

Innovative startups getting lost in the maze of the water industry. And why water utilities hold the key



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About this article:

This article is a monthly op-ed from Dr. Wim Audenaert, CEO & Co-founder of AM Team, as he explores the challenges and opportunities of “waterpreneurship”; the art of building and scaling startups in the water industry. While innovation is critical to solving global water and climate challenges, entrepreneurs often find themselves lost in a maze of long adoption cycles, fragmented markets, and entrenched incumbents.

AM-Team delivers modeling and data services and digital twin solutions for water utilities, industrial users, engineering firms, and technology providers. We tackle planning, design, operational and digitalisation challenges by combining deep process and industry knowledge with modeling and digital expertise—ensuring models and digital twins that create real value.

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Not so long ago I had a meeting with a global corporate working across various process industries including pharma, food, chemicals, biotech ... and water. You'll know the company for sure. The person asked: "Why is AM-Team focusing on this budget-scarce and difficult water industry, while you guys could make plenty of money in other process industries using the same skillset?"

What I then experienced was an interesting mix of thoughts and emotions. I kind of reexperienced the most difficult moments of our business journey combined with a feeling of pride of what we had achieved.

Ultimately I answered: "It is because of the societal impact of the industry combined with good business as a result of being the best in a niche for a long period of time".

The last 4 words are very important: the water industry requires huge amount of time and 'flying hours'. Something not many entrepreneurs are willing to invest.

Already for a while, I wanted to write about launching and growing a business in the water industry, something I like to call 'waterpreneurship'. Innovation that scales is something our society really needs to help solving the many water and climate challenges we need to solve. More than ever, because young innovative companies excel at launching completely new solutions based on emerging needs. It's way more difficult for large companies to go beyond incremental innovation due to multiple reasons including slower decision making and the risk for self-disruption.

Startups number one focus is achieving 'product-market-fit'. But in the water and environmental industry this equals 'societal problem-solution fit'.

Think about that. Startups in those industries can hence cause disproportional societal impact.

However, Houston I think we have a problem. Ambitious entrepreneurs may either leave the water industry or just not enter it. The entrepreneur in Figure 1 one day wanted to change the world but faced too many barriers to create a big company within one lifetime. To be honest, there have been moments at which I also considered leaving the industry. Sometimes it feels like a maze with boobytraps, affecting your ROEI (return on entrepreneurial investment). We need to address this as we miss lots of societal value.

This article describes two waterpreneurship challenges we have experienced first hand. I will also suggest 2 solutions of which one is an important key water utilities are holding without realising it.



Figure 1: Running a business in the water industry often means devoting your career to it. Ideally the entrepreneurial career is bearing fruits in proportion to the efforts.

Why we need more waterpreneurship and scalers

Starting a business in water is easy. Staying small as well, as there's always a subsidy or a pilot project providing some funding. Scaling it in the global mainstream is a completely different story...

So why do we need more of them to start AND scale? It's because the impactful solutions they've developed can change the world. Society would benefit from it if a great solution scales to a level that causes permanent change and adoption. One day, a big company would love to acquire it and if the adoption is brought to permanent level at international scale before that acquisition, it'll be preserved and hence change the industry for good. But these things are scarce.

To give you an example, in the whole history of the water industry, we've had one unicorn (a startup that grew to 1 bn\$ valuation), the water tech company Gradient (I'd recommend following Antoine Walter's LinkedIn posts and podcasts to get such insights).

Have you heard about the chasm? It describes the classical market stages an innovation has to go through to finally reach adoption by the mainstream market (Figure 2). Your first clients usually are innovative water companies willing to test your solution. Bit by bit, more mainstream customers will use your tech and mass adoption follows. It is however critical to reach the mainstream market fast, as the upfront R&D efforts in water are often big and your burning rate can kill you if sales don't follow.



A few leading utilities spread across the world

EARLY MARKET

The water industry curve:

A chasm of a decade

The diagram illustrates the water industry curve, which is a bell-shaped curve divided into three segments. The first segment, labeled 'EARLY MARKET', is colored orange and red. The second segment, labeled 'A chasm of a decade', is a gap between the first and third segments. The third segment, labeled 'The water industry curve:', is colored blue and green. An arrow points from the text 'A few leading utilities spread across the world' to the 'EARLY MARKET' segment.

In the water industry, there are a few leading utilities that are structurally serving as the launchpad of new solutions and businesses. I'll mention a few names later in this article. However, the innovators are not easy to reach for starters as they're scattered around the globe.

