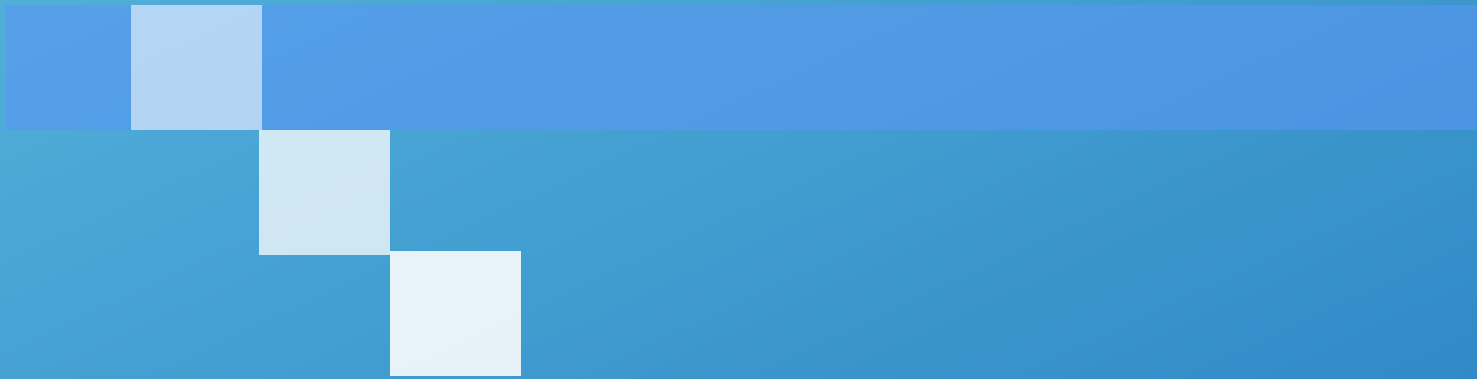


New Developments in Water Technology

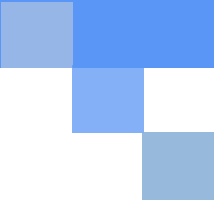


What is happening in water?

23 TRENDS for 2023

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Introduction

The European Water Tech Accelerator has met a lot of European and non-European water start-ups since launching two years ago. Start-ups set the trends for tech innovation.



What have we seen so far?



What do we see emerging?



Not yet mainstream but with great potential to disrupt the sector



Set for a downturn or a revival?



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What have we seen so far?

1

Energy is top of the list

The rising price of energy and the push for net zero carbon means that energy is a key issue for water utilities, water consuming industries, and for consumers. Relevant and efficient innovative technologies that can simultaneously address water and energy, from using AI for pump optimisation, to water saving showers, have started to emerge.

2

Artificial Intelligence everywhere

For the past 10 years there have been talks about AI in the water sector without much evidence of it actually happening. But slowly we are seeing AI in leak detection, pump optimisation, water quality testing and more, and this year will see rapid growth in AI applications for water. In fact, 90% of the start-ups we meet, have somehow integrated AI into the tech, product, or service they develop/market.

3

More on membranes

You could be forgiven for thinking that every type of membrane and every increment of membrane efficiency had been squeezed from the sector. However, there are more start-ups wanting to revolutionize the membrane area. This year is likely to see more advances in longevity and efficiency.

What have we seen so far?

4

Domestic water quality

The bottled water industry grows year on year, despite the high quality of tap water and the environmental impact of plastic bottles. This has led to a growth in start-ups developing technologies to check and filter tap water. Interestingly, these start-ups are more US-based than European. We will only see this trend continue. It is likely that it will push utilities to interact more with customers on quality, including in Europe.

5

Wastewater treatment

Innovative wastewater treatment technology is about to become mainstream – whether it is for treating emerging pollutants or hard-to-treat substances, or retrieving rare earth metals, we have seen many new technologies arising on the market. We are also seeing new techs being able to clean polluted water to make it drinkable or at least to a reusable standard for irrigation purposes. What is still to be demonstrated is the scalability of these techs, as they are usually CAPEX intensive.

6

Network optimisation

To date, start-ups' focus has mostly been on leakage management and reduction. It has become a crowded tech area, albeit much needed in view of the potential new European requirements to meet leakage targets, but we will also start to see companies expanding their horizons to look at all aspects of network management.

And what do we see emerging?

