

Arthur Jones (00:06):

Like most markets and industries globally, the water sector is facing greater and more complex challenges due to climate change, population growth, rising in costs, and a shortage of incoming talent. The question is, how can water companies deliver the best value for customers by turning these challenges into opportunities for people and places?

(00:27):

In this episode, we unpack innovation, core values and close collaboration between Jacobs and Northumbrian Water, which supplies 2.7 million people with water and wastewater services in Northeast England and 1.8 million people with water only in Essex and Suffolk. My name is Arthur Jones and I'm joined by our guests, Heidi Mottram CBE, and CEO of Northumbrian Water Group, and Kate Kenny, senior vice president and general manager for Buildings and Infrastructure Europe at Jacobs.

Heidi and Kate, thanks for joining us on this podcast.

(00:58):

So, there are several parallels between the two of you starting with the fact that you're both inspirational leaders and trailblazers, but you also both started out with different goals and career paths. Heidi, I believe you wanted to be a national parks ranger. And Kate, as you studied pure math, the two conventional options for you were either to be a teacher or an accountant. Thankfully, you both ended up bringing your expertise to the water sector. And notably, Heidi, you were the first female CEO of a major British water company. And Kate, you've won several awards for your leadership. You've also both had successes in other sectors, especially in the railway industry. So what would be the leadership and career lessons you've learned from other sectors and brought over into your current roles? I'll start with you, Heidi.

Heidi Mottram (01:42):

Thanks very much. And thanks for reminding me about that national park warden ambition that I had because in a way I think I've probably come full circle to it because one of the great things about working at a water company, of course, is that we have such an incredible connection with the environment and that was what was driving me at the time, a love of the environment and landscape. I actually went on to study geography at university, so that's clearly something deep inside me.

(02:12):

But yeah, so I spent the first part of my career in the railway industry and then more latterly came into the water sector. And if I think about things that... And there's quite a lot of relevance I think between both of them to be perfectly honest. But I think things that drive me and make me think is about having a really strong sense of purpose about what you are. There are things that we often use in management like vision and missions and all these things. And to me, they've always really mattered. What you say you stand for, the values that you live by, the goals and targets that you go for, I think it's incredibly important that an organization understands why you've got them, believes in them, and everybody feels an allegiance to them. I think when you do that, it works really, really well. So I think that's the first one, really being clear about that and being serious about it and having an ongoing conversation, a dialogue with the people in the organization about why that matters.

[\(03:14\)](#):

And more and more so I think particularly younger people, are very values driven, very purpose driven, but I've always been like that and always felt that strongly from my heart as well as my head. I think other things I'd probably say is, and I say this to people in the company, people work for people. They think that they work for organizations, but in reality, they work for the person at the top of that organization, which I feel is a very strong responsibility to be worth working for or their direct line manager. And so leadership, personal leadership is critically important and how you make the people around you feel because that's the thing that will make them decide whether or not it's worth working hard, giving that extra discretionary effort, throwing themselves into it. So being there and being a good leader and being worth working for, I think, is a lesson you can take anywhere.

[\(04:12\)](#):

And then probably the final one I'd say is... And this is more on, I kind of sometimes refer to this as the tough love at end of the spectrum. Sometimes people think that doing their job well is if you like what they should do and that should get them noticed. And I think what I've learned is that doing your job well is what the organization expects of you and thought that it had hired you to do. If you want to do well and progress and be seen, then you need to do more. You need to contribute more, you need to make a difference. And that's of course what makes good organizations into great organizations if everybody is doing that bit more and digging that bit deeper. That's the differentiator normally between really good companies and great companies.

Kate Kenny [\(05:03\)](#):

Well, I was nodding furiously when Heidi was talking about purpose because I think a real lesson for me is being very clear about the why to yourself and to others. And certainly, when I think about how we work with clients, it's about really listening to their needs and making sure that we understand the why.

(05:26): It's funny when you do that kind of five whys piece, "But why? But why? But why?", and really get to the heart of the issue the solutions that you might be presenting could be completely different from your starting point. So really taking the time to listen and understand the why. I remember very early in my career I was doing technical transport modeling and a lot of the tasks I was given to do were very tactical, "Create this spreadsheet." And I found I was much more effective if I really understood the why behind it and it wasn't just doing the task immediately in front of me. That piece around purpose is really important.

