

# Spring Accelerator 5: Call for Innovation

## Overview

The Spring Accelerator aims to identify innovative solutions that help address a significant need in the UK and Ireland water sector. Our current programme, Spring Accelerator 5, is looking for innovations to answer the question: “How can we efficiently repair leaks in drinking water pipes while minimising excavation?”

The Spring Accelerator’s purpose is to bring the right people together to drive the development and adoption of solutions. Spring is here to facilitate collaboration and mobilisation; we bring successful entrants and water companies together and act as a knowledge transfer partner for projects to ensure learnings are shared across the sector.

## The Context

Drinking Water Distribution Systems (DWDS) are the complex network of pipes and ancillaries that deliver treated water from centralised treatment facilities directly to consumers' taps. Spanning over 350,000 km in England and Wales alone—equivalent to circling the Earth more than eight times—these complex networks are critical for public health, economic stability, and overall quality of life. Ensuring their efficient and reliable operation is essential for meeting current and future water demands.

In the UK, these networks face significant challenges. The average water pipe in the UK is estimated to be 75-80 years old, with some pipes having been in operation for over a century. The extensive scale of the network and the associated costs mean that pipe replacement cannot occur at a pace that can reduce the overall age of the network. Aging pipes are more susceptible to deterioration due to corrosion, material fatigue, and environmental stresses (such as ground movement due to extreme weather conditions), leading to increased incidences of leakage and failures, making the DWDS increasingly difficult to manage.

Additionally, significant time, energy and capital is spent to ensure that drinking water quality is incredibly high. Leakage, of course, results in the loss of significant volumes of treated water—nearly 3,000 million litres per day were lost in England in 2019-20—but also poses risks to water quality. When combined with negative pressures, leaks pose the risk of contaminant ingress from the pipe’s surrounding area, undermining the extensive efforts dedicated to maintaining high water quality standards.

Leakage is not a new problem. According to the 2023 National Infrastructure Assessment, the water industry has reduced leakage by about 30% since 1992. This is due, in part, to the sector’s efforts to understand the fundamentals of leakage and water company’s willingness to share the results and learnings from projects (the Leakage Innovation Heatmap is a great example of this).

Climate change introduces new complexities. The extreme weather events of recent years have caused additional stress on our infrastructure, furthering the degradation of pipes and causing more leakage. Higher average temperatures, increased precipitation intensity, and

more frequent extremes in the hydrologic cycle all make the already strict regulatory guidelines around leakage even more difficult to achieve.

Ofwat, the economic regulator for the water utilities in England and Wales, has set the target of reducing leakage by 13% (to the lowest level since privatisation) by 2030. The 2023 National Infrastructure Assessment identified that to continue to supply the same quantities of drinking water to UK populations in 2050, there is an estimated supply gap of 4,000 Megalitres a day (which has since been adjusted to 4,800 MI/day) and suggest that by halving leakage we can save 1,400MI/day.

Continued innovation and investment are needed to improve the efficiency and reliability of water distribution and manage leakage. Specifically, there are four main areas for intervention (known as PALM):

- **Prevention:** Proactive strategies to minimise the occurrence of leaks and maintain infrastructure integrity.
- **Awareness:** Monitoring and analysis of the DWDS to detect anomalies, gain insights and identify potential leaks.
- **Location:** Techniques used to precisely identify the exact position of leaks within the network.
- **Mend:** Efficient repairs of identified leaks.

The Leakage Innovation Heatmap shows that, across the sector, 52% of leakage spend is in the “Mend” category. However, only 13% of live innovation occurs in this space. This large discrepancy highlights the need for new solutions that can help water companies efficiently repair the network.

## The Challenge

### **How can we efficiently repair leaks in drinking water pipes while minimising excavation?**

As water companies continue implementing solutions in the “Awareness” and “Location” areas, they are increasingly interested in innovative solutions that can help them expedite repairs with minimal disruption and reduced costs.

Traditional methods for repairing pipes include the use of a clamp-on fittings to surround and stop the leak and the replacement of entire sections of pipe. This is costly, time consuming, and has environmental, carbon and customer impact, including traffic disruptions.

Spring invites innovators to provide solutions for replacing drinking water pipes with minimal excavation, known as “low-dig” or “no-dig” technologies.

Some specific challenges of this working environment are:

- For low-dig solutions, water leaks will need to be accurately located to within centimetres, so that unnecessary excavations are avoided.
- Excavations may need to be carried out in a wet environment, which potentially will additionally cause problems with reinstatement.
- For low-dig solutions, the repair may need to be carried from the surface in a potentially water filled and low visibility environment.

- A significant proportion of disruption water mains are 100mm and lower. Inserting repair devices into such pipes is extremely challenging.
- There are significant regulatory requirements for working with potable water. For example, Regulation 31 requires that all materials, products, and processes that come into contact with drinking water must be approved by the Drinking Water Inspectorate.

## **What we are looking for**

Water companies are interested in solutions that will allow them to carry out selected water leak repairs at depths of up to one metre without carrying out large excavations. Ideally, any necessary excavations would be carried out through an entry hole the size of an A4 piece of paper.

Solutions capable of repairing pipes at deeper depths than one metre are not excluded from this Call for Innovation. The cost benefit of being able to repair deeper mains without major excavation is greatly compelling, however technology readiness level may be lower. In the UK, drinking water pipes should be laid at a minimum depth of 750 mm and a maximum depth of 1350 mm below ground level, although the majority of the DWDS is at depths of up to one metre, hence the focus on this depth for the Call for Innovation.

We are particularly interested in solutions from outside of the water sector.