7

Robots in networks

2023 will be the year when we see a whole variety of robots, drones, sensors released into water and sewerage pipes, mapping networks, detecting leaks, checking pipe integrity, searching for blockages, and undertaking repairs. Almost all the examples we see have AI functionality and can therefore predict as well as detect failures.

8

Water quality monitoring

Ubiquitous sensors is a term you hear at every innovation conference and seminar but it is not happening on the ground yet. We are starting to see more and more water tech start-ups focusing on sensors. These tend to be multi-parameter, real-time, cloud enabled sensors that can be deployed for water and wastewater quality assessment. As soon as these hit the market, we will see a revolution in water quality data as long as the regulators can keep up!

And what do we see emerging?

9

Nature-based solutions

Nature-based solutions have proven their tech relevance in delivering sustainable urban drainage, natural flood alleviation, and catchment management for water quality. Yet not many start-ups have been set up in this area, most likely because of the need to find the right business model, hopefully, this will change over the coming year.

10

Domestic grey-water

Simply taking shower water and using it to flush the toilet can save 30% of indoor domestic use. The past couple of years has seen domestic grey-water reduce in price and footprint and this year we will start to see wide-scale roll out of affordable, low maintenance, domestic grey-water especially in new build. Nonetheless, like for nature-based solutions, not many start-ups operate in this area, because of the business model

And what do we see emerging?

Graphene

It has been almost 20 years since the definitive identification of graphene and every year since, we have been told about how it will revolutionize everything, including water treatment, but with little tangible evidence. However, we are now starting to see the commercial use of graphene in the water sector, and this is likely to grow rapidly this year.

Prop-tech meets water-tech

From leak detection for buildings to intelligent water use controls, 2023 will see a growth in the uptake of water tech for buildings, and this is much needed. This is still a niche market, as not so many start-ups have developed techs for buildings.

■ Not yet mainstream but with great potential to disrupt the sector

13. Tailored wastewater treatment

Biological treatments have been used for ever, but emerging start-ups are developing more and more sophisticated tailored treatments for rivers, coastal waters as well as treatment plants, specifically designed to deliver a specific outcome and quickly act to do that (eg enzyme treatments) rather than the current generic treatments

14. Biomimicry

Could we clean water as efficiently as a kidney does? We will see a rise in water tech that replicates natural process leading to greater efficiency.

15. Toilets

Perhaps this year will be the year we eventually re-invent the toilet!? Air assisted flushing, no-leak toilets, nutrient separating toilets, they all exist but they are still niche and hopefully investors will realize that saving and retrieving water and valuable phosphates and nitrates is a money-making idea.

■ Not yet mainstream but with great potential to disrupt the sector

16. Self-healing pipes

It has been talked about for ages, but perhaps we will start to see the rollout of pipes that can repair their own leaks this year.

16. Digitized infrastructure

Water utilities need to get a handle on their assets and hopefully we will start to see wide-scale tagging and digitizing of infrastructure which will open up a world of possibilities for other innovation.

18. Localized infrastructure

This year we will see a move globally to more localized and distributed infrastructure with businesses going off grid and using more rainwater, grey-water, and localized treatment.

■ Not yet mainstream but with great potential to disrupt the sector

19. Citizen science

From monitoring of sewer overflows to documenting river flows, citizen science is already contributing to the water sector. This year should mark a sea change in the way this is viewed, hopefully we will see more collaboration between community groups and utilities and more open data enabling the public to contribute to and engage in decision making.

20. Personalized water

We all want to be special, a premier service customer, a valued customer with added perks to the basic package. We get this from our banks, our media providers, our mobile phone companies, but not from water. Customer service will have to become an innovation area too.

Set for a downturn or a revival?

#21

Atomized flow –
it is easy to deliver a 90%
reduction in flow rates for taps
and showers, but the
technology has not had much
traction to date. However, with
some major retailers adopting
this tech, the price and
availability are likely to drop,
and we could soon see a
revolution in hand-washing and
showering

#22

Water to air –
There has been so much hype and
so much misguided investment in
this area. Will this year see a
realization and a rationalisation that
paying huge amounts to
produce a few litres of water from
air is not efficient? And then perhaps
we will start to see investment in the
real players who are designing
systems that can produce mega
litres per day or deliver tailored
solutions for disaster
relief.

#23

Smart rainwater storage -
There are
already smart rain storage
solutions, which use weather
predictions to vary their storage
in advance of storms, it works
but still is not widely adopted.
Will we see a big growth in this
technology as businesses and
households try to live with a
changing climate?

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