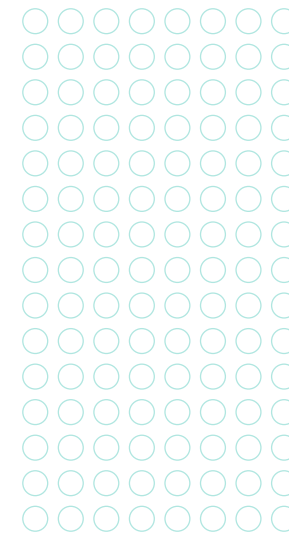




# INNOVATION IN THE WATER INDUSTRY

Report into the findings of an exclusive WWT survey



## Inside:

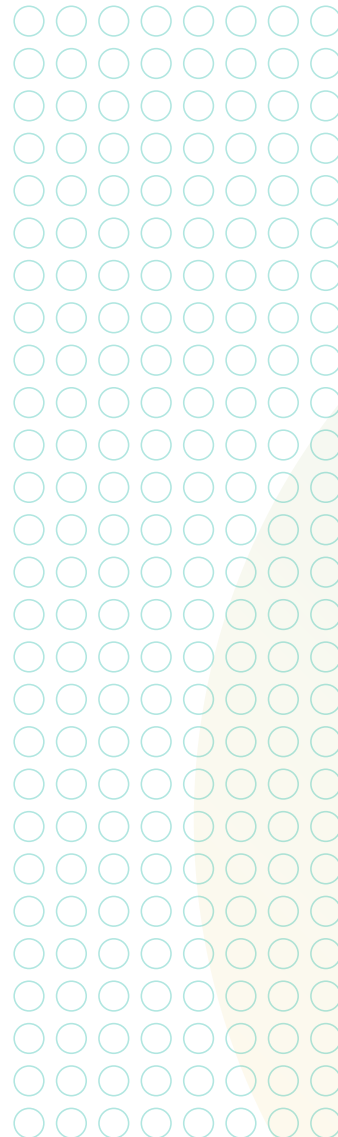
- Barriers to innovation
- Company culture
- Ofwat funding
- Staff views

In association with:



## Implementing change

As water companies come under pressure to up their game on innovation, WWT in association with UKWIR (UK Water Industry Research) carried out an exclusive survey of directors, heads of departments and managers in water and water & sewerage companies to find out more about activity levels, barriers and preferred incentives to encourage new ideas and processes. The findings indicate no shortage of enthusiasm, though differing approaches between more senior staff and their managers show how hard implementing innovation is proving.



### Key findings:

- 100 per cent of respondents rated innovation as important or extremely important.
- Almost eight in 10 respondents support Ofwat's proposed innovation fund, with 76 per cent favouring a combination of a collectively funded competition and a reward for the successful roll-out of innovative solutions.
- Seven out of 10 respondents (70 per cent) say that their organisation pursues incremental innovation, as opposed to 'disruptive' innovation.
- Fewer than half of all respondents (46 per cent) agree that their business recognises and rewards innovation.
- Perceived barriers to innovation vary considerably by business type and seniority – the highest rated barrier was the lack of infrastructure to fast-track ideas from inception to implementation.
- Water & sewerage companies are more likely to believe in a range of innovation enablers. Open data ranks highest amongst water and water & sewerage companies.
- Almost half of respondents are unaware of the level of innovation investment within their companies.

## Introduction

It's widely acknowledged that water organisations have yet to embed a strong innovation culture. It's also clear that innovation needs to be much higher on their agenda if they're to meet the requirements imposed by Ofwat in terms of reduced leakage, lower individual consumption, fewer supply interruptions and greater sustainability.

To accelerate the pace of successful innovation, Ofwat has proposed a £200 million innovation fund and has been consulting on how the sector would like this to work.

But that's not to say the sector is starting from a zero baseline. Re-engineering processes, harnessing new technology and looking at ways to promote collaboration have been getting a foothold, and the sector is not short of initiatives or people with innovative ideas. The problem is how to implement innovation into large, corporate structures which by their nature are not fast or nimble adopters. A common debate across the industry is the need for greater collaboration to bring about change in scale, whereas internal company discussion is often around whether innovation be directed from the centre – or should it be part of everyone's role.