But then when you finally reach the chasm, one needs to consider that:

- infrastructure lifetimes are in the order of 25 to 30 years, leading to slow evolutionary tech cycles
- we are talking about critical infrastructure, where risk management will prioritize safe bets over innovation
- while innovators will travel and talk, mainstream water companies will not, slowing down word of mouth and adoption

Challenge 2: The market is a maze

Just imagine you've been successful at a certain treatment plant. Pretty soon after your celebration you'd love to take the next step. More of those! Yet, every plant is different in configuration and size so there's no one solution fits it all. And imagine you've been successful in a specific country. Next step? Other countries. Yet, every market operates differently. Infrastructure, which is largely public, is handled differently everywhere. The water sector has scaling barriers due to the required tailoring within countries and across countries and regions (Figure 4).

This complexity and tailoring has led to very large companies dominating the markets as their size, stability and capital is their antidote against this complexity and associated long sales cycles. It seems like

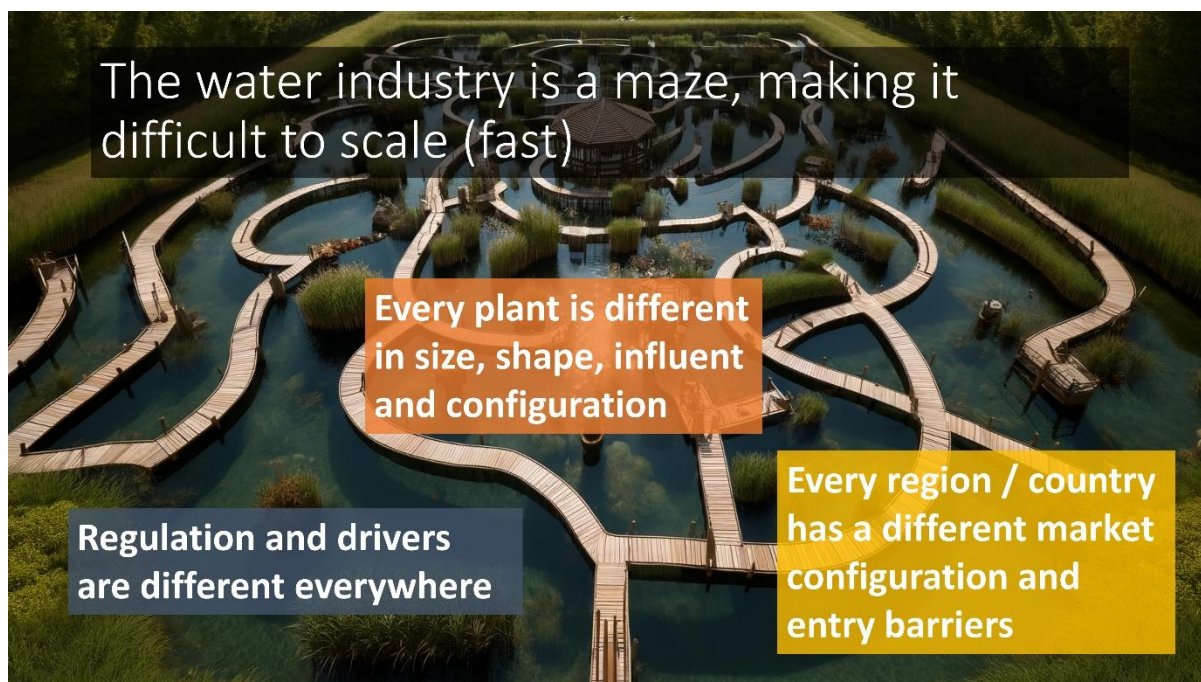
- size dominates over speed,
- risk management dominates over innovation and
- market capture dominates over quality

Why would the dominating parties let you in if the water utilities are not asking for your innovative offering?

Here's a conversation from a meeting I had with a large incumbent in recent years:

- Wim: In this case, our virtual piloting solution can largely replace physical piloting, leading to a fraction of the time and cost spent and more value for the end customer.
- Large company: I agree, it'd add lots of value in this project. However, Wim, you should understand that we earn lots of money with piloting. I don't think I'll get this through in my company.
- Wim: (silent)

Don't get me wrong. I understand them from a business perspective. It's my innovator/impact side that struggles.



The water industry is a maze, making it difficult to scale (fast)

Every plant is different in size, shape, influent and configuration

Regulation and drivers are different everywhere

Every region / country has a different market configuration and entry barriers

Figure 4: The water industry is a complex maze with some boobytraps.

It'll be hard to change the market dynamics and we do not necessarily have to do that. However, what we might want to create is a welcoming environment for young innovative businesses and think about how we can allow more and faster innovation in the public utilities space. The water industry can be a tough environment for innovators, and a hostile one for innovative startups threatening the status quo. Why would you stick out your neck?

Luckily we have some great initiatives, such as Isle Utilities creating a forum for innovative businesses, local funding initiatives such as WaterStart (Nevada, US) or specialised VC firms such as Emerald Ventures thinking along and trying to remove financial barriers, just to name a very few.

