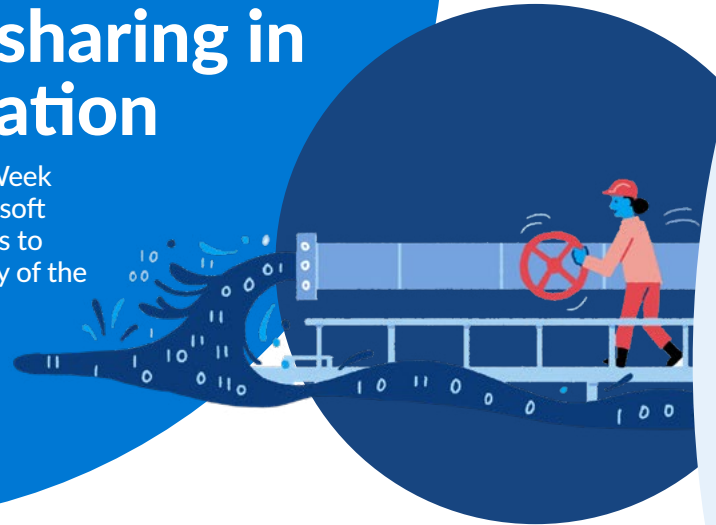


## The role of data sharing in water transformation

Industry leaders came together in a Utility Week virtual round table in association with Microsoft to debate the benefits, barriers and solutions to data sharing in the sector. Here is a summary of the ideas the discussion generated.



### The context of the discussion

Water companies face huge pressure to improve across a number of areas including leakages and customer service, whilst adapting to climate change, and delivering on a pledge to become net zero by 2030.

With data collection at the heart of so many water companies' activities, this virtual discussion looked to explore whether the sector was leveraging data to best attain these and other ambitious goals set out by Ofwat and in the sector's Public Interest Commitments, and how could data be collected and shared across companies to accelerate this process.

It is a timely moment to engage water companies and regulatory experts to debate these important questions. Water companies are gearing up to bid for a share of Ofwat's

new £200 million innovation fund, which is encouraging collaboration and the sharing of ideas and processes; and secondly, Ofwat is in listening mode as it starts a series of consultations to prepare the ground work for its next price review period (PR24).

The regulator has launched a forum for stakeholders to suggest how the sector should evolve over the next two decades and will outline its initial views around the framework and approach to PR24 in May 2021. It plans to release the draft methodology in summer 2022. Ahead of that it is inviting input to its Future Ideas Lab forum to explore how regulation can support companies reaching climate goals, delivering on net zero, improving water efficiency and cutting leakage.

### Key points

There is widespread support for greater data sharing as a means of tackling some difficult and complex issues facing water companies

There is an urgent need for the sector to come together to agree on methodology and standards for structuring, collecting and reporting data as a foundation for data sharing

Water research bodies are best placed for facilitating this – though technology companies could play a role

Regulatory incentives need to be rethought to encourage more collaboration and less competitive behaviour over and above those offered in the Ofwat's innovation fund

Companies could support student research programmes as means of getting more data analytics skills into the sector and help overcome shortages which were potentially holding back collaboration

Collaboration on measuring per capita water consumption, which has changed during the pandemic, is a timely and a much-needed area to pool resource and share information.

## Collaboration makes sense – but there a number of barriers in the way

There was a firm view that greater collaboration makes sense across water companies. There was therefore support for Ofwat's £200 million innovation fund for water to help tackle the huge challenges presented by climate change and population growth – as it was agreed that it's not sensible for 17 companies to all be trying to solve these questions individually. Working on problems together could provide better value for money.