Among those in the vanguard of innovation is Northumbrian Water, which has also instigated an Innovation Festival, where over the past three years 2,000 people from more than 500 organisations have assembled to collaborate on creative approaches to new ways of working. To date, nearly 80 ideas have been implemented into the business, including the use of AI, digital

twins and underground mapping. What's more, this September Essex & Suffolk Water, owned by Northumbrian have joined up with Anglian Water to launch Innovate East to help tackle some of the most pressing industry, regional and social challenges. Meanwhile, Southern Water is cultivating innovation through a standalone unit that is dedicated to devising innovation-led improvements, many around digitalisation and United Utilities, is pioneering a new form of procurement as a way of bringing on board smaller innovative companies which are not quite ready for the market and can be locked out by traditional procurement rules. One of its success stories is bringing on board the Canadian start up Emagin to become the first water company in the UK to introduce large scale artificial intelligence into its operations systems.

Then at cross-sector level we have the Water Industry Forum, British Water Innovation Exchanges, and Ofwat's Spark Initiative, to name just a few.

These are all promising initiatives but how much has the innovation bug caught hold in water? Are those who are embracing innovation getting it right? And what barriers still need to be knocked down? In order to gauge the extent of innovation activity across the water sector, and the appetite for large-scale change, WWT invited senior executives and managers from a selection of water companies and water & sewerage companies to take part in an email and telephone survey carried out in September and October 2019. We received 33 responses from 13 different water companies.

In this eight page report, we analyse the findings.





## Who took part in the survey?

Of the 33 individual responses, 73 per cent came from water & sewerage companies and 27 per cent were water-only companies. Chief executives, board and other directors and heads of department made up 42 per cent of respondents; the other 58 per cent were managers. In terms of the 42 per cent that made up the senior cohort, of these nine per cent were directors and the other 33 per cent were chiefs or heads of department.

The respondents worked at Yorkshire Water, South West Water, Bristol Water, United Utilities, South Staffordshire Water, Anglian Water, Severn Trent, Southern Water, Affinity Water, Thames Water, Cambridge Water, Northumbrian Water and Dwr Cymru Welsh Water.

The research was carried out for WWT during September and October by Andrew Smith, founder and lead researcher, Insight Advantage. Research was carried out by email and telephone.

## Overwhelming recognition for more innovation

There was certainly overwhelming recognition that more must be done by water companies if they are to satisfy regulators' requirements across a range of issues including sustainability and leakages.

For PR19, the regulator has set out four broad priority areas where it wants to see standards improve across the board – namely affordability, customer service, resilience and innovation.

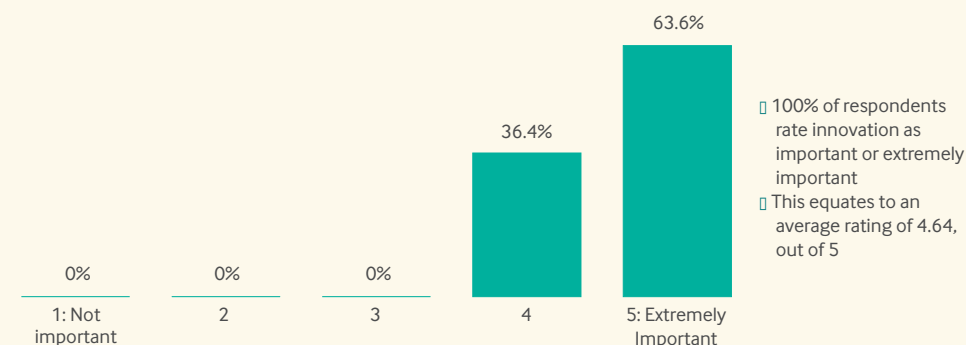
When asked how important they thought it was for both types of water companies to increase their innovation and ambition over the next five years, the answer was unequivocal. The headline finding was that 100 per cent of respondents believe they should raise their game in this way, with 36 per cent seeing this as extremely important and 64 per cent as important. Given that innovation is essential to tackle the range of challenging problems facing the sector, this is a reassuring if unsurprising result. Interestingly, managers ranked innovation higher in response than their bosses: 4.79, out of 5, compared with 4.45 (chiefs/head of department) and 4.33 (directors or above).

Respondents were, of course, very aware that in its final methodology for PR19, published in December 2017, Ofwat stated that "innovation must be at the core of every company if they are to successfully address the challenges facing the sector, deliver long-term resilience and provide great customer service at an affordable price".

