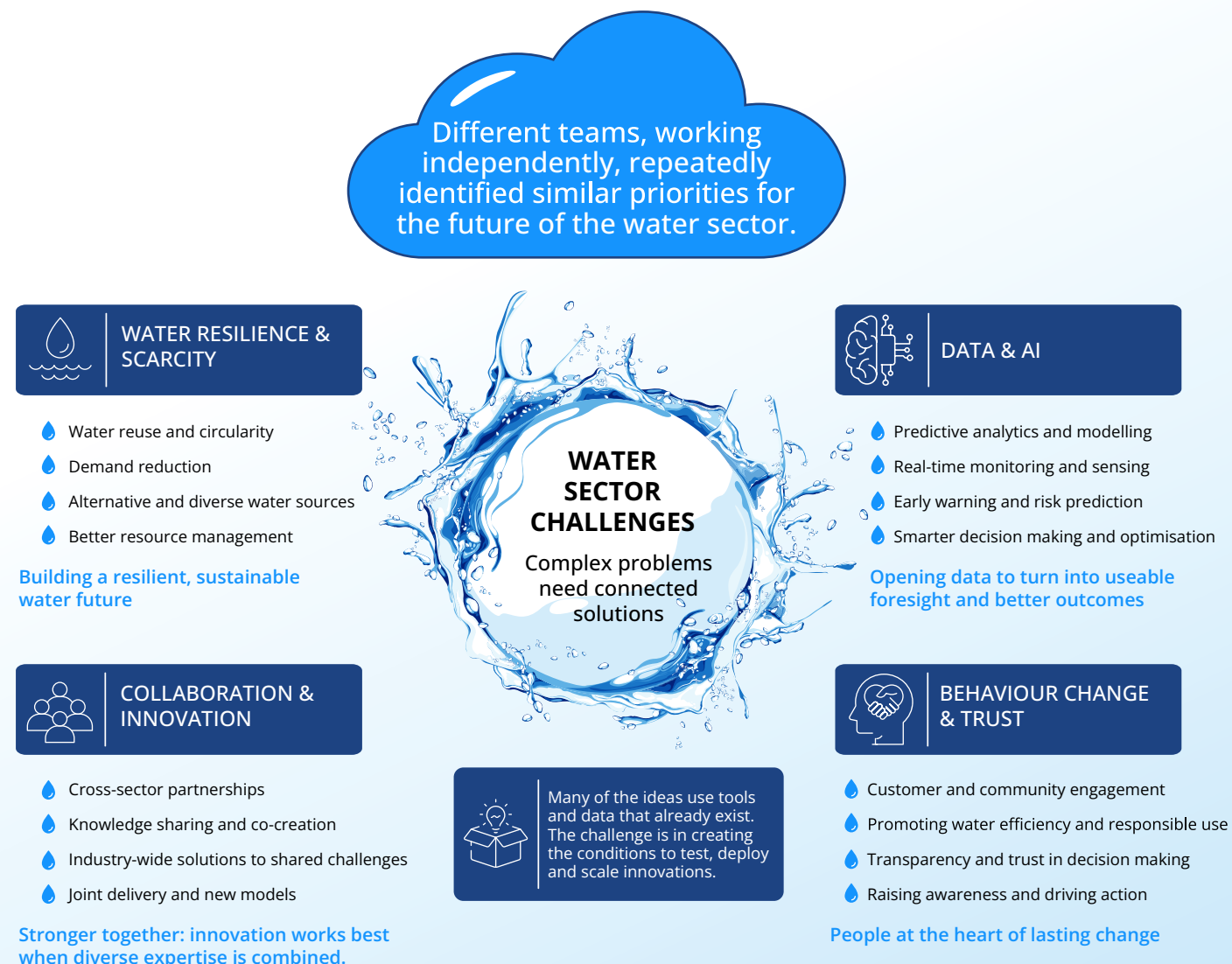
so many components to the industry is a profound one.

Further summarising these messages, it is clear that the industry must promote interactions and collaboration between our new professionals so that it becomes business-as-usual. Opening access to water industry data, honestly and in real time, will form a bedrock to forming relationships that will contribute to solving many of the water industry's challenges, both present and future.