(06:11):

It's interesting because you've reflected on our different backgrounds, and I think diversity and inclusion have been a very strong theme throughout my career. I remember very early days I was a non-engineer and a team of engineers, and probably like Heidi, I'm often been the only woman in the room. And early on I felt this kind of desperate need to want to be like everyone and to wish to conform. I remember having a kind of waking up point in my career when I realized the value that I had is where I'm different. And I've absolutely seen the evidence of the impact of diverse teams and having diversity of thought and having project teams that reflect the communities that we're trying to serve. We come out with much better outcomes. So, inclusion and diversity is absolutely at the heart of what we try to do at Jacobs and also very important to me.

Arthur Jones (07:19):

Amazing. You can definitely hear the similarities with purpose, with culture, with people and the types of leaders you both are, which is fantastic. And I think that leadership is a key change over to the next question because if we look at the challenges of the water sector, I mean the expectations are hugely ambitious when looking at the next two investment and asset management periods that are set by the regulators. So the scale of the challenges in the projects have grown immensely and will require transformational change across the sector.

So, this is where your leadership will come in. And the question is, how can all industry players come together to find a way forward that offers the best outcomes for both customers and the environment? Heidi, I'll start with you again on this one.

Heidi Mottram (08:02):

I think the first reflection I've got on why have we got these challenges is that... And it's a complicated sector, isn't it, that involves government, customers, stakeholders, regulators, companies. So it's a matrix that we're working in and it requires people to be aligned in that matrix and attempting to move towards the same things. In a way, it comes back to some of the things that Kate and I talked about before about purpose and vision and direction, doesn't it? And I think that we need to learn a lesson here that people were not aligned in past years for a variety of different reasons, I think it's that alignment of long-term thinking that is absolutely critical in water. This is a forever game both from an environmental perspective and a kind of life perspective. It's a forever game. So long-term thinking is absolutely critical and alignment of thinking is absolutely critical. So these challenges going forward I think are a function of the fact that we've had a lack of alignment and now we're trying to get ourselves back into a period of alignment and that's going to take some exceptional effort for a period of time. But once we get there, we mustn't forget and start getting disaligned again. We need to stay aligned and keep thinking: Where are we trying to get in the next 25, 30, 50, 60 years?

(09:31):

But I feel that that alignment is coming. It is still got its challenges, I think. Obviously, we're going through the regulatory reset and we don't quite know where is that alignment going. There are many voices at the moment, but alignment I think is absolutely key. And if we can get that, then I actually do think that the sector, in a more tactical sense, I'd say at the moment is working hugely well together in looking at solutions to these problems and sharing information.

(10:03):

I mean, and a great example of that, we might talk about it later in a bit more detail, but Northumbrian Water began in 2017 our Innovation Festival. And that was always intended to be a place where in an completely open sense, people who had something to contribute. And not just the sector, other people as well could come together and think about those long-term issues and what could possibly be the answers.

(10:28):

One thing I love about it as well is that we bring school kids of all ages there because they're our future too, and say, "You ever think about these things too. You get involved in this as well" because this is for them, isn't it, really in pretty short order. So I think that open forums, conversations, but probably much more of a focus on making sure that everybody who's involved

in this matrix and supply chain and Jacobs would be an absolutely critical part of that. And that's why the living water enterprise is so important because that's all about alignment as well, isn't it? Is we all know what we're doing, why we're doing it, we believe in the same things and we're moving towards it. I think we've been off the boil on that. Now is the time to get well and truly on the boil about that.

Kate Kenny (11:16):

Well, just to back up what Heidi said, we all have to come together on this because this is about delivering critical infrastructure, critical solutions to society, to our country. So it's a national issue that we need to get behind. We are not going to be able to deliver what is needed from the water sector unless we're doing things together and we are doing them differently because look at the range of issues that we're facing around water scarcity, around flooding, impacted waterways. We really have to get behind solutions for these things to drive the right outcomes.