Ofwat has stated regularly that it is keen to facilitate innovation by giving companies the flexibility and freedom to adopt innovative means of delivering

### The entire water sector agrees in the importance of innovation

**Q: How important is it that the UK water companies increase their innovation activity and ambition over the next five years? Please indicate the importance on the scale from 1 to 5**



	Overall	Water & sewerage	Water only	Manager	Chief/Head of Dept	Director or above
Average Rating	4.64	4.71	4.64	4.79	4.45	4.33

Interestingly, there appears to be a direct relationship between seniority and importance placed on innovation

services. In PR19, it said: "We promote innovation by setting water companies stretching outcome performance commitments which encourages companies to look for innovative ways of delivering better services to customers and improving the environment."

Water companies also have a major incentive to innovate in order to meet their commitments to reducing supply interruptions, internal sewer flooding, pollution incidents, leakage, and water use per person.

Ofwat's initial assessment said no company's business plan was sufficiently ambitious, innovative and high quality to be awarded 'exceptional status'. Only three companies were categorised as fast-track, with 10 as slow track and four in the significant scrutiny category.

Ofwat has said that while it thinks all the plans reflect the importance of innovation, most companies had some way to go. Final determinations are due to be made in December.

## Top management and staff see innovation differently

Senior bosses believe they are doing more to create a culture of innovation than their teams do – and both agreed that not enough is being done to incentivise staff to come up with new ideas. These were the findings when we moved on to asking respondents how their companies are approaching innovation.

When asked whether the board and senior leadership team of the business are fully aligned on the need for innovation, four out of five somewhat agreed or strongly agreed that was the case; but there was a discrepancy of views when this was split down by job functions. Our findings reveal that a sizable section of managers (who made up 58 per cent of survey respondents) are unconvinced that senior leadership is pursuing innovation effectively.

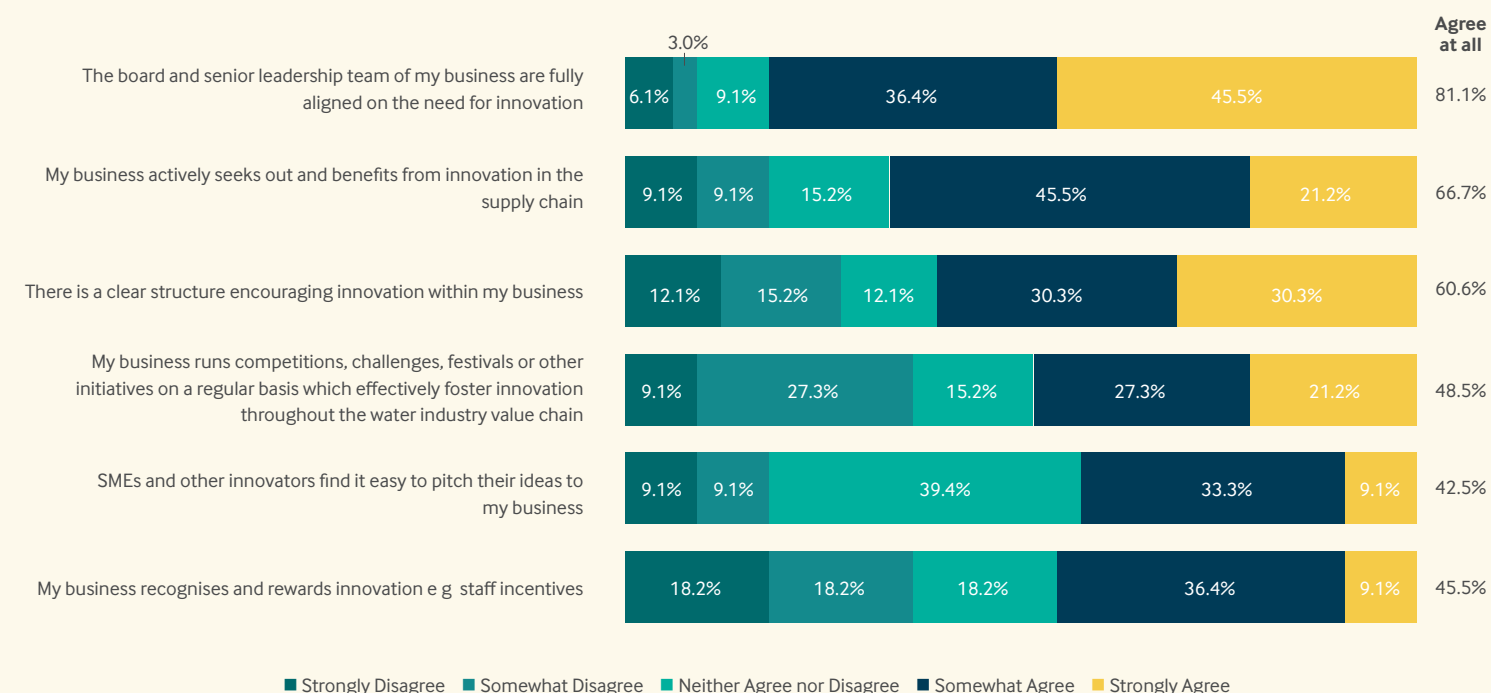
Although 74 per cent of managers strongly or somewhat agree that their senior teams are fully aligned on the need for innovation, only 16 per cent of managers strongly agree that their business seeks out and benefits from innovation in the supply chain.