But we are quite far from creating an industry that would convince more waterpreneurs to jump and fly. I personally think we need to tackle and discuss this issue at global industry level. Pretty soon, there might be more investment money than waterpreneurs willing to take it.

Solution 1: Water utilities hold a key to global impact but don't realise they're holding it

Some water utilities are known as innovative utilities and often practice 'open innovation'. I heard this terminology for the first time during a keynote of Dr. Sudhir Murthy. Sudhir, whom I got to know very well, back then was Chief Innovation at the American utility DC Water.

Open innovation means water companies actively giving new solutions a chance and creating a safe-to-explore and safe-to-fail culture. They even have specific mechanisms

that facilitate the buying process at this stage. If successful, the technology is de-risked, the waterpreneur has an important reference and the utility has made a leap forward. The first-mover advantage often can also be converted into financial or commercial benefits for the water utility. Talking about a win-win.

For us, for example, the utilities HRSD (US), Waterschap De Dommel (Netherlands), PWN (Netherlands), Dunea (Netherlands), PUB (Singapore) have played super important roles for early adoption. I can't thank them enough for that. Without them, we wouldn't be where we are today.

While the innovators are aware of the impact for their own business needs and potentially their regions or countries, they might overlook that:

- giving this small business the chance to prove themselves can mean the difference between a solution that dies or a solution that reaches global impact years later. Just imagine this startup scales to a 100 million company operating in 30 countries 10 years later. The innovators' societal impact scales along with the scale-up.
- the business then still needs to start crossing the chasm – a complex and risky undertaking

Innovators hence have a potential global impact that is not sufficiently clear. If we'd visualise it and quantify it, innovators would double down and more water companies might join the innovators club because many water companies want to maximise their societal impact. It would be great if the existing innovators would also try to convert other utilities by sharing best practices.

But like I mentioned in the second bullet, the first breakthroughs with innovators are not enough. We need mainstream at our side. And here's what every other water company can do: actively search for new solutions (eg be a member of Isle Utilities, join events etc.) and ask for them in your tendering process. Give innovative businesses access to your management and let them explain how they think they can help you. *Only if you as a water company ask, the market will allow the new solution to come your way. If you don't look for change, the market might block some businesses like a firewall.* Like I said before, there's a gravitational pull for stability or incremental innovation at best.

Solution 2: we should rebrand ourselves

When I talk about our activities to my family, friends or other non-water people, their mouths go wide open. It's hard for them to understand that our business helps solving global water and climate issues. They realise our business is securing their future and we are directly impacting millions of people.

They don't know what water treatment plants are but are interested to listen. Today, people ask questions about water. They're concerned. Water awareness has significantly grown during the last decade, fuelled by visible climate impact.

Yet, how many water professionals are talking about their work outside the industry? How many of us realise the effort and skills it takes to design and run those plants? How many of us are proud? How many of us spread the word?

I still remember the wise words of prof. Gustaf Olsson during one of his keynotes a few years ago: "Do you want to create impact as a water professional? Go lecturing in schools and talk about what you do". What a wisdom. Impact is way more than doing our engineering work. It also includes making society water aware. Scarcity of new water talent? Start with making them aware of what water is.

And I also think waterpreneurship should become a thing on its own. We have so much focus on technicalities and science, but so little on the business aspects and barriers of this industry. Conferences focus on science and issues. So much even that I recently started disconnecting from it. Water researchers and some consultants are so good at focusing on the gaps and details while forgetting the progress, available commercial solutions and bigger picture. With doing that, they unknowingly slow down adoption of new solutions that are, by the way, super easy to criticize. Our events need to include waterpreneurship to balance this. And I think waterpreneurs should exchange experiences and share challenges to navigate the maze faster and more effectively. Mazerunners should run together.

We really need to upgrade our brand as water professionals. What is more important than water??? How proud can we be if this is our job ... or your business?

Conclusions

I hope with this post people will realise more which challenges waterpreneurs are facing. We need waterpreneurship and talented entrepreneurs to help solving society's biggest issues.

But we'll only get there if water utilities play an active role in lowering the barriers in the maze. They really can but often are unaware of the market dynamics at play. The innovative water utilities can be de-risking launchpads while mainstream water companies can dramatically accelerate adoption if they choose to do so. I hope I could explain why this is important and how they can do that from a high level perspective. We'll not change the complexity, but we can facilitate entrepreneursip. And we should become proud of waterpreneurship. Because its damn difficult, but impactful.

Tomorrow, I'll be meeting HRSDs CTO and CEO at Weftec, Chicago. Do you know what HRSD is currently creating? They are building the silicon valley of water tech in Virginia (US). Should AM-Team be part of it 😊? Let me know your thoughts.

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