(12:00):

And Heidi mentioned the Northumbrian Water Innovation Festival. What I'd really love to see there is different water utility companies coming together for the greater good. One of the pieces of work that we've been involved in through the festival is the Water Cookbook, which aims to bring several different water companies together to standardize designs in common equipment so that they can be delivered more efficiently by suppliers across the industry, which is absolutely critical for scaling up for the next Asset Management Period, AMP8. The other piece is collaboration outside of water sector too. So really looking at place and players across different industries coming together, offering holistic programmatic approaches. So looking at individual projects as part of wider outcomes, bring together local authorities, utility companies, energy, water, looking at those nexus opportunities too. There's so many opportunities for collaboration within the water sector, but also bringing other sectors in.

Arthur Jones (13:16):

It was really interesting to hear about the points of alignment and obviously collaboration because I mean one of the major themes in this podcast is collaboration. So to explore this and the shared company values that you've both spoken about in the beginning, I'd like to talk about the biggest partnership to date between your two companies as Jacob's last year was appointed as Northumbrian Water's strategic technical partner. Heidi, would you like to talk us through the partnership and how you see your customers, communities, and your company benefiting from it?

Heidi Mottram (13:45):

Yeah, so this partnership approach, I would say that this is an evolution, not a revolution for us because we, and it's one of the reasons that attracted me to the company to be honest, have always been an incredibly open collaborative player in the sector that we're in. So the Innovation Festival became a bit of an accelerator of that and many people involved in that, including other water companies. But this new approach through the enterprise and the thinking I think is the next step, if you like, the next step up, where if we get this right, you wouldn't have a clue who worked for who in the process.

(14:34):

If people start talking like that, I'll know that we've got this absolutely bang on because it just feels like a group of experts in their field attempting to solve things together in an aligned way and in a way that moves us towards our vision. So I think that's why it's incredibly exciting, isn't it? Because I think we've done partnership before many, many times. We've definitely done some projects in the last 10 years that I've observed where we've got us for some particularly to do with technology where we've definitely got ourselves into a place where nobody would've had a clue who worked for who. So I think that this is the real definition of that.

(15:22):

All the signs that I can see at the moment are pointing towards the fact that this is how it's going to go. But I guess we're all slightly waiting to find out what happens next because Ofwat plays quite a large role in approving or not approving what we all think we're about to set about doing. So there's a slight hesitation. But underneath because we've decided to accelerate some of that work, already the beginnings of that real, we're all together, we are all facing into whatever the particular job is and we'll keep looking at that and testing that and thinking about how does that feel. And that's something we're very used to. I'm certain that Jacobs are used to it, going, "Are we really living our values here? Are we really doing the why as well as well as the what?"

(16:17):

So I guess only time will tell, but I honestly think that it will be a real accelerator. I've worked in a number of versions of this, albeit not on the same scale and seen how much more is achieved when people pull together in this way. And you end up with either ideas you never believed you were ever going to have. Sometimes it can lead to additional activities that you never thought you were going to do, so you end up doing more work for what you thought you were going to be able

to do. Or you get funding streams or other partners coming in and going, "I want to be a... Can I play along with this?" ([17:00](#)):

And I'll hand over to Kate in a second, but I think a great example of that would be the way that we think, for example, on catchments. And the minute you start to think about a catchment, you bring the hold of society in, right? Because people who live in those catchments, sometimes they're organized into activated groups like NGOs, but sometimes they live in villages and towns and they're organized in that. They'll organize themselves in lots of different ways, but they are players in that catchment. And then bringing those into a partnership is that's when you really know you go in where you need to go.

Arthur Jones ([17:37](#)):

Thanks, Heidi, that was great. It was great to hear you expand on the opportunities as well beyond what this partnership can bring. And, Kate, on that note, could this be seen as a blueprint for the rest of the industry?