Similarly, although fewer than one in 10 of heads of departments and chiefs (nine per cent) think SMEs and other innovators have difficulty pitching innovative ideas to them, one in four managers (27 per cent) believe innovators, from whatever type of company, would find it difficult, suggesting untapped potential for harnessing innovation.

The findings suggest a possible disconnect

### Innovation is a top-down approach, however senior teams need to improve incentives and recognition

Q: To what extent do you agree or disagree with each of the following statements?



between senior management and lower-level managers on the best approach to innovation.

One area of agreement is on recognising rewards for innovation. Here, 37 per cent of managers say their business does not recognise or reward innovation; this figure rises to 45 per cent of bosses.

There's similar agreement in terms of the structure for encouraging innovation. Across all respondents, six out of 10 say there is a clear structure encouraging innovation within the business – and both chiefs and heads of departments agreed or strongly agreed (55 per cent) and managers felt the same at (58 per cent).

Encouragingly, in terms of new initiatives to foster innovation throughout the water industry value chain, nearly half of all respondents (48.5 per cent) agreed or strongly agreed their companies are running competitions, challenges or festivals.

## Disruptive versus incremental approach to innovation

The arrival of artificial intelligence, advanced data analytics and voice-activated devices and so on might make for major disruption in the sector.

But overall our findings showed that across the sector just three in 10 respondents characterised innovation in their organisations as disruptive.

The rest of respondents said they characterised innovation as being incremental. When this was split down by job function, one in four managers (26 per cent) characterised innovation as being disruptive, with heads of department slightly lower at 18 per cent; whereas 100 per cent of directors said it was disruptive – though the sample size of directors was much smaller.

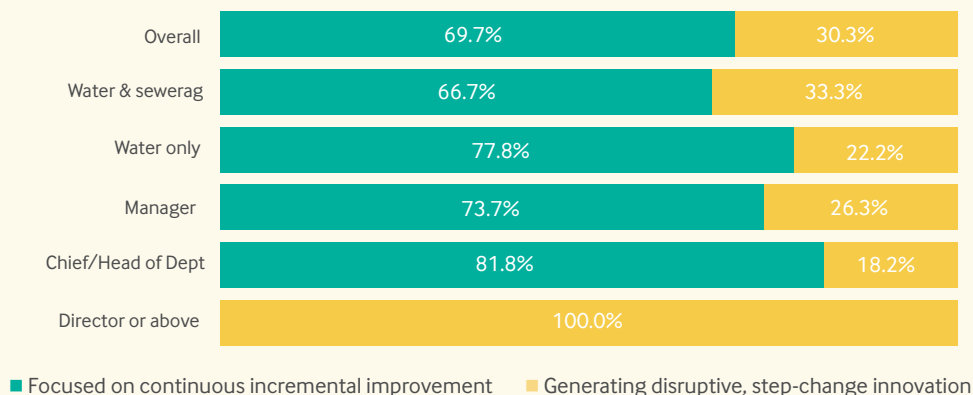
Turning to the different approaches favoured by the

different types of organisation, water companies characterised their approach even more along these lines - 78 per cent of respondents as opposed to 22 per cent for disruption. By contrast, 33 per cent of water & sewerage companies said they favoured the disruptive business model.

Though it wasn't put to respondents, there is also an ongoing debate in the sector whether innovation is best pursued as part of the day job or through special innovation units set up to harness new thinking and processes. How companies innovate wasn't put specifically to respondents but the strong findings that incremental innovation is the favoured approach might suggest that innovation is seen as being part of staff's day jobs.

### The majority focus on incremental innovation, whilst directors look for a disruptive approach

Q: How would you generally characterise innovation in your organisation?