Solutions may include:

- Highly accurate methods of locating water leaks without excavation
- Methods of excavating in wet environments
- Long handled tools adapted or developed for repairing water leaks
- Methods of carrying out repair work in water filled low visibility environments
- No-dig repair solutions that can be easily and safely inserted into the water network
- Holistic solutions that combine two or more of these methods

Successful solutions for Spring Accelerator 5 will significantly contribute to the sustainability and resilience of our water supply systems, help water companies meet and exceed regulatory targets, and safeguard resources for future generations.

## **Benefits to Innovators**

The Spring Accelerator focuses on bringing the right people together to drive forward the adoption of solutions. Successful innovators can expect to have their ideas seen and heard from the people in the UK and Ireland Water Industry who want and need solutions and are guaranteed feedback on their solutions from these experts.

The goal of the Spring Accelerator is to speed up the process of finding, progressing, and adopting solutions to a given water industry challenge. This means that those who successfully navigate the accelerator process will go on to progress their solution with one or more water utilities. This could take the form of mentoring, the solution being mobilised with one or more water companies to test the solution in context, or anything in between.

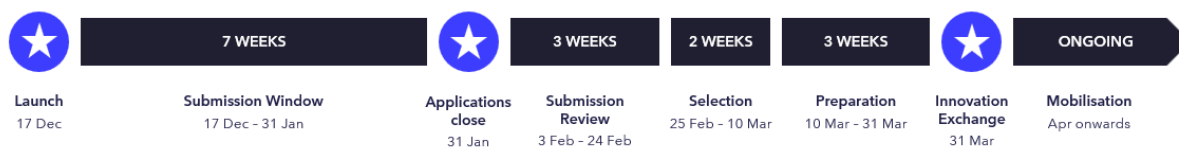
At this time, financial support is not offered as part of the Spring Accelerator process. Project/trial delivery is at the discretion of the water companies involved.

Spring will also act as a knowledge transfer partner for projects that are mobilised to ensure learnings are shared across the sector.

## Deployment Timescale

- Launch of the competition: December 17<sup>th</sup>, 2024
- Deadline for applications: January 31<sup>st</sup>, 2025
- Selection & notification of finalists: 10<sup>th</sup> March 2025
- Innovation Exchange pitch day: 31<sup>st</sup> March 2025

A more detailed timeline is displayed in the image below. Please note, dates are indicative and are subject to change over the duration of this challenge period.



## Eligibility Criteria

- You can submit more than one entry to the Challenge.
- Innovators can be UK-based or international.
- Priority will be given for solutions not previously trialled in the UK and Ireland.
- The Accelerator is open to all innovators who have an idea or solution that addresses the challenge statement.
- Applicants may be individuals, businesses, consortia, academics, or partnerships.

Further information can be found in [SA5 Terms and Conditions](#).

## Application Form

To apply for Spring Accelerator 5, you will need to create an account to log in to the Spring Platform. This can be completed by following the link to the Spring Accelerator 5 [website](#).

The questions and character limits can be found in our [Innovator Guidelines](#) document, which can also be found on the Spring Accelerator 5 [website](#).

Please do not submit any confidential information with your application.

## Assessment Criteria

Submissions for the Accelerator will be pre-screened by Spring's team of industry experts. This initial filter focuses primarily on the quality of the application, not of the proposed solution.

Applications will be pre-screened on:

- How relevant is the submission to the challenge?
- Does the proposed solution show novelty?
- How well is the application completed?

Following the Spring internal review, successful submissions will then be reviewed by subject matter experts (SMEs) at the participating water companies for that challenge.

Successful applications will be assessed on:

- Would the submission be of benefit to the water sector?
- Would the submission be of benefit in your water company?
- Would the solution help the water sector achieve the challenge statement?
- Would the solution help your water company achieve the challenge statement?
- Does the proposed solution show novelty?
- Do you think the solution is realistic for the water sector? Is there a clear and feasible amount of investment be required to make this solution possible in the water sector?

In the spirit of supporting innovators and providing a transparent and valuable challenge process we have provided the scoring criteria that will be used to assess submissions. See [Innovator Guidelines](#) Section 3.2 for further information.

Those applicants who are successful in their Call for Innovation application will be invited to pitch their solutions to key water company stakeholders at the Innovation Exchange. Further details of these steps can be found in the [Innovator Guidelines](#) Section 2.2.

## **IP & Potential Commercial Route**

If your idea, product or solution is successful all intellectual property rights will be discussed on a case-by-case basis with the water companies mobilising a continued project. Spring's intellectual property rights position is to allow the idea submitter to retain all intellectual property over their idea, product or solution. More information can be found in [SA5 Terms and Conditions](#).

## **Background: Spring and the Accelerator**

Spring Innovation was founded in 2021 as the Centre of Excellence for UK and Ireland's water sector, dedicated to accelerating industry transformation through innovation and collaboration. We are the custodian of the Water Innovation Strategy 2050, a document that outlines key themes, opportunities, and drivers for innovation across the water sector and the huge gains that can be made by approaching these collaboratively. This document drives all of Spring's work and our mission to connect, integrate and enhance innovation excellence within and outside the water sector. You can find the Water Innovation Strategy [here](#).

The Spring Accelerator calls out for specific implementable innovation for water companies to trial, progress and adopt as a collaborative group - facilitating collaborative working and breaking down barriers. Our current programme, Spring Accelerator 5, sits inside Water Innovation Strategy 2050 Theme 6: 'Taking a whole-life approach to responsible consumption and production.'

Our challenge statement has been designed in collaboration with the sector. Water utilities have been instrumental in selecting and refining our challenge area. We then hosted an Ambition Surgery, our problem definition and challenge setting mechanism, and brought together utilities, suppliers, academia and regulators to help us articulate the specific set of issues our challenge should focus on. This was then validated and further developed with a cross-sector group of subject matter experts. Thank you to everyone who helped develop this challenge.