Kate Kenny ([17:50](#)):

Oh, I have no doubt. I mean, firstly, just to say how thrilled we are to be a strategic partner to Northumbrian. It's really important to us that where we do have partnerships, there is strong alignment in ambition and in values. And I think that's already coming through as part of this podcast, which is really great to see. I remember the first time I met Heidi when we had been appointed as a partner and we had a discussion about alignment and I said, "Heidi, how can I help support you? Please know I'm on the end of the phone if anything goes wrong, when you want to talk about anything." And I clearly remember her response, which was, "We know you can deliver. I trust you to do things right, so let's work from that assumption. What I really want to hear from you is how we can do things better together. How can we innovate? How can you bring ideas all around the world?"

([18:47](#)):

And I think it's really that opportunity to innovate that excites our staff, being part of a team and that piece about being one team with all of the organizers involved has been a very clear intent from the start for us. We don't want to be able to see who is Jacob's and who is a partner for another organization. It's one team. And we're so pleased to be working on quite a few innovation projects, whether that's looking at mainstreaming nature-based solutions, whether it's looking at an asset

health demonstrator, this really is the cutting edge. And I think the culture around this really helps with innovation which will support outcomes for the wider industry too.

[\(19:36\)](#):

I think another piece, and again this came out of discussions with Heidi too, is absolute commitment to adding value to local communities. So there are very clear social value ambitions attached to this partnership and these are being measured through target outcomes and measures. So we are really working hard together as a partnership to embed these within benefits realization systems and ensuring we're tracking and driving these benefits so we can really demonstrate doing something tangible for the wider environment and society. I think that connects back to that purpose piece. This is really purposeful, the work that we're doing together. And it's really exciting. We're so pleased to be part of it.

Arthur Jones [\(20:27\)](#):

You both speak a lot about purpose, which is really interesting as a thread throughout these answers. And I think it's really connected to the next challenge that I'd like to bring up, which is, companies across all sectors are facing a massive skills shortage and the fight for talents. So not just among water companies but across other verticals too. So the main challenge is not just to recruit talent needed, but also to ensure we're focusing on true inclusion and diversity, which you mentioned in the beginning, Kate. So what are the tactics that you're both implementing to ensure your company continues to build these diverse inclusive teams? I'll start with you, Heidi.

Heidi Mottram [\(21:02\)](#):

Okay. I mean, you're absolutely right. And I was delighted when, Kate, when you asked her about her sort of leadership thoughts earlier on. I mentioned this because I'm exactly in the same place as her in terms of the value of diversity and what it brings. And for that, when you're talking to people like me and Kate, we mean diversity in all its forms, that gender, ethnicity, background, education approach, everything, right? And to a degree, you actually have to be very thoughtful about that. And because you can convince yourself you've got it quite easily if you're not careful. But even people within that context can slide into groupthink if you're not careful. So it's just one to keep an eye on.

[\(21:56\)](#):

But in terms of recruiting people, I was doing a site visit yesterday at one of our water treatment

works, and I think this sort of brings it to life in a way. So there was a couple of people there who'd joined us in the last little while. One of the individuals was talking about where they'd worked before not in the water sector, but not doing not dissimilar things, but had been really quite taken aback at the difference in culture in Northumbrian Water and how much more respected and empowered they felt. So I think things like that are what people are looking for when they come in. "Can I make a difference?" Within obviously the context of what the organization is trying to do, if you encourage I make a difference for any old reason, you get anarchy. And you have to have some kind of process within your working. (23:00):

Another person had joined, this was a graduate who joined, a female who'd been doing a discipline completely unrelated to water, but could see how her approach to analytics was going to fit in around here. So she was on a learning journey, but being amazing in an incredibly short space of time. And I suppose I mentioned that because I think it's okay to bring people in. And the water sector I think is often very keen to worry about whether or not people have got technical capabilities. I think it's really okay to bring people in who've got no technical capabilities because most of the things that we could do, you can train them to do actually relatively quickly. But their thinking and their approach and their experience from elsewhere is super, super valuable.

(23:51):

So we have an inclusion strategy, a diversity strategy, it's called TIDE. I'm delighted we've got some awards coming up about it. So really, really cool. And that's the way you do it in a kind of control measured process way. But don't lose sight of the real life, real people elements of that and being brave about that and being, "It's okay." Before I say it's all about bringing people in, I do also value hugely, and I've always valued hugely the people who have been here a long time and what they bring and the deep knowledge that they bring. And it's this wonderful combination between the two. Some people going, "Well, why do we do that? Why do we do that?" Other people going, "Well, not necessarily we've always done this, but here are some reasons why we might be doing it that way." And then the two of them working together to go, "Well, could it be done a different way?"