## Barriers to innovation

There are many reasons why innovation is not accelerating but non-supportive internal structures were seen as the prime barrier to implementing new ideas. Questioned in the survey on the main barriers to innovation in their companies, the lack of infrastructure to fast-track ideas from inception to implementation was seen as the most significant obstacle. This was felt a little more strongly by the water & sewerage companies than water-only companies. It was also felt slightly more strongly by managers than heads of department and considerably more so than by directors (3.89 out of 5 compared to 1.67)

Lack of available internal funding was the second biggest impediment to innovation, and this was felt more strongly by water-only companies than water & sewerage operators (4.11 compared to 3.17) and by managers.

Unsurprisingly, regulators were also perceived as presenting barriers to innovation. Ofwat was rated

3.34; so was the Environment Agency; and the Drinking Water Inspectorate was rated as 3.31. Heads of department felt this stifling effect slightly more strongly in relation to the Environment Agency than did managers (3.82 compared to 3.17), as did water-only companies (3.11) over water & sewerage ones (3.48).

Another significant perceived barrier - a lack of business focus on innovation - was rated 3.19 across all respondents.

Among other perceived barriers were issues such as: lack of investor support, cultural conservatism in the sector, and a lack of the skills required to integrate, operate and maintain innovations. Additionally, our respondents also listed many more, including not being allowed to fail - unsurprising given the importance of the sector and how tightly its performance is regulated.

	Overall	Water & sewerage	Water only
The lack of infrastructure to fast-track ideas from inception to implementation	3.53	3.65	3.22
Lack of available internal funding	3.44	3.17	4.11
The economic regulator, Ofwat	3.34	3.17	3.78
The environmental regulator, Environment Agency	3.34	3.43	3.11
The quality regulator, Drinking Water Inspectorate	3.31	3.35	3.22
Lack of business focus on innovation	3.19	3.04	3.56
Lack of clarity about where to find funding externally	3.09	2.91	3.56
Lack of support / interest from investors	2.94	3.04	2.67
Lack of a sector-wide innovation strategy	2.91	2.87	3.00
Competition between water companies	2.44	2.43	2.44

## Ofwat's £200m fund crucial

The £200m innovation fund proposed by the water regulator is being seen as a crucial catalyst for technological breakthroughs.

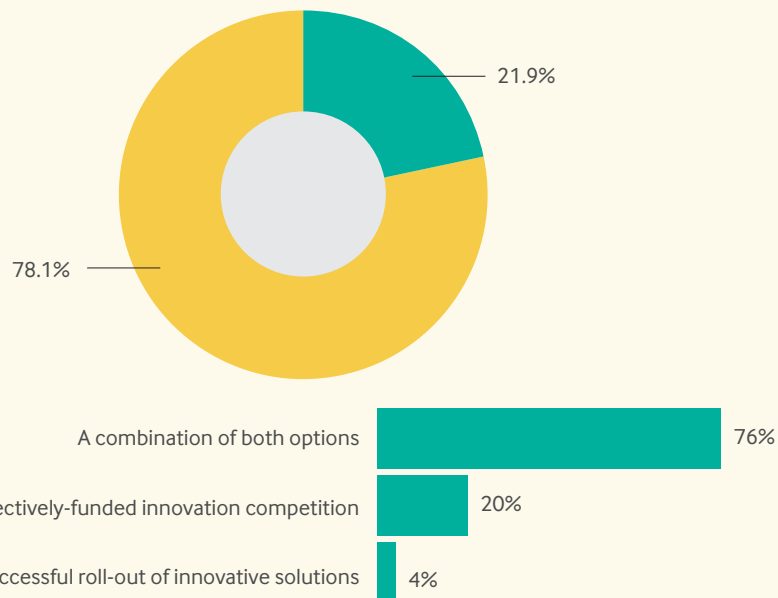
With so many perceived barriers to innovation, it is not surprising four out of five respondents (78 per cent) support a ring-fenced innovation fund, along the lines proposed by Ofwat. The regulator has just completed a consultation on allowing companies to increase customers' bills by up to a total of £200m (shared across all companies) to fund and/

or reward innovation over 2020-2025.

Ofwat is offering three options for the way the fund could operate: a collectively-funded innovation competition, which appealed to one of five of respondents (20 per cent); a reward for a successful roll-out of innovative solutions, which only got approval from four per cent of respondents; or a combination of both options, which appealed to three quarters (76 per cent) of respondents.

### Almost 8 in 10 believe in Ofwat's proposed innovation fund

**Q: Would the water sector benefit from a ring-fenced innovation fund, such as that proposed by Ofwat? Which of the options, proposed by Ofwat, do you favour?**



## Stimulating innovation

There were many ideas respondents supported when asked for their views on a selection of initiatives that would enable innovation and new thinking, particularly in water & sewerage companies, which for the most part scored ideas higher.