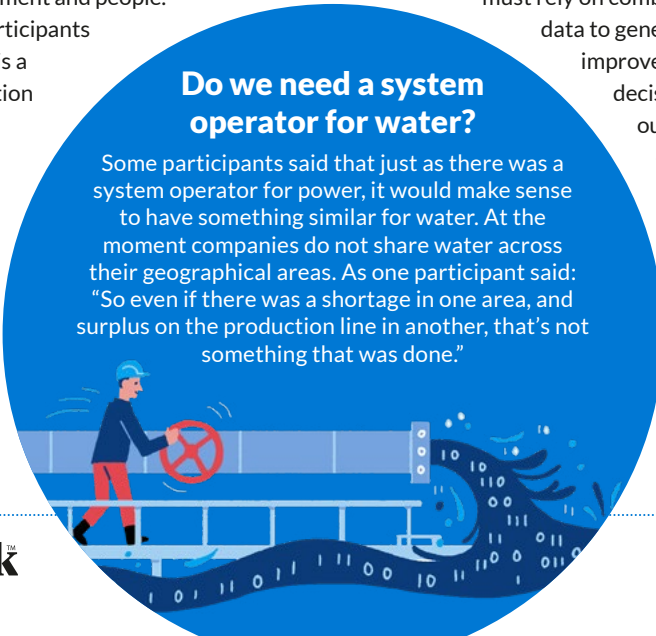
Ofwat has confirmed that It is advocating an open data approach to successful projects so that customers around the country can potentially benefit from lower bills and a greener future.

Around 90 percent of all data that has been collected in the world is estimated to have been generated in the last two years. And as the sector undergoes digital transformation too, the sector is becoming awash with data from data, from products and devices, sensors in the network, or statistics about employment and people.

As a number of participants also pointed out there is a great deal of collaboration already in the sector and data that is shared or made openly available for a number of purposes, including leakage and customer measure of experience.

### Do we need a system operator for water?

Some participants said that just as there was a system operator for power, it would make sense to have something similar for water. At the moment companies do not share water across their geographical areas. As one participant said: "So even if there was a shortage in one area, and surplus on the production line in another, that's not something that was done."



"We do gather data collectively, for example to review where we are on carbon as a sector," explained one participant, adding, "and much of the regulatory reported data used for benchmarking is all gathered in the same way and available."

## The need for data standards and structured data

While there was agreement amongst the group that sharing data in theory was a good idea, increasing the sharing of data has a number of practical challenges. And as we heard during the discussion, Ofwat is keen to establish what these barriers are.

A key theme to emerge from the discussion was the lack of standards in the way that data is collected and presented across the sector, which made it difficult to share in a meaningful way. It was felt that before data could be shared companies, "must get their own house in order".

To be able to meet these demands, the water industry must rely on combining consistent, accurate and reliable data to generate insights that can be used to improve knowledge, understanding and decision making. As participants pointed out, there was sometimes not even consistency within organisations, let alone across different companies.

It was agreed that teams need to collaborate and agree upon common standards for defining and modelling key business and how data about these can be improved and shared across information systems.

"Part of the concerted effort of our corporate data strategy involves aligning multiple data management teams that exist within the organisation," said one participant. Others agreed: "Data quality is so important before sharing. What is the set standard and level of data sharing? Some areas we will have great data quality in same format etc. others not so much. And we need to structure the data in standard way."

An example of where information was often not generated in a standard way was environmental data collected locally in their work with farmers, with whom water firms tend to work closely on catchment management and also in terms of controlling run off chemicals into water courses.

It was thought that the UK Water Industry Research (UKWIR) and the Water Research Centre would be well placed to come up with more standards around structured data. It was also thought that technology companies could play a key role.

## The pressure of competition

Though they are not in direct competition for customers, Ofwat uses a number of regulatory tools which involve comparing companies – for example, in the assessment of costs to set price controls, Ofwat does this by looking at the companies which have been most efficient and use this to benchmark others. The water regulator sets similar challenges with some of the outcomes, such as leakage, if these are comparable across companies.

This means companies see themselves as in competition with each other, even though they are regional monopolies, because they can potentially make profits by being efficient. One participant mentioned that this was particularly strong in retail with incentives such as SIM or C-MEX, where the

company ranking for customer service makes a very large difference to allowed revenues.

That can lead to companies being reluctant to share advantages they have, including things like open data. So, while they generally saw the benefits, there will always be a challenge from shareholders to keep the competitive advantage.

A participant with a regulatory expertise put this in context: “Regulators know this is a tricky balance, of course. But setting incentives based on comparative efficiency and performance really does drive a lot of value for customers. We’ve seen lower bills and better outcomes because of exactly this approach.

“The trick is to find ways to incentivise collaboration without undermining the incentive for efficiency and performance – so customers get the best of both worlds.

“For example, the innovation competitions that Ofwat is running at the moment help to support that, by explicitly ringfencing money for innovation on the condition that this is shared with the sector - for example, any research data has to be open. Companies have to bid for this money, mostly for projects in partnership with others. This means that expenditure on innovative projects doesn’t hit any company when it comes to regulatory benchmarking, and so there is no longer a disincentive to share the innovation.”