(24:44):

So I think, that strategic approach is, our program is called TIDE, but being a great place to work, being an exciting place to work, being in something like the Living Water enterprise where possibly your working life could mean not wandering around inside all these other companies. And that's being an okay thing, right? I'm excited and looking forward to people being able to do that, just wandering off into Jacobs and coming back after a while would be really cool and vice versa. So all

of these things are going to help us. And then the word goes round, right? One thing we do know is that people communicate with each other much faster these days. So these are the things that say, "This is a place you want to be. This is where it's at. This is a good company or companies to be a part of" and you want to be in play.

Arthur Jones (25:38):

Amazing. Thanks, Heidi. Kate, do you want to add your viewpoint to that as well?

Kate Kenny (25:43):

Yes. Well firstly, Heidi, I'm very happy to talk about common opportunities. That sounds like a good discussion next time we meet up. Maybe I'll reflect first on how we're addressing the skills shortage because we know the water sector has a skills gap, and we'll have even more of a skills gap as we look into the future. And then I can talk a bit more broadly around our approach to inclusion and diversity. (26:13):

So in looking at what is needed over the next couple of AMPs in the water sector, we reckon it's a huge challenge for skills. We don't want to play in a zero-sum game, where we are just exchanging staff between our competitors, between our clients. What we really need to do is extend the skills and talent base facing the water sector moving forward.

(26:44):

So one of the things that we've done is we've stood up a water academy at Jacobs. So this really focuses on increasing our capacity and capability, and it's an internal training program to equip our people with sector knowledge. So we've taken people from a wide range of sectors, backgrounds and disciplines, whether that's nuclear, transport, highways, people with transferable skills in project management, asset management, and given them training so that they can access career opportunities in the sector. This has been so well received. The people that have been on this program have absolutely loved it. It's opened up their opportunities in terms of the careers for them. But also back to our previous point, it's brought some diversity of knowledge into the solutions that we're providing for clients too. So that's been really positive to see and we will keep that going.

(27:47):

I mean for Jacobs, inclusion is one of our core companies views. It's absolutely central to everything that we do. And I'm really please, Heidi, to hear that your approach is being recognized

for your award. We have also received awards for our approach to gender equality for investing in ethnicity and social mobility too. And actually, I only, last night, had the review of my business performance and of course we looked at financial metrics, we look at safety. The huge part of that is about people. It's about how are we driving the diversity agenda so our leaders are held to account for the inclusive culture that we provide, but also are we driving tangible impact in this space? So, incredibly important to everything that we see.

Arthur Jones (28:42):

Thanks, Kate. You briefly mentioned safety in there, which I think is a great segue into the next question. Health and safety and wellness of your employees is a priority that you both share. But Kate, what are the best health, safety and wellness trends and initiatives that you've seen in the industry?

Kate Kenny (29:03):

Thank you. It is incredibly important. So we have a beyond zero culture we're really, really proud of. And I would say that our wider culture really stems from what we do in safety because we care. We have a culture of caring. So we care that people go home at the end of the day. We care that we deliver great outcomes to society. We care for our colleagues and their mental health. And we care about our work. (29:32):

We talk quite a lot about the demands of working in this sector, and I'm very conscious that this could have an impact on our people. So we are really driving an increased focus on mental health in the workplace at the moment. We have a great app called One Million Lives where people can do a daily check-in on their wellbeing and it gives people great advice about how to improve their mental health and also puts towards resources to provide further help.