Across both types of organisations combined, open data came out top with 3.93 out of 5. It was followed by cross-sector strategy/goal setting (3.87); better coordination between regulators to identify cross-cutting challenges (3.83); a sector-wide portal for innovation challenges (3.83); accessible innovation tool kits/methodologies for sector-wide adoption (3.83); and a Centre for Innovation Excellence in Water (3.7).

A dedicated Centre for Excellence is being proposed by Trevor Bishop, a former director of Ofwat, and now director of Water Resources in the South East (WRSE). Bishop is proposing a £35m ring-fenced innovation fund for the Centre for Excellence, to bring scale and greater coordination of new ideas across the sector and has submitted the proposal to Ofwat.

The idea would appear to carry slightly greater favour from the water-only companies which scored it marginally higher than the water & sewerage organisations, 3.78 out of 5, compared with 3.67.

However, directors were less in favour than other staff members of better coordination between regulators to identify cross-cutting challenges, a sector-wide portal for innovation challenges, accessible innovation tool kits/methodologies for sector-wide adoption, and surprisingly, the Centre for Innovation Excellence in Water.

### Q: To what extent would each of the following enable innovation in the sector?

	Overall	Water & sewerage	Water only
Open data	3.93	3.95	3.89
Cross-sector strategy / goal setting	3.87	4.10	3.33
Better co-ordination between regulators to identify cross-cutting challenges	3.83	4.14	3.11
A sector-wide portal for innovation challenges	3.83	4.05	3.33
Accessible innovation tool kits / methodologies for sector-wide adoption	3.83	3.95	3.56
A Centre for Innovation Excellence in water	3.70	3.67	3.78
A published list of innovation priorities by individual water companies	3.50	3.67	3.11
Better feedback from the regulator on what regulation means for them	3.27	3.52	2.67
Lack of a sector-wide innovation strategy	2.91	2.87	3.00
Competition between water companies	2.44	2.43	2.44

## More room for collaboration

The need for greater collaboration to tackle the huge challenges faced by water companies would seem to be a given and is often called for by those who take the stage at conferences and the results of our survey appear to show there is certainly more scope for it.

Companies regularly collaborate with other organisations to drive internal innovation: the survey showed the chief partners are academic

institutions (4.3 out of 5); SME technology providers (3.48); other UK water companies (3.45); and blue-chip technology providers (3.31).

However, collaboration between different water-only companies only scored 2.89 out of 5, compared with water & sewerage companies, where this rose to 3.70.

### To what extent does your company work on innovation with the following organisations?

	Overall	Water & sewerage	Water only
Academic institutions	4.03	4.50	3.00
SME technology providers	3.48	3.70	3.00
Other UK water companies	3.45	3.70	2.89
Blue chip technology providers	3.31	3.60	2.67
Consumer advocacy groups	2.97	3.10	2.67
Non-water utilities (i.e. energy networks or energy suppliers)	2.69	3.10	1.78
International water companies	2.62	2.95	1.89
Charities	2.62	2.70	2.44

## Levels of investment

Turning to the level of investment companies make available for innovation each year, nearly half of respondents knew nothing about what their companies spent. However, to contextualise, if the modus operandi for innovation is to spread the activity across teams so that it becomes part of the day job, the absolute levels of innovation

investment could be less apparent to staff. From the information reported by those who were aware, the average level of investment in innovation is 1.5 per cent of annual turnover. This figure was slightly higher for water-only companies (1.89 per cent), compared to 1.33 per cent for water & sewerage companies.



## A will to innovate

There has never been more need for innovation than there is today and that is clearly recognised within the sector, not least through the support shown for Ofwat's proposed £200m innovation fund. However, there appears to be a disconnect between leadership teams and other management, on the best approaches to implementing innovation. While employees feel that senior teams are aligned in the need for innovation, there are calls for greater internal incentives and recognition for innovation.

The perceived barriers centre around the lack of infrastructure, internal funding and recognition.

As a counter to these barriers, innovation enablers focus on open data and better coordination across the sector and regulators and there is clearly good support for a Centre of Innovation that is being proposed.

Overall, there is a will to innovate. However, implementation strategies and company cultures are likely to be dampening the impact of efforts to drive change through the organisation – and if innovation is as important as all in this survey attest to, it needs to be further encouraged across the organisation – and right through down the supply chain, which would still appear to be a largely untapped resource.