The participant continued: “We’re doing lots to join people together across the sector and beyond too. But removing barriers like this is quite important. And just to add to that, the bigger the dataset the more learning to be had. If we are keeping data internal, we are missing the opportunity to learn and get better insights - this is therefore the benefit that should outweigh competition.”

Smaller water companies have argued however that they can be disadvantaged in trying to bid for Innovation funding cash, because of resources.

Having greater volumes of data can be particularly relevant where water companies are using artificial intelligence to solve problems, where they need to sift through huge volumes to be able to ‘learn’ to be able to identify what the programme was looking for.

One such initiative mentioned in the discussion was by a participant from United Utilities which is using AI to detect sewer leaks.

### The effort outweighs the rewards

Others in the discussion felt that the competition versus collaboration was something of a red herring and the fact that information did not get shared was more to do with geography. “It’s hard sharing data – and requires huge effort and resource that can be very hard for companies to commit to,” was a comment from one participant, which drew agreement from many present.

There was a feeling for some that being open with data didn’t always pay in other ways as well. “Sometimes it’s hard to quantify the benefit of open data, but the risk can outstrip the reward,” said one participant, citing an example of the backlash received by one water company when it had been open about its struggle with tackling pollution incidents.

A shortage of people with data analytics skills was also holding back efforts in some organisations, whilst others were looking to boost these skill sets: “We’ve seen a huge increase in demand for data science. We’ve grown our data science and product teams in response to this but we need to look beyond this to understand how we increase our data capabilities across our organisations,” commented one participant.

For another, supporting studentship programmes such as WIRE (Water Infrastructure & Resilience) and STREAM, an

international exchange programme, have been key to bringing in new talent and skills for data science through PhD and EngD students working on predictive tools. “Some have then stayed and are now working in the data and analytics teams,” reported one participant who had found the programme particularly successful.

### Moving forward – sharing consumption data

If the agenda on data sharing was to move forward to the benefit of the sector, it was agreed that kickstarting a pilot project would be the best way forward. Asked in which area water companies could benefit most from sharing data, it was agreed that consumption data would be a good place to start. Customer engagement and smart metering have not traditionally been areas that water companies have worked together in.

Yet as has been widely reported and debated, the pressure on water supplies is increasing as a result of climate change affecting weather patterns and because of rising population.

The Environment Agency has warned that around 3,435 million extra litres of water could be required each day, if no action is taken to improve water usage between 2025 and 2050.

It’s vital therefore for water companies to have as much information at their disposal about water consumption, both to plan and to help change behaviours of the consumers to reduce consumption.

But changing behaviour is incredibly difficult. As one participant in a wetter part of the country pointed out. “Customers have looked at me in disbelief when I have talked to them about reducing consumption. They would rather we improve our water resources and enable them to use as much as they would like, than have to change their

ways. Covid has just made this even harder.”

Said another: “We actually need to shift our focus to total demand and reducing wastage rather than just the messages to use less. Also in the water industry we very rarely talk about the link between water usage and climate change...why is that?”