(30:03):

So mental health is a really, really important one. I think there's a big piece about data-driven safety as well. And I'm very conscious because I'm Apple Watch wearer and I find tracking my health and fitness really useful through my watch. Using the data that we have across our businesses, sharing that data with our clients to really start to predict issues, kind of what's emerging trends in safety is a very big trend around what's happening around HSC at the moment. And AI of course is a great opportunity to help support these developments and ensure that we're targeting safety interventions in the right place. (30:53):

The last point I'd make is we're all working differently to how we were pre-pandemic. So I think the process of going through the Covid pandemic has taught us we need to manage safety in an agile way in different types of environments. So ensuring we provide and equip our people with the knowledge of how to work and keep themselves safe at home, in the office, in different offices on site is really important. And we are using virtual reality tools to help replicate various scenarios that people might find themselves in to make sure that they're making the best possible decisions to control the peak around them and our environment.

Arthur Jones (31:37):

Heidi, would you like to share some of your health, safety and wellness trends that you've seen or initiatives that you've seen in the industry?

Heidi Mottram (31:45):

Yeah. So having worked all my life in industries where I would say there's quite a lot of hazard. So in trains, obviously big pieces of metal moving around at speed. And in the water sector, similar things, complicated machinery, chemicals, all that goes with that, is this really interesting interaction between, maybe I'd use the language hardware and software. So I think as organizations, we do have to take incredibly seriously the way that we structure things in the hardware sense, the way that we build things together in the interests of safety and not just, if you like, operational outcomes that we plan for that, we try to eradicate as many risks as we possibly can in the way that we're going about things and all the systematic elements of that. And there needs to be a huge amount of attention to it in a high level of discipline around process safety and what we're thinking about because that's normally where the really big hazards sit and we need to do a lot and think a lot about that. And it's forever at the front of the minds.

(33:02):

I think of the water sector, thankfully, generally has I think a reasonably good record, but it was all brought home to us just a few years ago with a very bad accident in Wessex associated with gas. So, these are serious things and we manage serious things. And so you have to have a very serious head on you and a sense of chronic unease. But then you're coupling that with human beings and they are software and they don't behave in the utterly predictable way that a machine or a design will. They interact in their own way. And so how we train them, the skills that we give them, the culture and the way things are around here and why people do things around here is a relentless element of this as well, because people do have different risk appetites. You've only got

to see what they're like the minute they get behind the wheel of a car to know that.

[\(33:59\)](#):

So, in all of these, I'm always thinking what's the systematic, what's the hardware approach, but what's the software approach and the people approach and how do we get these two things working together such that in the same way that Kate articulated it, the goal. I feel this very personally, and I think everybody in the organization feels it very personally about themselves and everybody else around them, the job in hand is to get everyone home safe every day forever, right? And I can never rest easily on that one. Chronic unease is always there.

[\(34:36\)](#):

So I think all of those need careful attention from organizations and sharing of best practice. And we do have a safety collaboration in the enterprise, which is great and we're learning a lot from each other. And then we sort of went into the wellbeing side of that of course, because people can only be the best that they are in that hardware software interface if they are feeling the best that they can be. And I think organizations in the last little while have really understood that a lot more than I think they probably did in our earlier careers, when perhaps people were left to determine that themselves or manage that themselves. I think we're much, much better at helping people be physically well and advising them around how they can do that and giving them help and supporting that or mentally well so that they can be the best person that they can be in this safety management system that we're operating, which is this interface between hard things and soft things in order to do everything exactly as we need to do.

Arthur Jones [\(35:39\)](#):

We've been talking a lot about innovation and collaboration throughout these answers so far. I mean, if we combine all these sector challenges we've been mentioning, I mean including obviously climate change, population growth and affordability, there's a much heavier reliance on bringing new ideas and solutions to the market. So, Heidi, going back to the innovation point, how do you drive innovation in the water sector through your company?

Heidi Mottram [\(36:05\)](#):

So this was something that going back to probably around about 2015, '16, we were giving some thought to... I would've said and still would say that there is a lot of embedded innovation in this sector.

I get deeply frustrated when people say that the sector isn't innovative enough. That's mainly because they just don't know enough about what's going on because I think the sector is also institutionally modest, so it doesn't tend to shout about it.

[\(36:32\)](#):

So we wanted to make a bit of noise and say, "Actually, look. Look here we are doing something," but also to create the environment. So I think everybody knows now. It's incredibly well known. The festival was the tool we chose to do that and it was intended to be open innovation, bring whatever challenge you want, take away whatever you want. And we continue to be, and our approach is open to innovation, not sort of trying to hot house it inside our company and then pass it on. We just get involved, take whatever you like, whatever you want to do. And I think that's an openness.