Key Insights from the WIF Team Challenge 2026

How technology can help solve the water sector's biggest challenges



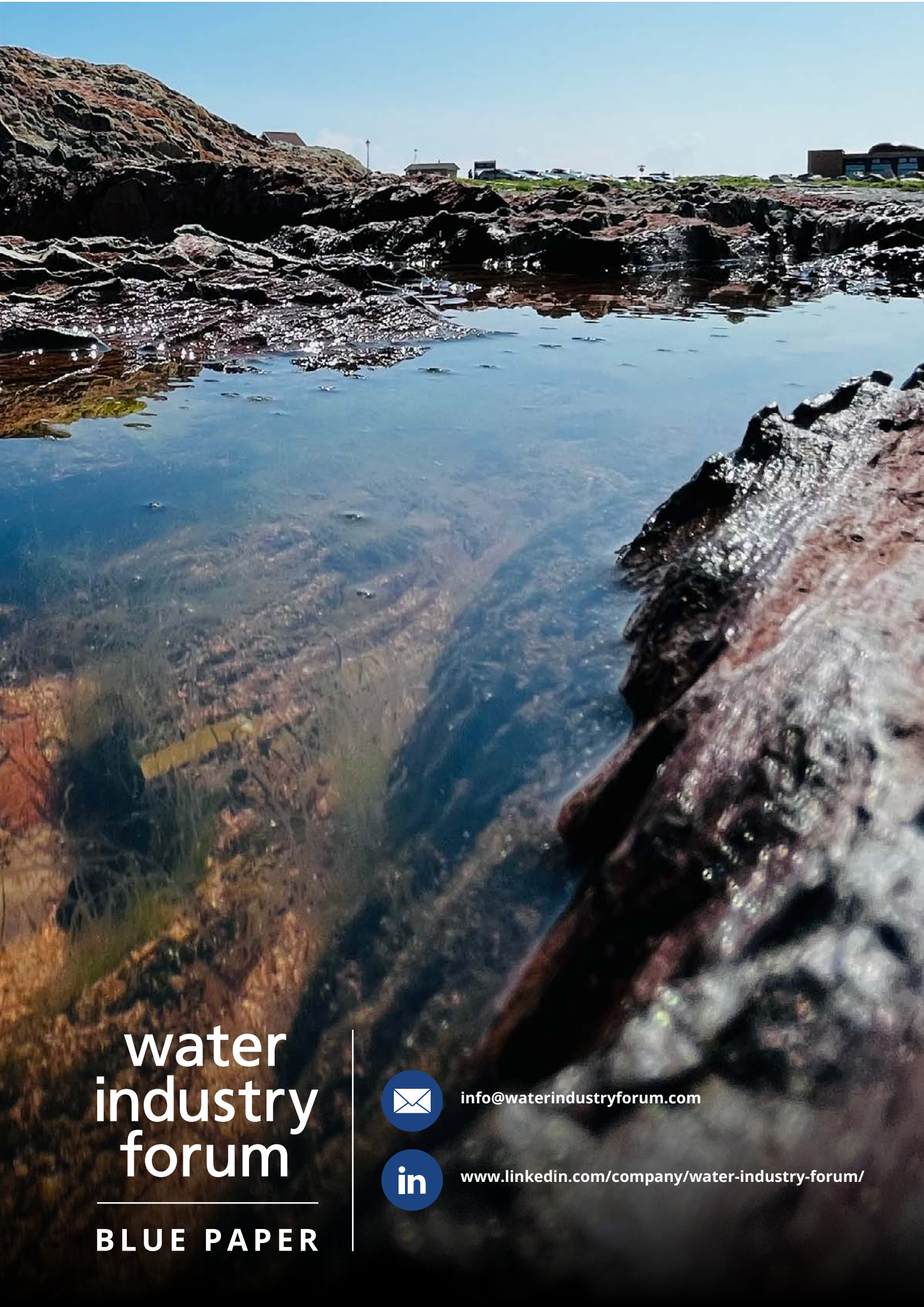
Landing the innovation

Every year, the audience are treated to a range of solutions to water industry challenges that star for a day, and are then left as memories and ageing slide packs. This does not adequately value the effort the teams put in, nor does it acknowledge the fact that some of the ideas could become real-world innovations with real-world benefits. We know that our industry is poor at turning good, practical ideas into "business as usual". The keynote speech by Piers Clark highlighted this, using a water company example where the firm had identified an attractive new technology, invested in it, but never actually implementing that technology. Piers encouraged the teams to stand up and fight, inciting them to challenge received wisdom. Their willingness to do so is inherent in their presentations.

We are at a point in the water industry where "public" perception is hard to turn round. Piers offered the choice of hoping that we get away with it, or hoping that it gets worse so that people wake up to the problem, be that water scarcity, sewer overflows, or rising bills. In the short time between the presentations and the publication of this paper

we have experienced (and are still experiencing) a scale of drought not seen before in this country which suggests that it has already got worse and that the call to wake up to the problem is now being heard. Notably two of the presentations (the Water Raffle and Mind the Tap) align well with Ofwat's recently launched £75m water efficiency campaign. These are precisely the ideas that are needed and could be developed through the fund.

The energy, enthusiasm and generous collaboration exhibited by the participants was inspiring. The competition raises the question of how we can all enable these behaviours, provide safe testing grounds for ideas and give young water professionals a platform. Many water companies already have innovation sandpits, festivals and showcases; we also have Innovations funds and organisations such as Spring. The next step is to use these mechanisms to test, pilot and scale the strongest proposals. The solutions outlined in this paper provide a valuable starting point for utilities, suppliers and innovators seeking practical responses to some of the sector's most pressing challenges.



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