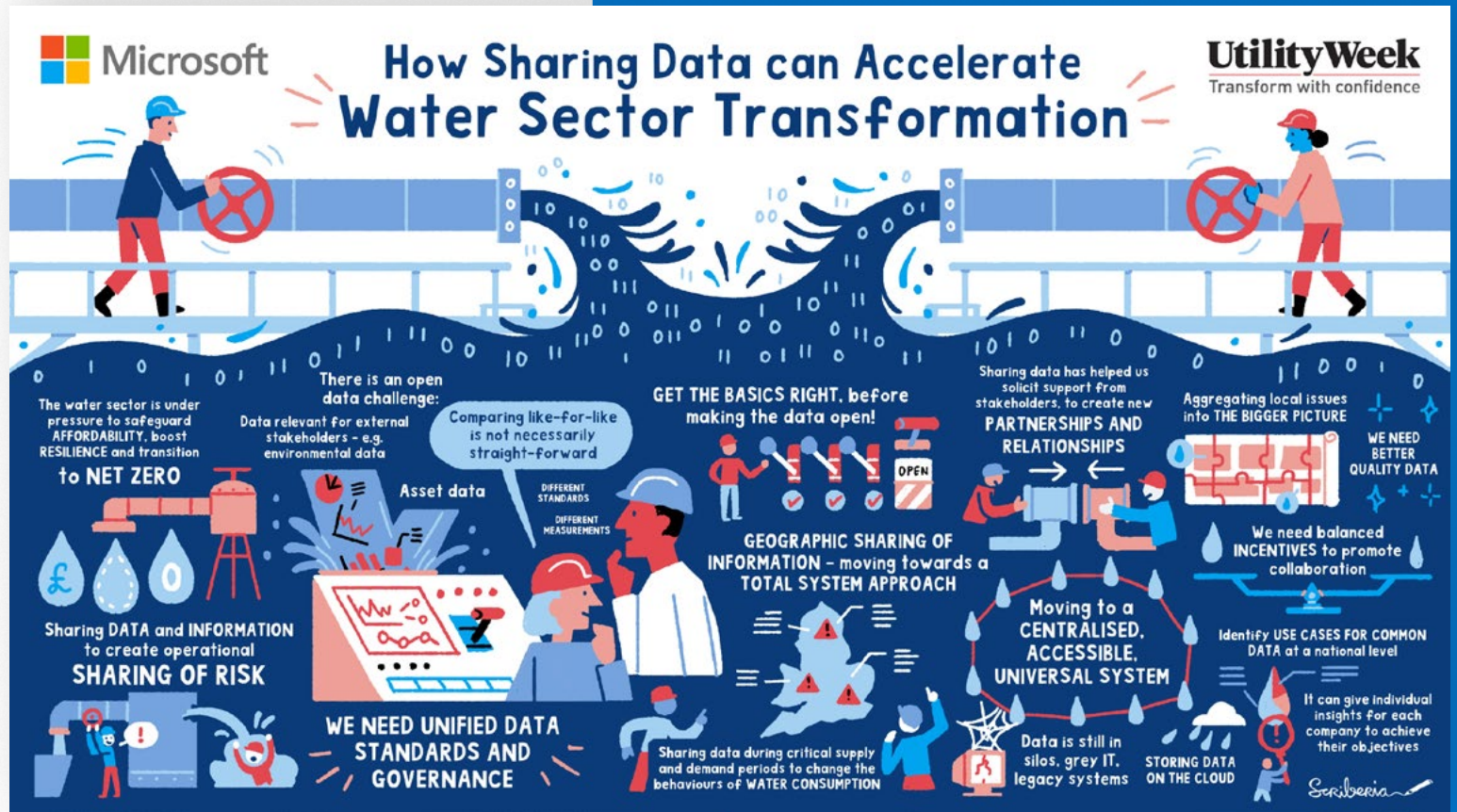
Measuring the cost per capita consumption is one of the performance commitments in the PR19 programme. The average consumption across the country – at 141 litres per person per day – compares unfavourably to similar countries such as Germany (121 litres) and the UK government has set an aspirational target for the sector of 130 litres per person per day. The situation has been exacerbated by the pandemic – a number of studies have shown that consumption has risen during the past year.

Metering is the strongest tool in the box for reducing consumption, with metered customers using 33 litres less per day on average according to reports. But measuring water consumption per capita is notoriously difficult in areas where metering is entirely voluntary for households.

One method being explored by one water company to change behaviour was looking at energy usage and linking that to water consumption – as one of the biggest consumers of energy is heating up hot water.” We are assessing potential energy savings when we do smart home visits for new smart

meter customers but there’s absolutely potential to link water and energy consumption and carbon emissions at a more systematic level,” explained one participant.

Ofwat has come up with guidance as part of the PR19 programme, but has acknowledged in its guidance that “there are a number of areas which would benefit from future independent research to determine good practice. Proposals for further research in the future should be considered by the water industry. In the meantime, this guidance sets guiding principles and these may be refined and improved as further research is concluded.”



## The next steps

Rina Ladva, Head of Manufacturing, Energy, Utilities & Life Sciences at Microsoft UK, and her colleague Steve Chawner, director utilities at Microsoft, said the company would be keen to support the water sector in its efforts to develop data sharing in this area.

Ladva said that Microsoft was keen to get behind the idea as part of its commitment to the environment. By 2030 the company has pledged to be water positive, meaning that it will replenish more water than it uses.

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