[\(37:08\)](#):

But there's also, and our collaborators and our supply chain have just couldn't have piled in more of that really, so it's working incredibly well. And we also say inside the company that innovation is everybody's job. So we don't have an innovation department, we say it's for everybody. We provide a framework for some people who might want to be accelerators in that so they can be ambassadors. And there is funding around that that they can use in order to... Because we can't leave them on their own so they can work in a supported environment around that. But anybody who wants to be an ambassador can play. And we do have everything from people building stuff and doing things in their garages through to some really super high-tech stuff, particularly in the digital space where digital twinning and predictive analytics and all that kind of stuff is getting super clever now and all spaces in between.

[\(38:11\)](#):

But the Innovation Festival has been the generator of most of our pipeline. It creates a fabulous pipeline every year of about 50 or 60 ideas. Many of those will fall away, and that's okay. Everybody understands that that's an okay thing with innovation. Failing is fine. But we're getting a steady and very, very effective pipeline from that. Not all of it actually, which is directly applicable to us. Again, back to the open thing, we've no bother if we're working to help somebody else with something somewhere because we'll get that payback 10 times over because they'll come and help us with something, right? [\(38:51\)](#):

So that's how it works for us. There is definitely a structure. It's a very open structure, it's a very inclusive structure, it's very driven. And I think because it's become as successful and well known as it is, it's sucking more towards... I mean, for us to get 3,000 or 4,000 people from around the

world involved in that every year is phenomenal and I feel incredibly proud of that and all that it's achieved.

Arthur Jones (39:18):

It sounds like it's become embedded into your culture and it's part of your company now. Kate, on your side, what are the most exciting innovations you've seen in the water sector?

Kate Kenny (39:31):

That's a big question. I mean, when you mentioned innovation, I think my head immediately goes to digital and new technologies. And as part of our Digital OneWater approach, Aqua DNA, I think stands out for me. So Aqua DNA is an intelligent digital solution. It collects live data using sensors, smart sensors and AI powered analytics to improve wastewater network performance. And we've really seen that be successful in reducing risk, moving from reactive to predictive response issues and making a really significant positive and societal and environmental impact.

(40:23):

I think a key takeaway for me is innovation doesn't always have to be related to technology and digital solutions. Sometimes it's about a different business model, sometimes about changing a culture, sometimes it's about partnerships and new ways of working. So we've got some really exciting things going on looking at the nexus between the water industry and energy, for example. So we're looking at a technology that uses methane generated from wastewater treatment and turns that into hydrogen and high quality graphene. That's really exciting as well on that nexus.

(41:09):

But also, Heidi talked about Northumbrian Water's living water enterprise and that collaborative delivery model where organizations come together to deliver a really ambitious program, so kind of a ways of working piece. We have something similar happening with Greater Manchester too, looking at an integrated water management plan. And there's huge efficiency around looking at this. And also the funding opportunity when you bring different organizations together to look at solutions to one problem is fantastic. There's such a range of things around innovation.

Arthur Jones (41:57):

Brilliant. Thanks, Kate. I'm going to move on to another challenge now in terms of the industry and sustainability. It's one of the key focuses of the water sector going forward. What are the biggest

trends and opportunities you've seen in driving decarbonization in this space? And I appreciate this is another massive question to answer, but if I can start with you, Kate, on this one and then I'll move on to Heidi.

Kate Kenny (42:16):

Yeah, it is a massive question. I mean, I think if we look at this really holistically, we need to decarbonize the electricity industry because if we've got a decarbonized grid, that will really support the outcomes that the water industry is trying to achieve. So grid comes first and it'll have knock-on impacts for all kinds of sectors.

[\(42:41\):](#)

There's a big piece about operational carbon. So what carbon do we use in water operations and how do we reduce that? We're currently working on an off-water funded carbon reduction project, which is looking to reduce greenhouse gases, cut down on electricity use and produce green hydrogen during wastewater treatments. That's a really good example there in operations. And then there's a huge theme at the moment around embodied carbon. So there is a lot of construction planned in the water sector. And more broadly moving forward, how can we reduce the carbon that is in the materials in construction of huge amounts of time and investment is going into innovation there.

Arthur Jones (43:32):

Heidi, can I get your take on that question?

Heidi Mottram (43:35):

Yeah, absolutely. And I'd actually just make a little... Because we were talking about tools for innovation, I think we should make a bit of a shout-out to the Innovation Fund, Ofwat's Innovation fund, because I think that's been a good accelerator between companies. And we've participated massively in that. It's been a really good way of sharing ideas, another open innovation approach. I think that deserves a lot of credit, lot of things that are going on within companies.

[\(44:06\):](#)

So yeah, I mean, I guess on the decarbonization, Northumbrian Water has been on quite a long journey here. It's been thinking about this for a long time, and that's a lesson in itself, right? We are in what we would all describe as an emergency now. So working faster is important, but some of

these structural changes take time. And so that feels, I think, a very near and present danger for me to move fast and get on with this stuff because it's not we can't be messing about.

[\(44:40\)](#):

So I guess Northumbrian Water, two thoughts really, going back and we're talking about 2004, '05 when this thinking started at the company before I joined, but around renewable energy. So they made, I guess, two big plays at that time. One was investing in hydro. We did have a pretty big hydro on Kielder Reservoir at the time, but the company was invested in hydro and a number of other of the big reservoirs in our network. And that journey's gone on into various other versions of big and small hydro. So using the power of water, not surprisingly was a thing.

[\(45:20\)](#):

But advanced anaerobic digestion was our biggest play, and that's become reasonably mainstream, but we shouldn't lose sight of the fact it's only in water. It's only about 10 years old, 10, 11 years old. It went from being a very nascent technology to a huge technology very quickly. And it was a very brave decision. Again, one taken before my time for the company to get involved in that and to also build a strategy around that so that 100% of our sewage sludge went through that advanced anaerobic digestion thermal hydrolysis process.

[\(46:00\)](#):

We're still the only company that has 100% of that. That's been an absolute game changer because if you go back to 2008, we were emitting just over 300,000 tons of carbon by the same measurements. And I say that because the way carbon's been measured has changed over time, but let's say that's a baseline that we can follow that would now track down to around about 21,000 tons, right? That is a remarkable reduction, a remarkable. And AAD has played a central part. Some other things to do with helping fund offshore wind and other moves as well, but those are really key.

[\(46:39\)](#):

And then Kate sort of touched on a few. Now I think we're into, particularly around hydrogen. This is not an easy thing to do, extracting hydrogen from water. They want those two molecules that quite keen hold onto each other. So we are working out how to do that without using the wrong kind of power is quite a tough thing to do. And the whole world is looking at this one because they can see it as a game changer. So we are playing strongly in that space now because we do have that chemistry, if you like, particularly in the wastewater side of the business. And so seeing how we can do things that crack that literally and metaphorically is really key at the moment.

[\(47:29\)](#):

The biggest thing still facing us that everybody's struggling with is the fleet, because with Covid and the production of vehicles and also the technology about not so much about the little vehicles that's cracking on, small vans, low payloads, great big vehicles, we go with biofuel. It's those middle vehicles that are the big problem for us at the moment and what's the answer. And lots of people are still struggling with that. So that's the biggest part of our 21 odd thousand.

[\(48:04\)](#):

And then the final thing, which because I did allude to that change in measurement, I think along the way we've understood that we were addressing certain elements of carbon, but there is still a fair degree of processed carbon that was not well understood that we're trying hard to understand now and then, which is around wastewater treatment and how to effectively deal with that. So that's kind of a new challenge that's come up along the way, but we're well on with that.

Arthur Jones [\(48:33\)](#):

I just want to say thanks to both of you because the level of insights you provided has been amazing. It's both fascinating to hear about the challenges you face, but also about the parallels between the both of you as leaders. So my biggest takeaway is hearing from you both the power of purpose, the culture, shared values, and having diverse and empowered teams. I think it's part of the solution going forward. So thanks very much for the talk today. I appreciate it, and thanks for spending your time with us.